

UNIVERSITY GRANTS COMMISSION

AGENDA AND PROCEEDINGS

NO-187

31TH JANUARY 1977

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

Minutes of the 187th meeting of the University Grants Commission held on 31st January, 1977.

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The following were present:

Professor Satish Chandra	- Chairman
Professor B. Ramachandra Rao	- Vice-Chairman
Shri K.N. Channa	- Member
Shri G. Ramachandran	- Member
Professor R.P. Bambah	- Member
Professor S.S. Saluja	- Member
Professor(Miss) A.J.Dastur	- Member
Professor Amrik Singh Cheema	- Member
Professor Magbool Ahmed	- Member
Professor B.M. Udgaonkar	- Member
Shri R.K. Chhabra	- Secretary

Professor S. Gopal and Dr. Chandran D.S.Devanesen expressed their inability to attend the meeting.

SECRETARIAT

Additional Secretary

Dr. D. Shankar Narayan

Joint Secretary

Dr. J.N. Kaul

Deputy Secretaries

Shri S. Viswanath
Dr. S.C. Goel
Shri S.P. Gupta
Dr. M.L. Mehta
Dr. T.N. Hajela
Shri Y.D. Sharma
Shri A.B. Gupta

Director (SRC)

Dr. Jagdish Shankar

Finance Officer

Shri R.P. Bhattacharjee

At the outset, the Chairman mentioned about the sad demise of Shri T.P. Singh, who was a member of the Commission from June 30, 1971 to November 3, 1972.

The Commission recalled the valuable services to the UGC of the late Shri T.P. Singh during his tenure as member of the Commission. The Commission resolved to convey to members of the bereaved family its sense of grievous loss and condolences. As a token of their respect to the memory of the departed soul, the members observed silence for a minute.

The Chairman referred to Professor J.B. Chitanbar's retirement from the membership of the Commission and subsequent nomination of Dr. Anrik Singh Cheema, Vice-Chancellor, Panjab Agricultural University, Ludhiana, in his place.

The Commission placed on record its appreciation of the valuable services rendered by Professor Chitanbar as member of the University Grants Commission.

The Chairman welcomed Dr. Anrik Singh Cheema appointed as a member of the Commission, in place of Professor J.B. Chitanbar.

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Item No. 1 : To receive minutes of the meeting of the Commission held on 20th December, 1976.

The minutes of the 186th meeting of the Commission held on December 20, 1976 were confirmed.

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Item No. 2 : a) To approve the action taken on certain matters.
b) To receive the items of information.
c) To approve the statement of proposals which could not be accepted by the Commission.

(a) The Commission approved the action taken on items listed in Appendix I* subject to the following :

2(a)(8) - It was agreed that the grant of Rs.3 lakhs as recommended by the visiting committee for purchase of equipment for the Department of Bio-Sciences may be made available to the South Gujarat University.

(b) This was noted.

p.t.o.

The Commission also noted the communication received from the Government of India regarding revision of scales of pay of the librarians and Directors of Physical Education in the Central Universities.

Arising out of 2(b)(6), it was agreed that a committee may be appointed to suggest the minimum qualifications for appointment to the posts of lecturers, readers and professors in the Faculty of Engineering & Technology keeping in view the qualifications prescribed, consequent upon the revision of scales of pay, by the Government of India for such posts in engineering colleges. This committee may also take into account the recommendations made by the Panel on Engineering & Technology.

(c) This was noted.

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Item No. 3 : To approve the statement of grants released after the last meeting of the Commission held on 20th December, 1976.

The Commission approved the grants released after the last meeting of the Commission held on December 20, 1976 (Appendix II)*.

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Item No. 4 : To receive the statement of expenditure incurred by the University Grants Commission during 1976-77 upto 30th November, 1976.

This was noted.

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Item No. 5 : To consider the observations of the Panels in the Humanities and Social Sciences on the Guidelines for introduction of M.Phil Courses.

Consideration of this item was postponed. It was decided that the matter may be brought up again at the next meeting along with the views of the Science Panels on the subject.

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*Not enclosed.

Item No. 6 : To consider the recommendations of the working group on students welfare programmes.

The Commission generally endorsed the recommendations of the Working Group on Student Welfare Programmes and agreed as follows:

(a) Canteens

Assistance be provided for establishment/improvement of canteens to colleges be treated one of the schemes for assistance under the Rupees five lakhs scheme.

(b) Improvement of hostels

Assistance may be provided to the universities and colleges for improvement of living conditions in hostels, e.g. sanitary facilities, proper dining halls etc. The Commission's assistance which will be outside fifth plan allocation may be provided on 75:25 sharing basis.

(c) Students Aid Fund

Assistance to universities and colleges for Students Aid Fund may be twice the amount collected by the institution subject to the limits indicated below waf. 1.7.1977 :

A - Universities

Direct enrolment below 5000 = Rs.25,000
Direct enrolment of 5000 and above = Rs.50,000

B - Colleges

On a scale as indicated in Appendix III.

(d) Study Centres

The scheme for Study Centres be continued in V Plan and assistance be provided to the Study Centres on the following basis:

	<u>Existing Study Centres</u>	<u>New Study Centres</u>
(i) <u>Non-Recurring</u>		
Books	Rs. 20,000	Rs. 30,000
Stacks and furniture	-	Rs. 15,000
(ii) <u>Recurring</u> (per annum till the end of V Plan)		
(i) Staff	Rs. 5,000 (additional)	Rs. 15,000
(ii) Contingencies (including electricity charges etc.)	Rs. 1,500 (additional)	Rs. 4,500

(e) Sports

The main objective of promoting games and sports and physical education in the universities and colleges should be to enable the participation by as large number of students as possible.

Assistance may be provided to the universities and colleges for gymnasium and improvement of play fields out of the funds of the UGC on the same sharing basis as given earlier with the help of specific funds made available by the Government of India. In this connection it was noted that the estimated cost of the construction of gymnasium will have to be reviewed in the light of the present costs of construction.

In this connection it was agreed that the type of facilities that may be provided in the gymnasium to include some indoor games may be further examined.

The Commission desired that adequate safeguard should be provided while sanctioning grants for buildings to the universities to ensure that the State Governments would make provision of adequate funds for the maintenance of these buildings. Normally, the provision for this should be on the same basis as provided by the Government for their own buildings.

....

Item No. 7 : To consider the report of the committee appointed by the University Grants Commission to review the working of correspondence courses at Himachal Pradesh University, Simla.

The Commission considered the report of the committee appointed by it to review the working of the correspondence courses at the Himachal Pradesh University, Simla, and felt concerned that the courses in this University were being run without adequate facilities and qualified staff. In order to strengthen the correspondence courses at the postgraduate level, the Commission agreed to give assistance towards the following facilities:

A. Staff

1 Reader each in History, Economics, Political Science, English, Hindi and Commerce.

2 Readers in Education.

2 Lecturers in Commerce.

B. Others

- (i) Library Books - Rs. 3 lakhs
- (ii) Improvement of instructional material - Rs. 1.75 lakh
- (iii) Equipment (for Linguistics and Audio-Visual aids) - Rs. 0.5 lakh

The question of setting up of Study Centres and provision of contact programmes may be examined further keeping in view the need for coordination of efforts by the universities in the region.

The assistance of the UGC will be on condition that (1) the university would follow the UGC guidelines laid down for correspondence courses. Correspondence courses in other subjects should not be started without the prior concurrence of the Commission; (2) Additional staff would be appointed on the strength of the main university departments. In Commerce for which there is no university department, the staff may be borne on the strength of Department of Business Management; (3) Selection of teachers will be made through properly constituted selection committees and procedure for selection, qualifications etc. will be the same as for the other corresponding staff of the university; (4) No part of the income from correspondence courses whether at the undergraduate level or at the postgraduate level will be utilised for any purpose other than for the development of the correspondence courses; (5) Books in the library of correspondence courses will be loaned out to the students in the same manner as in the case of the book banks.

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Item No. 8 : To consider a reference from the Ministry of Education and Social Welfare regarding recognition of Army Special Certificate for purposes of admission to universities.

The Commission considered a reference from the Ministry of Education & Social Welfare regarding facilities to be provided to Ex-Army personnel for admission to university level courses and was of the view that the level of the ASC may be brought to the +2 stage in the new pattern of 10+2+3. In the meantime, keeping in view the maturity and motivation of ex-servicemen, the university may consider giving admission to ex-servicemen with ASC for admission to the 1st degree level correspondence courses.

....

Item No. 9 : To consider certain matters regarding reservation of teaching posts in the Universities of Kerala.

This was noted.

....

Item No.10 : To consider matter relating to payment of honorarium etc. to distinguished Scholars/ Scientists for delivering lectures at universities under various programmes.

The Commission agreed that the honorarium payable to visiting lecturers invited by the universities under the programme Centres of Advanced Study, Department of Special Assistance, All India Level Institutes suggested by the Panels may be at Rs.100/- per lecture subject to maximum of Rs.400/- for any one teacher in any one academic year. This would not be applicable in the case of persons invited to deliver lectures under the scheme of extension lectures, summer institutes, workshops and seminars. It may not be necessary for the universities to obtain prior approval of the Commission for extending such invitations to Indian nationals.

Financial provision for inviting fellows may be made in the case of all departments participating under the Special Assistance Programme as in the case of Centres of Advanced Study.

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Item No.11 : To consider further the guidelines laid down for visiting Professors/Visiting appointments in universities.

The Commission considered the importance and value of universities inviting visiting faculty for short or long periods for improvement of standards and agreed that a grant of Rs. one lakh may be made available to each of the universities and the deemed universities during the current plan period. This would be in addition to any provision that the universities may have also made within their V Plan allocation. This amount should be utilised in accordance with the guidelines laid down by the Commission. It would not be necessary for the universities to refer individual cases under the scheme for approval by the Commission.

....

Item No.12 : To receive a note on the programme of academic collaboration between the Department of Biological Sciences, Madurai University and Frankfurt University (Professor Neuweiler's Group), F.R.G.

This was noted.

...

Item No.13 : To consider the recommendation of the Committee appointed by the University Grants Commission for undertaking translation of Russian Scientific and Technical Journals into English.

The Commission considered the report of the Committee appointed by the UGC for undertaking the translation of Russian Scientific and Technical Journals into English at the Jawaharlal Nehru University. The Commission, while generally endorsing the recommendations made by the committee felt that it would not be possible for the Commission to set-up a National Agency for this purpose. It was agreed that the report of the Committee may be sent to the Ministry of Education for their consideration. In this connection, it was also suggested that some of the existing agencies like ICSSR, ICHR and INSDOC which are engaged in such work could be further strengthened to undertake this responsibility.

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Item No.14 : To further consider the report of the Fifth Plan Visiting Committee of the Birla Institute of Technology and Science, Pilani.

The Commission further considered the report of the Fifth Plan Visiting Committee taking into view the comments of the BITS, Pilani on the observations made in the Committee's report. The Commission agreed in principle to provide assistance for development schemes in the Fifth Plan and desired that action in this regard may be taken after the Chairman has discussed this with the Director, BITS. It was further suggested that the question of providing maintenance grant to the Birla Institute of Science & Technology may be pursued with the Government of India.

The Commission desired that the Institute be advised to revise its constitution keeping in view the recommendations made by the Committee on "Governance of Universities" and the provisions made in IITs.

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Item No.15 : To consider the proposal of the Banaras Hindu University for additional assistance during the Fifth Plan period.

The Commission noted that the new Vice-Chancellor would be taking over soon and desired that his views may be invited on the proposal of the BHU for assistance for additional staff and equipment and that the University may also indicate the steps which have been taken by it to implement the various suggestions made by the V Plan visiting committee in its report accepted by the Commission.

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Item No.16 : To consider the report of the Committee appointed by the University Grants Commission on the proposal of the Jawaharlal Nehru University for additional funds for equipment during Fifth Plan period.

The Commission considered the report of the Committee appointed by the UGC on the proposals of the Jawaharlal Nehru University for additional funds for equipment during the Fifth Plan period and agreed to provide the following additional grants:

Life Sciences	-	Rs. 10.00 lakhs
Environmental Sciences	-	Rs. 10.00 lakhs
Common instrumentation facilities	-	Rs. 5.50 lakhs
Workshop	-	Rs. 3.50 lakhs
		<hr/>
		Rs. 29.00 lakhs

....

Item No.17 : To consider the immediate requirements of the Gujarat Vidyapith during the Fifth Plan.

The Commission considered the immediate requirements of the Gujarat Vidyapith during the Fifth Plan and desired that the Vidyapith be advised to expedite the work of the two committees constituted by it as early as possible so that the requirements of the Gujarat Vidyapith could be determined in the light of the recommendations of the committees. In the meanwhile, the Commission agreed that grants for the following may be made available to the Gujarat Vidyapith to meet its immediate requirements :

Recurring

- | | |
|--------------------------------|-------------------------------|
| 1. Appropriate Technology Cell | .. 1 Reader |
| 2. Junior Fellowships | .. Five (at any give
time) |

Non-Recurring

- | | |
|------------------------------------|----------------|
| (i) Central library, micro-filming | .. Rs.1,00,000 |
| (ii) Appropriate Technology Cell | .. Rs.1,00,000 |
| (iii) Publications | .. Rs. 50,000 |
| (iv) Books and Journals | .. Rs.6,00,000 |

....

Item No.18 : To consider a proposal from the Gauhati University for the creation of an additional post of Reader in Mathematical Geography in the Department of Geography during the Fifth Plan period.

The Commission accepted the proposal of the Gauhati University for the creation of an additional post of Reader in Mathematical Geography in the Department of Geography.

....

Item No.19 : To consider the proposal of the Marathwada University for change in specialisation of the faculty positions sanctioned during the Fifth Plan period.

The Commission agreed that the post of Professor in Physics and the posts of Reader and Lecturers in Political Science approved in the Fifth Plan may be filled in according to the needs of the University.

....

Item No.20 : To consider a proposal from the Ranchi University for the change of specialisation of the post of Professor approved for the Department of Physics during the Fifth Plan period.

The Commission agreed that the post of professor in Theoretical Physics approved during the Fifth Plan period may be filled by the University to strengthen the theoretical aspects in any one of the areas in Physics in which experimental work is being done in the department.

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p.t.o.

Item No.21 : To consider the proposal of the Aligarh Muslim University for change of specialisation for various posts approved by the Commission during the Fifth Plan period.

The Commission could not agree with the proposal of the Aligarh Muslim University for change of specialisation for the teaching posts approved for the V Plan period. As regards creation of additional post in Geography, the University may approach the Commission after the posts already approved have been filled. The University may be further asked to indicate the phasing of the Reader's posts approved for the Women's college.

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Item No.22 : To consider a proposal from the Berhampur University for starting the Department of Mass Communication during the Fifth Plan period.

It was resolved that the proposal of the Berhampur University for starting the Department of Mass Communication may be examined by a committee.

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Item No.23 : To consider the proposal received from the Centre of Advanced Study in Geology, Panjab University for utilisation of grants during the Fifth Plan period.

Consideration of this was postponed to the next meeting.

....

Item No.24 : To consider a proposal from the S.N.D.T. Women's University, Bombay, for naming the Women's Polytechnic as Premlila Vithaldas Polytechnic.

The Commission accepted the proposal of the S.N-D.T. Women's University for naming the Women's Polytechnic as "Premlila Vithaldas Polytechnic".

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p.t.o.

Item No.25 : To consider the proposal of Sambhu Nath College, Labpur (Burdwan University) for naming the Laboratory Building as Bindulal Bijnan Bhawan.

The Commission could not accept the proposal of Sambhu Nath College, Labpur for naming the Laboratory Building as "Bindulal Bijnan Bhawan".

....

Item No.26 : To consider the feasibility Report prepared by the Bombay University on the Regional Instrumentation Centre.

Consideration of this was postponed to the next meeting.

....

Item No.27 : To receive a note regarding assessment of work of Junior Research Fellows for the purpose of enhancing the value of fellowship from Rs.400/- to Rs.500/- per month.

This was noted.

The Commission was of the view that proposal for enhancement of the value of Junior Research Fellowship from Rs.400/- to Rs.500/- at end of two years period may henceforth be referred to the Conveners of Panels in the subject concerned and action taken on their recommendations.

....

Item No.28 : To consider the recommendations of the Committee appointed by the University Grants Commission to consider a proposal to declare Manipal Educational Complex as a deemed to be a University under Section 3 of the University Grants Commission Act 1956.

The Commission considered the recommendations of the Committee appointed by the UGC to consider the proposal to declare Manipal Educational Complex as a deemed to be University under Section 3 of the UGC Act. The Commission resolved to recommend to the Central Government that the Manipal Educational Complex consisting of its colleges in medical and engineering sciences be declared as an institution deemed to be University under Section 3 of the UGC Act. The Commission was not in favour of even suggesting at this stage, that the other colleges, namely, education, law, etc., could be brought within the purview of the deemed to be university.

The Commission further desired that the financing and the administrative structure of the proposed Institute may be further examined in consultation with the Central Government who would have to provide funds for the maintenance of this institution. The Commission was also of the view that the reservation of seats for foreign students, as suggested by the committee should be gradually brought down.

....

Item No.29 : To consider certain establishment matters of the University Grants Commission.

- (i) The recommendations of the Selection Committee for Class-I post made at the meeting held on 21st December, 1976.

The Commission, keeping in view the Government of India orders for reservation, accepted the recommendations of the Selection Committee for Class-I post made at its meeting held on 21st December, 1976 and approved the following candidates in order of merit for appointment to the post of Education Officer (Examination Reform) in the office of the University Grants Commission against 'recruitment quota' :

1. Shri Gour Gopal Dandapat (Direct - Temporary appointment)
2. Shri K.C. Gulati
3. Dr. Venkateswarulu Panda

(ii) Appointment of Consultants

The three posts of the Consultants may be filled in the following fields :

- (a) Perspective Planning.
- (b) Restructuring of courses including Rural Development.
- (c) Development of colleges.

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Item No.30 : To note the date and place for the next meeting of the Commission.

It was decided that the next meeting of the Commission be held at New Delhi on February 21, 1977.

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p.t.o.

Addl. Item No.31 : To consider reference received from the Government of India, Ministry of Education and Social Welfare regarding the minimum qualifications laid down for recruitment to the post of Lecturer consequent upon the revision of scales of pay of university and college teachers.

Consideration of this was postponed to the next meeting.

R.K. Chhabra
Secretary

Satish Chandra
Chairman

Appendix III to Item No. 6

Ceilings of assistance to colleges
under the Students Aid Fund Scheme
from 1-7-1977

<u>Enrolment</u>	<u>Amount in Rupees</u>
230 or below	1,500
Between 251-500	2,000
Between 501-750	3,500
Between 751-1000	4,500
Between 1001-1250	5,500
Between 1251-1500	6,500
Between 1501-2000	7,500
Between 2001-2500	8,500
2501 and above	10,000

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

Meeting:

Date : 31st January 1977
Time : 10.00 A.M.
Place : U.G.C., New Delhi.

A G E N D A

- Item No. 1 To receive minutes of the meeting of the Commission held on 20th December, 1976.
- Item No. 2 a) To approve the action taken on certain matters
b) To receive the items of information
c) To approve the statement of proposals which could not be accepted by the Commission.
- Item No. 3 To approve the statement of grants released after the last meeting of the Commission held on 20th December, 1976.
- Item No. 4 To receive the statement of expenditure incurred by the University Grants Commission during 1976-77 upto 30th November, 1976.
- Item No. 5 To consider the observations of the Panels in the Humanities and Social Sciences on the Guidelines for introduction of M.Phil Courses. p. 1-22.
- Item No. 6 To consider the recommendations of the working group on students welfare programmes. p. 23-32.
- Item No. 7 To consider the report of the committee appointed by the University Grants Commission to review the working of correspondence courses at Himachal Pradesh University, Simla. p. 33-53.
- Item No. 8 To consider a reference from the Ministry of Education and Social Welfare regarding recognition of Army Special Certificate for purposes of admission to universities. p. 54-56.
- Item No. 9 To consider certain matters regarding reservations of teaching posts in the Universities of Kerala. p. 57-59.
- Item No. 10 To consider matter relating to payment of honorarium etc. to distinguished Scholars/ Scientists for delivering lectures at universities under various programmes. p. 60-61.

p.t.o.

- Item No.11 To consider further the guidelines laid down for visiting Professors/Visiting appointments in Universities.p.62-66.
- Item No.12 To receive a note on the programme of academic collaboration between the Department of Biological Sciences, Madurai University and Frankfurt University (Professor Neuweiler's Group), F.R.G.p.67.
- Item No.13: To consider the recommendation of the Committee appointed by the University Grants Commission for undertaking translation of Russian Scientific and Technical Journals into English p.68-72.
- Item No.14 To further consider the report of the Fifth Plan Visiting Committee of the Birla Institute of Technology and Science, Pilani.p.73-119.
- Item No.15 To consider the proposal of the Banaras Hindu University for additional assistance during the Fifth Plan period.p.120-126.
- Item No.16 To consider the report of the Committee appointed by the University Grants Commission on the proposal of the Jawaharlal Nehru University for additional funds for equipment during Fifth Plan period.p.127-140.
- Item No.17 To consider the immediate requirements of the Gujarat Vidyapeeth during the Fifth Plan.p141-147.
- Item No.18 To consider a proposal from the Gauhati University for the creation of an additional post of Reader in Mathematical Geography in the Department of Geography during the Fifth Plan period.p.161.
- Item No.19 To consider the proposal of the Marathwada University for change in specialisation of the faculty positions sanctioned during the Fifth Plan period.p.162-168.
- Item No.20 To consider a proposal from the Ranchi University for the change of specialisation of the post of Professor approved for the Department of Physics during the Fifth Plan period.p.169-173.
- Item No.21 To consider the proposal of the Aligarh Muslim University for change of specialisation for various posts approved by the Commission during the Fifth Plan period.p.174-198.

- Item No. 22 To consider a proposal from the Berhampur University for starting the Department of Mass Communication during the Fifth Plan period. p-199-202.
- Item No. 23 To consider the proposal received from the Centre of Advanced Study in Geology, Panjab University for utilisation of grants during the Fifth Plan period. p-203-217.
- Item No. 24 To consider a proposal from the S.N.D.T. Women's University, Bombay for naming the Women's Polytechnic as Premilala Vithaldas Polytechnics. p-218-219.
- Item No. 25 To consider the proposal of Sambhu Nath College, Labour (Burdwan University) for naming the Laboratory Building as Bindulal Bijjan Bhawan. p-220-221.
- Item No. 26 To consider the feasibility Report prepared by the Bombay University on the Regional Instrumentation Centre. p-222-225.
- Item No. 27 To receive a note regarding assessment of work of Junior Research Fellows for the purpose of enhancing the value of fellowship from Rs. 400/- to Rs. 500/- per month. p-226-228.
- Item No. 28 To consider the recommendations of the Committee appointed by the University Grants Commission to consider a proposal to declare Manipal Educational Complex as a deemed to be a University under Section 3 of the University Grants Commission Act, 1956.
- Item No. 29 To consider certain establishment matters of the University Grants Commission.
- Item No. 30 To note the date and place for the next meeting of the Commission.

Any other item.

UNIVERSITY GRANTS COMMISSION

Minutes of the 186th meeting of the University Grants Commission held on 20th December, 1976.

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The following were present:

Professor Satish Chandra	- Chairman
Professor B. Ramachandra Rao	- Vice-Chairman
Shri G. Ramachandran	- Member
Professor R.P. Bambah	- Member
Professor S.S. Saluja	- Member
Professor(Miss) A.J. Dastur	- Member
Professor S. Gopal	- Member
Professor J.B. Chitambar	- Member
Professor Macbool Ahmed	- Member
Professor B.M. Jadhavkar	- Member
Dr. Chandran D.S. Devanesan	- Member
Shri R.K. Chhabra	- Secretary

Shri K.N. Channa expressed his inability to attend the meeting.

SECRETARIAT

Additional Secretary

Dr. D. Shankar Narayan

Joint Secretaries

Dr. J.N. Kaul
Dr. S.K. Dasgupta

Deputy Secretaries

Shri S. Viswanath
Dr. B.C. Goel
Shri S.P. Gupta
Dr. M.L. Mehta
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The Commission further considered the report of the Fifth Plan Visiting Committee taking into view the comments of the BITS, Pilani on the observations made in the Committee's report. The Commission agreed in principle to provide assistance for development schemes in the Fifth Plan and desired that action in this regard may be taken after the Chairman has discussed this with the Director, BITS. It was further suggested that the question of providing maintenance grant to the Birla Institute of Science & Technology may be pursued with the Government of India.

The Commission desired that the Institute be advised to revise its constitution keeping in view the recommendations made by the Committee on "Governance of Universities" and the provisions made in IITs.

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The Commission noted that the new Vice-Chancellor would be taking over soon and desired that his views may be invited on the proposal of the BHU for assistance for additional staff and equipment and that the University may also indicate the steps which have been taken by it to implement the various suggestions made by the V Plan visiting committee in its report accepted by the Commission.

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Life Sciences	-	Rs. 10.00 lakhs
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The Commission considered the immediate requirements of the Gujarat Vidyapith during the Fifth Plan and desired that the Vidyapith be advised to expedite the work of the two committees constituted by it as early as possible so that the requirements of the Gujarat Vidyapith could be determined in the light of the recommendations of the committees. In the meanwhile, the Commission agreed that grants for the following may be made available to the Gujarat Vidyapith to meet its immediate requirements :

Recurring

- | | |
|--------------------------------|-----------------------------|
| 1. Appropriate Technology Cell | .. 1 Reader |
| 2. Junior Fellowships | .. Five (at any given time) |

Non-Recurring

- | | |
|------------------------------------|----------------|
| (i) Central library, micro-filming | .. Rs.1,00,000 |
| (ii) Appropriate Technology Cell | .. Rs.1,00,000 |
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....

Item No.21 : To consider the proposal of the Aligarh Muslim University for change of specialisation for various posts approved by the Commission during the Fifth Plan period.

The Commission could not agree with the proposal of the Aligarh Muslim University for change of specialisation for the teaching posts approved for the V Plan period. As regards creation of additional post in Geography, the University may approach the Commission after the posts already approved have been filled. The University may be further asked to indicate the phasing of the Reader's posts approved for the Women's college.

....

Item No.22 : To consider a proposal from the Berhampur University for starting the Department of Mass Communication during the Fifth Plan period.

It was resolved that the proposal of the Berhampur University for starting the Department of Mass Communication may be examined by a committee.

....

Item No.23 : To consider the proposal received from the Centre of Advanced Study in Geology, Panjab University for utilisation of grants during the Fifth Plan period.

Consideration of this was postponed to the next meeting.

....

Item No.24 : To consider a proposal from the S.N.D.T. Women's University, Bombay, for naming the Women's Polytechnic as Premilila Withaldas Polytechnics.

The Commission accepted the proposal of the S.N-D.T. Women's University for naming the Women's Polytechnic as "Premilila Withaldas Polytechnic".

....

p.t.o.

Item No.25 : To consider the proposal of Sambhu Nath College, Labpur (Burdwan University) for naming the Laboratory Building as Bindulal Bijnan Bhawan.

The Commission could not accept the proposal of Sambhu Nath College, Labpur for naming the Laboratory Building as "Bindulal Bijnan Bhawan".

....

Item No.26 : To consider the feasibility Report prepared by the Bombay University on the Regional Instrumentation Centre.

Consideration of this was postponed to the next meeting.

....

Item No.27 : To receive a note regarding assessment of work of Junior Research Fellows for the purpose of enhancing the value of fellowship from Rs.400/- to Rs.500/- per month.

This was noted.

The Commission was of the view that proposal for enhancement of the value of Junior Research Fellowship from Rs.400/- to Rs.500/- at end of two years period may henceforth be referred to the Conveners of Panels in the subject concerned and action taken on their recommendations.

....

Item No.28 : To consider the recommendations of the Committee appointed by the University Grants Commission to consider a proposal to declare Manipal Educational Complex as a deemed to be a University under Section 3 of the University Grants Commission Act 1956.

The Commission considered the recommendations of the Committee appointed by the UGC to consider the proposal to declare Manipal Educational Complex as a deemed to be University under Section 3 of the UGC Act. The Commission resolved to recommend to the Central Government that the Manipal Educational Complex consisting of its colleges in medical and engineering sciences be declared as an institution deemed to be University under Section 3 of the UGC Act. The Commission was not in favour of even suggesting at this stage, that the other colleges, namely, education, law, etc., could be brought within the purview of the deemed to be university.

The Commission further desired that the financing and the administrative structure of the proposed Institute may be further examined in consultation with the Central Government who would have to provide funds for the maintenance of this institution. The Commission was also of the view that the reservation of seats for foreign students, as suggested by the committee should be gradually brought down.

....

Item No.29 : To consider certain establishment matters of the University Grants Commission.

- (i) The recommendations of the Selection Committee for Class-I post made at the meeting held on 21st December, 1976.

The Commission, keeping in view the Government of India orders for reservation, accepted the recommendations of the Selection Committee for Class-I post made at its meeting held on 21st December, 1976 and approved the following candidates in order of merit for appointment to the post of Education Officer (Examination Reform) in the office of the University Grants Commission against 'recruitment quota' :

1. Shri Gour Gopal Dandapat (Direct - Temporary appointment)
2. Shri K.C. Gulati
3. Dr. Venkateswarulu Panda

(ii) Appointment of Consultants

The three posts of the Consultants may be filled in the following fields :

- (a) Perspective Planning.
- (b) Restructuring of courses including Rural Development.
- (c) Development of colleges.

....

Item No.30 : To note the date and place for the next meeting of the Commission.

It was decided that the next meeting of the Commission be held at New Delhi on February 21, 1977.

....

Addl. Item No.31 : To consider reference received from the Government of India, Ministry of Education and Social Welfare regarding the minimum qualifications laid down for recruitment to the post of Lecturer consequent upon the revision of scales of pay of university and college teachers.

Consideration of this was postponed to the next meeting.

R.K. Chhabra
Secretary

Satish Chandra
Chairman

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Appendix III to Item No. 6

Ceilings of assistance to colleges
under the Students Aid Fund Scheme
from 1-7-1977

<u>Enrolment</u>	<u>Amount in Rupees</u>
250 or below	1,500
Between 251-500	2,000
Between 501-750	3,500
Between 751-1000	4,500
Between 1001-1250	5,500
Between 1251-1500	6,500
Between 1501-2000	7,500
Between 2001-2500	8,500
2501 and above	10,000

57
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CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

Meeting:

Date : 31st January 1977
Time : 10.00 A.M.
Place : U.G.C., New Delhi.

A G E N D A

- Item No. 1 To receive minutes of the meeting of the Commission held on 20th December, 1976.
- Item No. 2 a) To approve the action taken on certain matters
b) To receive the items of information
c) To approve the statement of proposals which could not be accepted by the Commission.
- Item No. 3 To approve the statement of grants released after the last meeting of the Commission held on 20th December, 1976.
- Item No. 4 To receive the statement of expenditure incurred by the University Grants Commission during 1976-77 upto 30th November, 1976.
- Item No. 5 To consider the observations of the Panels in the Humanities and Social Sciences on the Guidelines for introduction of M.Phil Courses. p. 1-22.
- Item No. 6 To consider the recommendations of the working group on students welfare programmes. p. 23-32.
- Item No. 7 To consider the report of the committee appointed by the University Grants Commission to review the working of correspondence courses at Himachal Pradesh University, Simla. p. 33-53.
- Item No. 8 To consider a reference from the Ministry of Education and Social Welfare regarding recognition of Army Special Certificate for purposes of admission to universities. p. 54-56.
- Item No. 9 To consider certain matters regarding reservations of teaching posts in the Universities of Kerala. p. 57-59.
- Item No. 10 To consider matter relating to payment of honorarium etc. to distinguished Scholars/ Scientists for delivering lectures at universities under various programmes. p. 60-61.

p.t.o.

- Item No.11 To consider further the guidelines laid down for visiting Professors/Visiting appointments in Universities.p.62-66.
- Item No.12 To receive a note on the programme of academic collaboration between the Department of Biological Sciences, Madurai University and Frankfurt University (Professor Neuweiler's Group), F.R.G.p.67.
- Item No.13: To consider the recommendation of the Committee appointed by the University Grants Commission for undertaking translation of Russian Scientific and Technical Journals into English. p.68-72.
- Item No.14 To further consider the report of the Fifth Plan Visiting Committee of the Birla Institute of Technology and Science, Pilani.p.73-119.
- Item No.15 To consider the proposal of the Banaras Hindu University for additional assistance during the Fifth Plan period.p.120-126.
- Item No.16 To consider the report of the Committee appointed by the University Grants Commission on the proposal of the Jawaharlal Nehru University for additional funds for equipment during Fifth Plan period.p.127-140.
- Item No.17 To consider the immediate requirements of the Gujarat Vidyapeeth during the Fifth Plan.p.141-160.
- Item No.18 To consider a proposal from the Gauhati University for the creation of an additional post of Reader in Mathematical Geography in the Department of Geography during the Fifth Plan period.p.161.
- Item No.19 To consider the proposal of the Marathwada University for change in specialisation of the faculty positions sanctioned during the Fifth Plan period.p.162-168.
- Item No.20 To consider a proposal from the Ranchi University for the change of specialisation of the post of Professor approved for the Department of Physics during the Fifth Plan period. p.169-173.
- Item No.21 To consider the proposal of the Aligarh Muslim University for change of specialisation for various posts approved by the Commission during the Fifth Plan period.p.174-198.

- Item No.22 To consider a proposal from the Berhampur University for starting the Department of Mass Communication during the Fifth Plan period.p-199-202.
- Item No.23 To consider the proposal received from the Centre of Advanced Study in Geology, Panjab University for utilisation of grants during the Fifth Plan period.p203-207.
- Item No.24 To consider a proposal from the S.N.D.T. Women's University, Bombay for naming the Women's Polytechnic as Premila Vithaldas Polytechnics.p218-219.
- Item No.25 To consider the proposal of Sambhu Nath College, Labour (Burdwan University) for naming the Laboratory Building as Bindulal Bijan Bhawan.p220-221.
- Item No.26 To consider the feasibility Report prepared by the Bombay University on the Regional Instrumentation Centre.p222-225.
- Item No.27 To receive a note regarding assessment of work of Junior Research Fellows for the purpose of enhancing the value of fellowship from Rs. 400/- to Rs. 500/- per month.p226-228.
- Item No.28 To consider the recommendations of the Committee appointed by the University Grants Commission to consider a proposal to declare Manipal Educational Complex as a deemed to be a University under Section 3 of the University Grants Commission Act.1956.
- Item No.29 To consider certain establishment matters of the University Grants Commission.
- Item No.30 To note the date and place for the next meeting of the Commission.

Any other item.

UNIVERSITY GRANTS COMMISSION

Minutes of the 186th meeting of the University Grants Commission held on 20th December, 1976.

...

The following were present:

Professor Satish Chandra	- Chairman
Professor B. Ramachandra Rao	- Vice-Chairman
Shri G. Ramachandran	- Member
Professor R. P. Bambah	- Member
Professor S. S. Saluja	- Member
Professor (Miss) A. J. Dastur	- Member
Professor S. Gopal	- Member
Professor J. B. Chitambar	- Member
Professor Maqbool Ahmed	- Member
Professor B. M. J. Gaonkar	- Member
Dr. Chandran D. S. Devanesan	- Member
Shri R. K. Chhabra	- Secretary

Shri K. N. Channa expressed his inability to attend the meeting.

SECRETARIAT

Additional Secretary

Dr. D. Shankar Narayan

Joint Secretaries

Dr. J. N. Kaul
Dr. S. K. Dasgupta

Deputy Secretaries

Shri S. Viswanath
Dr. S. C. Goel
Shri S. P. Gupta
Dr. M. L. Mehta
Dr. T. N. Hajela
Shri Y. D. Sharma
Shri A. B. Gupta

Director (SRC)

Dr. Jagdish Shankar

Finance Officer

Shri R. P. Bhattacharjee

At the outset, the Chairman mentioned about the sad demise of Nawab Ali Yavar Jung, who was a member of the Commission from 15th January, 1966 to 5th January, 1968.

The Commission recalled the valuable services to the UCC of the late Nawab Saheb during his tenure as member of the Commission. The Commission resolved to convey to members of the bereaved family its sense of greivous loss and condolences. As a token of their respect to the memory of the departed soul, the members observed silence for a minute.

The Chairman welcomed Shri G. Ramachandran who has been appointed as a Member of the Commission in place of Dr. Ajit Mozondar.

...

Item No. 1 : To receive minutes of the meeting of the Commission held on 15th November, 1976.

The minutes of the 185th meeting of the Commission held on November 15, 1976 were confirmed subject to the following -

The last sentence of item No.6 be read as "The Commission desired that a similar review may be made of the work of the Science and Engineering Panels."

...

Item No. 2 : a) To approve the action taken on certain matters.
b) To receive the items of information.
c) To receive the statement of proposals which could not be accepted by the Commission.

(a) The Commission approved the action taken on items listed in Appendix I*.

It was agreed that a review of implementation of the examination reforms may be placed before the Commission after it has been considered by the Coordination Committee.

(b) This was noted.

(c) This was noted.

...

Item No. 3 : To approve the statement of grants released after the last meeting of the Commission held on 15th November, 1976.

The Commission approved the grants released after the last meeting of the Commission held on November 15, 1976 (Appendix II)*.

...

Item No. 4 : To receive the statement of expenditure incurred by the University Grants Commission during 1976-77 upto 31st October, 1976.

This was noted.

...

Item No. 5 : To receive a statement indicating the progress of issue of utilisation certificates during the period ending 25th November, 1976.

This was noted.

...

Item No. 6 : To consider the report of the Committee appointed by the University Grants Commission to assess the needs and requirements of the Jammu University, Jammu, towards the establishment of a Centre for Continuing Education in the Fifth Plan period.

The Commission desired that the Committee may be requested to reconsider its recommendations keeping in view the objects and scopes of university continuing education programmes and the nature of courses which may be provided with advantage by the universities.

...

Item No. 7 : To consider the report of the Committee appointed by the University Grants Commission to examine the proposal of the Jadavpur University for setting up a Centre for Continuing Education.

The Commission accepted the report of the Committee and agreed to provide a grant for the following on usual sharing basis :

Staff

- i) Director of the Centre (Hony.)
honorarium @ Rs.250/- p.m.
- ii) Coordinator (Rs.1100-1600)
- iii) Programme Assistant (Rs.375-535)
- iv) Typist (Rs.230-424)
- v) Messenger (Rs.135-180)

Expenditure on programmes (including honorarium to resource persons, T.A. and D.A., remuneration to part-time assistants, etc., publication, conveyance, miscellaneous expenditure e.g. publicity, stationery, postage, electricity, telephone etc - Rs.60,000 p.a.

Non-Recurring

Furniture, duplicating machine, typewriter, Projector, . tape-recorder, amplifier, epidiascope screen and books and journals. - Rs.60,000

The Commission further desired that if a Reader is appointed/deputed to the post of the Coordinator, he may carry his scale of pay as Reader.

In this connection the Commission desired that the question of payment of honorarium to the Honorary Directors of the Centres of Continuing Education may be reviewed.

...

Item No. 8 : To consider the recommendations made by the working group in regard to the question of setting up of University Centres for Post-graduate Studies and Post-graduate Studies in affiliated colleges.

The Commission accepted the guidelines suggested by the Working Group for the setting up of university centres for postgraduate studies.

The Commission further desired that the question of suggesting an optimum enrolment in universities providing facilities only for postgraduate studies and research and those providing undergraduate instructions as well may be considered with the help of a committee and the matter brought before the Commission.

In this connection the Commission desired that a study may be made of the effectiveness of the junior research fellowships scheme instituted by the UGC in helping research scholars to complete their Ph.D. programme.

...

Item No. 9 : To consider the report of the Committee appointed by the University Grants Commission to review the correspondence courses offered by the Central Institute of English & Foreign Languages, Hyderabad.

The Commission accepted the report of the Committee appointed to review the correspondence courses offered by the Central Institute of English & Foreign Languages, Hyderabad, and agreed to provide assistance for the

post-graduate diploma in teaching of English as under:

A. Post graduate diploma in teaching of English:

(i) Staff

One Professor, one Reader and two lecturers (existing staff)

(ii) Additional Staff

Two Readers + one Lecturer

(iii) Study Centres (5) Rs. 1,25,000 p.a.

(iv) Personal Contact Programmes Rs. 75,000 p.a.
(including TA and DA)

(v) Evaluation of response sheets Rs. 10,000 p.a.
on part-time basis.

(vi) Books and Journals Rs. 10,000 p.a.

Non-Recurring

Building (additional space of 3000 sq.ft.) Rs. 1,80,000

It was desired that the question of instituting M.A. courses through correspondence in Russian, French and German may be discussed by the Chairman with the Director of the Institute.

...

Item No. 10 : To consider the recommendations made by the Standing Committee on College Science Improvement Programme at its meeting held on 4th October, 1976.

The Commission generally accepted the recommendations made by the Standing Committee on College Science Improvement Programme made at its meeting held on 4th October, 1976. The recommendations relating to (i) publication of COSIP News letter, (ii) initiating a National Lecturers programme for undergraduate instruction, (iii) recognition of teachers for the work done under the programme would need further consideration. The Commission agreed in principle with the recommendations regarding the starting of a university Leadership Programme for postgraduate colleges and desired that the working paper may be placed before the Committee for consideration in the first instance.

...

Item No. 11 : To consider the question of bifurcation of Law Departments of Colleges of Gujarat University into independent Law Colleges on the basis of the recommendations of Bar Council of India.

It was agreed that this may be discussed with the Bar Council of India.

...

Item No. 12 : To consider the proposal of the Department of History of the Mysore University for participation in the Programme of Centres of Advanced Study/Department of Special Assistance.

The Commission agreed to invite the Department of History, University of Mysore, for participation in the programme of Departments of Special Assistance and agreed to provide assistance as given in the Appendix III. The University may be requested to make appointments to the new posts only after the revised scales of pay for university teachers have been introduced.

...

Item No. 13 : To consider the Supplementary Fifth Plan Development proposals received from Madras University.

It was agreed that the supplementary Fifth Plan Development proposals of the Madras University may be examined with the help of a committee.

...

Item No. 14 : To consider the proposal of the Rajasthan University for participation of its department of Philosophy in the University Grants Commission scheme of University Leadership project for purposes of improvement of undergraduate assistance instruction in the subject of Philosophy in the colleges affiliated to the University.

The Commission accepted the ULP proposal of the Philosophy Department, Rajasthan University, and agreed to provide assistance for the first year as given below:

	Rs.
1. Purchase of Equipment	30,000
2. Books to be purchased for the college and the university centres	22,000
3. Preparation of supplementary Reading materials for undergraduate courses	15,000
4. Meetings, Refresher Courses, Teaching Workshops etc.	20,000

	Rs.
5. Stationery and Postage	5,000
6. Secretarial Assistance	6,000
7. Miscellaneous, Contingency etc.	2,000
	1,30,000

...

Item No. 15 : To consider the proposal from the Kalyani University for the creation of an additional post of a Professor for each of the Departments of Chemistry and Zoology and a post of a Reader for the Mathematics Department during the Fifth Plan.

The Commission considered the proposal of the Kalyani University and agreed to the following additional posts to be created during the V Plan period :

1. One Professor in Chemistry with specialisation in Physical Chemistry.
2. One Professor in Zoology with specialisation in Entomology.
3. One Reader in Mathematics.

In this connection the Commission desired that the Panels may be requested to indicate the norms (staff, library and other facilities) for ensuring effective postgraduate education in different subjects in the university departments.

...

Item No. 16 : To consider the proposal from Calcutta University for the conversion of two posts of Readers sanctioned for the Department of Zoology under the 5th Plan Development Schemes into one post of Professor.

The Commission could not accept the proposal of the Calcutta University to convert two posts of Readers approved for the V Plan to that of a Professor in Zoology. The Commission however agreed to create an additional post of a professor already recommended by the visiting committee in the second priority to be filled during the V Plan period. The specialisation for this post should be in the area of Cytogenetics/Entomology.

...

Item No. 17 : To consider the proposal of the Patna University for the Change of Specialisation in the post of Professor approved for the Department of Sociology during the Fifth Plan.

The Commission could not accept the proposal of the Patna University for the change of specialisation of the post of Professor approved for the Department of Sociology during the V Plan.

...

Item No. 18 : To consider the proposal from the Berhampur University for starting of a Marine Sciences Centre during the Fifth Plan period.

The Commission desired that the proposal of the Berhampur University for starting of a Marine Science Centre during the Fifth Plan may be further discussed with the University with the help of an expert committee.

...

Item No. 19 : To consider the draft qualifications proposed by the K.S.Darbhanja Sanskrit University for appointment to the posts of Professors and Readers in the university approved by the Commission during the 5th Plan period.

The Commission noted the qualifications proposed by the K.S.D.Sanskrit University, Darbhanga, for the posts of Professor and Readers. It was, however, desired that as in the case of Professors, research experience should be required in the case of Readers also.

...

Item No. 20 : To receive the observation made by the Calcutta University on the recommendations of the Visiting Committee which examined the 5th Plan requirements of the University.

The Commission noted with concern the observations of the Syndicate of the Calcutta University and requested the Chairman to convey its feelings to the Vice-Chancellor of the Calcutta University. The Vice-Chancellor may also be informed that the function of a visiting committee appointed by the UGC is not only to assess the development needs of a university but more important to review its working and recommend measures for maintenance and improvement of standards in all departments.

...

Item No. 21 : To consider the proposal of B.N.Chakravarty University, Kurukshetra, for starting correspondence courses at the undergraduate level.

The Commission desired that the B.N. Chakravarty University, Kurukshetra, may, in the first instance, be requested to examine the need for instituting the correspondence courses at the 1st degree level keeping in view (a) the new pattern of education (10+2+3),

(b) the trend of enrolment in affiliated colleges, and
(c) the number of candidates taking the examination privately at the first degree level.

In this connection the Commission also desired that a communication may be sent to the universities emphasizing that no university should start correspondence courses without the prior concurrence of the Commission. The latest position regarding the staff of the correspondence courses being borne on the strength of the respective university teaching department may also be ascertained.

The Commission further desired that the general question relating to utilisation of the staff in colleges consequent upon the introduction of 10+2+3 pattern for innovative and quality improvement programmes may be considered by a committee.

...

Item No. 22 : To consider the proposal of Nagpur University for the creation of the posts of One Professor and One Reader for the Department of Botany during the Fifth Five Year Plan.

The Commission accepted the proposal of the Nagpur University for the creation of the posts of one Professor (in Embryology) and one Reader (in Plant Physiology) in the Department of Botany.

...

Item No. 23 : To consider the proposal of the Kashmir University for reviewing the specialisation of Linguistics for the post of Reader in Hindi.

The Commission accepted the proposal of the Kashmir University that the V Plan post of the Reader in Hindi may be treated as 'open'.

...

Item No. 24 : To consider the proposal of St. Anthony's College, Shillong, for the construction of Science Block with Commission's share limited to Rs.4.00 lakhs under Rs.5 lakhs scheme.

The Commission desired that St. Anthony's College Shillong be requested to formulate a comprehensive proposal within Rs.8 lakhs as UCC share and include in it requirements for the building, strengthening its library and laboratory equipment and other faculty improvement programmes as well. The proposals to be received from the University may be placed before the Commission.

...

Item No. 25 : To consider the proposals received from the Centres of Advanced Study in (i) Botany, Delhi University, (ii) Radio Physics and Electronics, Calcutta University for utilisation of grants during the V Plan period.

The Commission accepted the proposal received from the Centre of Advanced Study in Botany, Delhi University, and agreed to provide during the V Plan period assistance as given in Appendix IV.

The Commission further desired that the Centres of Advanced Study in Botany and Zoology in Delhi University may be encouraged to develop inter-departmental programmes of instruction and research with the help of the grants already approved during the V Plan period.

The Commission also accepted the proposal of the Delhi University that the two posts of Professors already agreed to in the V Plan Development schemes may be filled from amongst the following specialisations:

Plant Physiology; Morphogenesis; Anatomy; Morphology; and Embryology.

The Commission considered the proposal of the Centre of Advanced Study in Radio Physics & Electronics, Calcutta University and desired that the matter may be decided after it has been examined by the Vice-Chairman.

...

Item No. 26 : To consider the recommendations of the Science Research Council on the utilisation of the Variable Energy Cyclotron (VEC) by the University scientists.

The Commission agreed in principle with the recommendations made by the Science Research Council regarding utilisation of the Variable Energy Cyclotron by the university scientists. The Commission desired that the question of providing certain equipment for this purpose be further discussed with the Director, BARC by the Vice-Chairman. The Physics Panel may be requested to suggest the ways by which these facilities could best be utilised by the university system.

...

Item No. 27 : To consider the recommendation of the Science Research Council on the basic minimum facilities and equipment to new members of the faculty of Banaras Hindu University.

The Commission considered the recommendations of the Science Research Council regarding provision of some basic minimum facilities and equipment to new teachers appointed in the universities and felt that the needs could be met by

the core grant for support of research already available to the universities and through short-term research schemes of the Commission. The universities may, however, be requested to give preference to the new teachers in the matter of utilisation of the core research grant. Wherever necessary, the Commission could consider enhancing this grant already made available to the universities for the purpose.

...

Item No. 28 : To consider the guidelines on "Career Awards to young Scientists" as suggested by the Science Research Council.

The Commission considered the guidelines on "Career Awards to young Scientists" suggested by the Science Research Council and felt that the objectives of the programme could be met by formulating a scheme similar to the National Fellowship presently available to professors and readers in the universities. The Commission could consider instituting 50 such awards in the first instance. The guidelines for the purpose may be placed before the Commission.

...

Item No. 29 : To receive a note on the present stage of implementation of the Fifth Plan programmes approved by the Commission in respect of universities.

The Commission took note of the present stage of implementation of the V Plan programme approved by the Commission, the likely resources that may be available and the progress of expenditure, and it was agreed that universities may be informed that it should be possible for the Commission to provide additional assistance for books, journals and equipment as recommended by visiting committees under the second and third priorities provided funds already sanctioned for the purpose have been utilised or firmly committed for these purposes.

It was further observed that the Commission might find it possible to provide grants for urgently needed hostels and buildings and additional staff as recommended by the visiting committees on the merits of each case.

In this connection the Commission also took note of the statement indicating the present position with regard to the assurances received from the State Governments for implementation of the V Plan proposals of the universities. The Chairman mentioned that in cases where such assurance had not been received, the State Governments were being reminded regularly and that he has also taken up the matter with the Union Education Minister requesting him to use his good offices to see that such assurances are furnished by the State Governments.

....

Item No. 30 : To note the date and place for the next meeting of the Commission.

It was noted that the next meeting of the Commission will be held in New Delhi on January 24, 1977.

R.K. Chhabra
Secretary

Satish Chandra
Chairman

Grants recommended for Mysore University for participation in the programme of Centre of Advanced Study/Department of Special Assistance for History Department.

....

Recurring

- 1 Professor in economic history (Department of History)
- 1 Reader (Department of History)
- 1 Reader in Social Change (Department of Sociology)
- 1 Lecturer in historical geography (Department of Geography/IDS)
- 1 Lecturer in medieval archaeology (Department of Ancient Indian History & Archaeology)
- 1 Lecturer in the economic history of Tamil Nadu (Department of History)
- 1 Lecturer in the economic history of Kerala (Department of History)
- 1 Research Associate in Statistics.
- 1 Senior Research Fellowship to be awarded every year (Department of History) (Not more than four at anyone time).
- 4 Junior Research Fellowships to be awarded every year.

Non-teaching Staff:

1	Documentation Officer	}	in the University grade.
1	Technical Assistant (Library)		
1	Stenographer		
1	Typist-cum-Clerk Grade I		
	Contingencies including travel, cartographic work, etc.	-	Rs. 10,000 p.a.
	Publications and Seminars	-	Rs. 20,000 p.a.
	Books, MSS, Journals	-	Rs. 10,000 p.a.

Non-recurring:

Books, Journals and Manuscripts	-	Rs. 50,000
Equipment (Microfilm reader, Duplicator, Typewriters, electronic calculator, dycopier, etc.)	-	Rs. 50,000

Building Grant:

Rs. 75,000 for extension of present accommodation.

....

Appendix IV to Item 25

Non-recurring

1. Building (Addl. laboratories	Rs. 2,00,000
2. Equipment (Including basic grant of Rs.2,00,000)	Rs. 7,20,000
3. Books & Journals (Including basic grant of Rs.1,00,000)	Rs. 1,00,000
4. Jeep (for Field Work)	Rs. 65,000
5. Air-conditioning of Plant Growth Rooms, Central facility laboratories, tissue culture electron microscopy, histo-chemistry and other laboratories.	Rs. 2,25,000
6. Furniture for Seminar Room, Library & Laboratories.	Rs. 70,000
	13,80,000

Recurring (upto 31.3.1979)

1. Teaching Staff Professor - One (Cytogenetics and Ultrastructure Readers - 3)	Grant to be paid on basis of actual expenditure incurred on salary and allowances on posts filled.
2. Tech.Staff: Technical Officer - 1 Technical Asstt. - 1 Jr.Lab.Asstt. - 2	
3. Contingencies	Rs. 10,000 p.a.
4. Chemicals & Glassware	Rs. 40,000 p.a.
5. Maintenance of Instruments in Central facility laboratories including electronic microscopy Lab.	Rs. 35,000 p.a.
6. Books & Journals	Rs. 30,000 p.a.

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

Meeting :

Dated : 31st January, 1977.

Item No.2 (a) To approve the action taken on certain matters.

.....

- (1) The proposals of the Colleges under the Vth Plan Development Schemes approved under Rs. 5 Lakh Scheme.

University	Name of the College	Proposal	Estimated Cost	Commission's Share	Date of Approval
	2	3	4	5	6
<u>UNIVERSITY</u>					
	Govt. College, Tikamgarh.	Books Equipment	60,000 1,40,000	45,000 1,05,000	24.6.76
	Maharaja College, Chhatarpur.	Books & Journal Equipment	48,000 1,33,000	36,000 99,750	16.11.76
	Govt. P.G. College, Satna	Books Equipment	1,20,000 80,000	90,000 60,000	24.6.76
	Govt. Girls Degree College, Rewa	Books Equipment	28,000 32,000	21,000 24,000	3.7.76
	Govt. College, Shahdol	Books Equipment	30,000 1,76,000	22,500 1,32,000	26.6.76
	Govt. Sec. College, Rewa	Books & Journals. Equipment	70,000 2,30,000	52,500 1,72,500	27.9.76
<u>UNIVERSITY</u>					
	Motilal Vigyan Mahavidyalaya, Bhopal	Books Equipment	16,000 1,76,000	12,000 1,32,000	14.9.76

1	2	3	4	5	6
<u>BHOPAL UNIVERSITY (CONTD)</u>					
8.	Govt. Girls Degree College, T.T.Nagar, Bhopal.	Books & Journals Equipment	45,000 1,39,500	33,750 1,04,625	14.10.
9.	Govt. College, Sehore.	Books Equipment	70,000 55,000	52,500 41,250	21.10.
10.	Govt. Hamidia Arts and Commerce College, Bhopal.	Books	60,000	45,000	15.10.
<u>GUJARAT UNIVERSITY</u>					
11.	Vivekananda College of Law & Education Mehsana.	Equipment	14,000	10,500	11.10.
12.	Shri B.D. Shah College of Education Modasa.	Books Equipment Teaching Material Staff.	30,000 30,000 25,000 25,000	22,500 22,500 25,000 25,000	3.9.71
13.	College of Education Petlad.	Books Teaching Material	10,000 25,000	75,000 25,000	23.10
14.	R.P. Ananda College of Education.	Books Teaching Material	12,000 36,000	3,000 25,000	23.10
15.	Shri S.K. Shah & Shri K.O.M. Arts College Modasa.	Extension of 4 Class Rooms. Equipment Remital course.	1,08,000 1,00,000 7,000	72,000 75,000 7,000	18.6.
16.	S.L.U. College, for Women, Ahmedabad.	Equipment	13,587	10,188	10.7.
17.	Navjivan Arts and Commerce College, Dahod.	Books and Journals	22,092	16,570	

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Indore University

Govt. Arts & Commerce College, Indore.	Books	85,000	63,750	14.7.76
	Equipment	32,000	24,000	
Govt. Girls P.G. College, Indore.	Books	57,000	42,750	26.8.76
	Equipment	45,000	33,750	
Govt. Degree College, Mhow.	Books	1,08,000	81,000	
	Equipment	1,30,000	97,500	

WATI UNIVERSITY

Govt. College, Datia.	Books	50,000	37,500	12.11.76
	Equipment	1,80,000	1,35,000	
Govt. Sec. College, Gwalior.	Books	68,000	51,000	19.10.76
	Equipment	1,80,000	1,35,000	
Ambah P.G. College, Ambah.	Extension of Laboratory	82,207	54,803	5.12.76
	Lecture-theater	82,000	55,200	
	Books	75,000	56,250	
	Equipment	60,000	45,000	

GPUR UNIVERSITY

Nabira Mahavidyalaya, Kolad.	Books	60,000	45,000	14.7.76
	Equipment	1,20,000	90,000	
Smt. Binzani Mahil Mahavidyalaya, Nagpur.	Books	80,000	60,000	31.7.76
	Equipment	1,20,000	90,000	

1	2	3	4	5	6
<u>Nagpur University (Contd)</u>					
26.	S.N. Mor College of Arts, and Commerce, Tumsar.	Principals quarter & Staff quarter	80,586 2,91,944	1,67,000	5.
		Books	80,000	60,000	
		Equipment	30,000	22,500	
27.	Matru Sewa Sangh Institute of Social Work, Nagpur.	Construction of Library.	2,28,000	1,00,000	2.
		Books	40,000	30,000	
		Lecturer	40,000	20,000	
<u>POONA UNIVERSITY</u>					
28.	S.G.V.P. comprehensive College of Education Khirode.	Teaching Aid Additional Staff.	25,000 25,000	25,000 25,000	16
		Books	50,000	37,500	
		Equipment	50,000	37,500	
29.	Arts, Science and Commerce College, Chalisgaon.	Workshop 800 Sqft. including small Animal House.	39,000	30,000	2.
		Workshop Equipment	40,000	40,000	
		Lab Equipment	88,000	66,000	
		Lab. Biology	70,000	35,000	
30.	S.S.V.P's Science College, Daulia.	Books	40,000	40,000	1.
		Equipment	40,000	40,000	

1	2	3	4	5	6
<u>RAVI SHANKAR UNIVERSITY</u>					
31.	Govt. College of Science, Raipur.	Books	1,00,000		
		Equipment	1,40,000		
<u>SARDAR PATEL UNIVERSITY</u>					
32.	Balakrishnai Jivabhai Vaniya Mahavidyalaya, Kaira.	Books	20,000	15,000	26.7.76
33.	Vithalbai Patel Mahavidyalaya, Vallabhi, Vadvanagar.	Equipment for Workshop.	65,000	65,000	6.10.76
<u>SAUGAR UNIVERSITY</u>					
34.	Govt. College, Secari.	Lab Equipment	40,000	30,000	22.6.76
		Books	78,000	58,500	
35.	Govt. P.G. College, Narsinghpur.	Books	60,000	45,000	14.7.76
		Lab Equipment	60,000	45,000	
		Class Room.	1,31,000	1,00,000	-
36.	M.C. Govt. Girls Degree College, Khandwa	Books	50,000	42,000	22.6.76
		Equipment	1,00,000	75,000	
37.	J.H. Govt. College Betul	Books	60,000	45,000	3.7.76
		Equipment	1,00,000	75,000	
		Animal House	1,15,000	1,00,000	
<u>SHIVAJI UNIVERSITY</u>					
38.	Sadguru Gadage Maharaja College, Karad.	Construction of Hostel	3,31,000	1,65,000	24.6.76
		Books	1,00,000	75,000	
		Equipment	80,000	60,000	
	Azed College of Education Satara	Audi Visual	23,000	23,000	24.6.76

SHIVAJI UNIVERSITY (CONTD)

1	2	3	4	5	6
40.	Willington College, Sangli.	Purchase of Lab. Equipment manufacture Furniture.	10,527	6,241	

SOUTH GUJARAT

41.	S.R. Shikshan Mahavidyalaya, Bilimori.	Teaching Accommodat	1,01,676	67,782	3.12.
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VIKRAM UNIVERSITY

42.	Ma'lav Vigyan, Mahavidyalaya, Ujjain.	Books	60,000	45,000	2.7.7
		Equipment	1,00,000	75,000	
43.	Govt. College, Khargone.	Books	48,000	36,000	12.10
		Lab. Equipment	80,000	60,000	

BERHAMPUR UNIVERSITY

44.	Challikote College, Berhampur.	Books and Journals	2,00,000	1,50,000	1.12.
		Lab Equipment	1,00,0000	75,000	
		Workshop Equipt.	50,000	50,000	

BIHAR UNIVERSITY

45.	Rajendra College, Chapra.	Lib. Books	1,00,000	75,000	5.11.
		Lab Equip.	1,40,000	1,05,000	
46.	R.N. College, Hajipur.	Extension of Teaching Accommodation.	3,24,000	2,16,000	1.12.
47	MJ.K. College, Bettiah.	Extension of Sce. Teachin Block, Books & Journals	3,38,5000 40,000	2,23,000 30,000	3.12.
		Lab Equip.	1,00,000	75,000	

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BHAGALPUR UNIVERSITY

	S.P. College, Danka	Addl. Teaching Accommodation.	2,56,925	1,67,000	19.11.76
49.	Sri K.R. College, Babigha	Books and Journals	50,000	37,500	3.12.76
		Library Building.	2,60,997	1,73,998	

BURDWAN UNIVERSITY

50.	Sambhunath College, Labpur.	N.R.S.C.	1,21,833	35,000	29.11.76
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CALCUTTA UNIVERSITY

51.	Jangipur College, Calcutta.	Extension of building for teaching accommodations.	1,02,800	2,23,000	17.11.76
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DIBRUGARH UNIVERSITY

52.	D.R. College, Golaghat.	Books and Journals.	60,000	45,000	29.11.76
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S.N. MITHILA UNIVERSITY

53.	Saharsa College, Saharsa.	Books and Journals	75,000	56,250	27.11.76
		Lab. Equip.	80,000	60,000	

MAGADH UNIVERSITY

54.	Anagarh Memorial College, Gaya.	Books and Journals.	50,000	37,500	27.11.76
		Lab Equipment	50,000	37,500	

RANCHI UNIVERSITY

	Ranchi Women's College, Ranchi.	Books and Journals	30,000	22,500	3.12.76
		Lab Equipment.	3,00,000	2,25,000	

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SAMBALPUR UNIVERSITY

56.	Women's College, Sambalpur.	Library building.	3,37,440	1,57,200	29.11.7
57.	S.K.D.A.V. College, for women Rotirkela.	Books and Journals.	60,000	45,000	8.12.7
		Equipment	40,000	30,000	

AGRA UNIVERSITY

58.	D.E.I.R.E.I. Degree College, Dayalbagh, Agra.	Books and Journals.	60,000	45,000	4.12.7
		Equipment	40,000	30,000	

CORAKPUR UNIVERSITY

59.	Sarvodaya Degree College, Ghosi, Jangarh.	Books and Journals	60,000	45,000	24.12.
		Library Building.	2,50,000	1,67,000	or 2/3 actual expenditure.
60.	Udai Pratap College, Varanasi.	Library building.	2,50,000	1,63,000	24.12 -or 2/3rd of act expenditure.
61.	Hiralal Ran Niwas Degree College, Khalilabad, Basti.	Library Building.	2,19,000	or 2/3rd of actual expenditure.	24.12
		Books & Journals	80,000	60,000	
		Equipment (including that for B.Con.	16,000	12,000	

KANPUR UNIVERSITY

62.	Christ Church College, Kanpur.	Extension of Botany & Zoology Laboratory	56,500	28,250	24.1 (50:50)
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KANPUR UNIVERSITY (CONTD)

		Books & Journals.	1,00,000	75,000	
		Equipment for all needy departments (not for Lab. Furniture.)	48,000	36,000	
63.	Jawala Devi Vidya Mandir Degree College, Kanpur.	Books & Journals	24,000	18,000	24.12.76

KUMAON UNIVERSITY

64.	Govt. P.G. College, Pithoragarh.	N.R.S.C (accepted in principle.)	70,000	70,000	30.12.76
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(2) Schemes of Colleges accepted under Rs. 1.5 lakh Scheme

The following proposals of Shrinati Jawahari Devi Birla Institute of Home Science Calcutta (Jadavpur University) have been accepted under Rs. 1.5 lakh scheme instituted by the Commission for professional Colleges during 5th Plan period.

Purpose	Approved Cost	UGC's share	Date of order
Books and journals	Rs. 30,000	Rs. 22,500	3.13.1976
Equipment	Rs. 30,000	Rs. 22,500	
	Rs. 60,000	Rs. 45,000	

- (3) Assistance to teachers working in Universities and Colleges for attending the Autumn Course on applications of Analysis, to Mechanics, conducted by the International Centre for Theoretical Physics, Trieste.
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The International Centre for Theoretical Physics, Trieste (Italy) conducts various advance level courses and invites scholars from different countries of the world for participating in these courses. The information regarding such courses is sent by the International Centre for Theoretical Physics to the University Grants Commission and the Commission sends such information to the Universities so that they may send applications of suitable candidates direct to the Organiser of the courses. The I.C.T.P. Trieste informed the Commission that it will be conducting an Autumn Course on Applications of Analysis to Mechanics. The universities were informed about this by the Commission and were requested to send the applications of suitable candidates direct to the I.C.T.P. Trieste. The I.C.T.P., Trieste selected some candidates and agreed to provide daily living allowances to cover maintenance (costs of these candidates while at Trieste) and also financial assistance to cover one way travel fare to Trieste. In consultation with the convenor, Physics Panel agreed to provide assistance towards the one-way travel cost (i.e. 50% of the total fare) in respect of the following candidates :-

1. Mrs. Margaret Muthuma,
Department of Physics,
I.I.Sc., Bangalore.
2. Dr. V.V. Ramana Rao, Department of Physics,
Andhra University,
Waltair.
3. Dr. Sarvajit Singh, Department of Physics,
B.N. Chakravorty University,
Kurukshetra.

Since Dr. Sarvajit Singh subsequently indicated his inability to attend the above course, and in his place the candidature of Dr. J.C. Bhatia of the Delhi College of Engineering, Delhi whose name was in reserve list has been accepted to be supported.

(4) Award of Commonwealth Academic Staff Scholarships/
Fellowships in the year 1976-77.

The Commission has been co-ordinating with the Commonwealth Scholarships Commission in the U.K. by scrutinising the nominations and seconding suitable candidates for the Commonwealth Academic Staff Scholarships/Fellowships which are awarded to enable some of the most promising teachers in Universities and Colleges in the developing countries of the commonwealth to obtain experience in a University or comparable institutions in the United Kingdom. For the year 1976-77, the Commission received 148 nominations for the award of fellowships and 80 for the award of Scholarships which were scrutinised with the help of an expert Committee and 25 names for fellowships, and 17 for scholarships were recommended to the Commonwealth Scholarships Commission, U.K. for consideration. The Commonwealth Scholarships Commission in the U.K. selected 10 candidates for fellowships and 6 candidates for scholarships during 1976-77 and have sent the award letters indicating their placements in different universities and institutions in the United Kingdom as per details given below.

FELLOWSHIPS:

<u>Candidates</u>	<u>Tenure of award</u>	<u>Placement in U.K.</u>
1. Dr. A.N . Datta, Institute of Radio Physics & Electronics, Calcutta University	1.10.76-10.7.1977	University College of North Wales.
2. Dr. GNR Tripathi Physics Deptt., Gorakhpur University,	-do-	University of Manchester.
3. Dr. C.G.R. Nair, Department of Chemistry, Kerala University.	-do-	University of London.
4. Dr. K.N. Swamy Department of Chemistry, Nagpur University.	-do-	-do-
5. Dr. Mrs. P. Rajan, Deptt. of Zoology, S.N. College for Women, Madurai.	-do-	University of Southampton,

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|-----|--|---------------------|--|
| 6. | Dr. S. Basu Mallik,
Deptt. of Geological
Sciences, Jadavpur
University. | 1.10.76 - 10.7.1977 | University of
Newcastle-upon-Ty |
| 7. | Dr. A. Mukhopadhyaya,
Deptt. of Applied
Mathematics, Calcutta
University. | -do- | University of
Cambridge. |
| 8. | Dr. S.B. Chaphekar
Department of Botany,
Institute of Science,
Bombay. | 1.7.77 - 30.9.1977 | University
College of North
Wales. |
| 9. | Dr. Sanjit Sarkar,
Deptt. of History,
Delhi University. | 1.10.76 - 10-7.1977 | Oriental Institut
Oxford. |
| 10. | Dr. Mrs. Shelley
Bhattacharya,
Department of Zoology,
Visva Bharati. | | |

SCHOLARSHIPS:-

- | | | | |
|-----|---|---------------------|--|
| 11. | Sh. Farhan Mujib,
Deptt. of Physics,
Aligarh M. University, | 1.10.76- 10.7.1978 | Chelsea College
London. |
| 12. | Miss Asha Singhal,
Deptt. of Mathematics,
Vivekananda Mahila
Mahavidyalaya. | -do- | Birkbeck College
University of
London. |
| 13. | Dr. B. Subba Rao,
Deptt. of Mechanical
Engineering,
A.V. College of Engg.
Vishakhapatnam. | -do- | University of
New Castle-upon-
Tyne. |
| 14. | Sh. S.A. Abbasi,
Elect. Engg. Deptt.,
Z.H. Engineering Coll.,
Aligarh Muslim University. | -do- | University of
Southampton. |
| 15. | Mrs. R.-Anritavalli,
C.I.E.F.L.,
Hyderabad. | 1.10.76 - 10.7.1977 | University College
London. |
| 16. | Mrs. Aruna Kumari
Misra, Department of
Botany, Utkal
University. | Not yet finalised | |

Out of the selected candidates Dr.(Mrs) Shelley Bhattacharya of Visva Bharati who was subsequently selected for another fellowship declined to accept the fellowship under this programme. Similarly Miss. R. Amritvalli of the C.I.M.F.L. Hyderabad, also declined to accept the award of scholarship under the scheme as she was offered a Canadian Commonwealth Scholarship. The details of placement in respect of Mrs. Azuna Kumari Mishra, of the Botany Deptt., Utkal University, who has been awarded a scholarship- have not so far been finalised, by the J.K. Commonwealth Scholarships Commission.

- (5) Banaras Hindu University- Sanction of an additional post of Reader in Ancient Indian History, Culture & Archaeology for Mahila Mahavidyalaya during fifth Plan period.

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The Vice-Chancellor, Banaras Hindu University, pointed out that the Commission has approved posts of one reader each in geography and sociology at Mahila Mahavidyalaya which were recommended by the Visiting Committee in first priority and requested that the posts of Reader in Ancient Indian History, Culture & Archaeology at Mahila Mahavidyalaya recommended by the Visiting Committee in second priority may also be approved in view of the importance of the subject. The proposal of the university has been accepted on 7th December, 1976.

- (6) Construction of Guest House At Indira Kala Sangit Vishwavidyalaya, Khairagarh.

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The University Grants Commission on the recommendations of the Vth Plan Visiting Committee accepted the proposal of the Indira Kala Sangit Vishwavidyalaya, for the construction of Auditorium at an estimated cost of Rs. 10.00 lakhs on 50:50 sharing basis. The Commission's share @ 50% is limited to Rs. 5.00 Lakhs.

The Vishwavidyalaya informed the Commission about the necessity of a Guest House, as there is no hotel worth the name at Khairagarh, the head-quarters of the Vishwavidyalaya.

In view of the position explained by the Indira Kala Sangit Vishwavidyalaya, the provision of Rs. 10.00 lakhs.

approved for the construction of auditorium has been earmarked for the construction of auditorium and guest house as under :-

	<u>Building</u>	<u>Estimated Cost</u>	<u>U.G.C. Share.</u>
I.	Auditorium	Rs. 3.00 lakhs	Rs. 4.00
II.	Guest House	Rs. 2.00 lakhs	Rs. 1.00
		<hr/>	<hr/>
		Rs. 10.00 lakhs	Rs. 5.00 lakhs.
		<hr/>	<hr/>

The approval was conveyed to the Vishwavidyalaya under this office letter No. 28-1/76(D4a) dated 30th October, 1976.

(7) Marathwada University- Approval of additional grant for the purchase of equipment for commerce department.

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connection

The Commission on the recommendations of the Vth Plan Visiting Committee approved a provision of Rs. 1.00 lakh for the purchase of equipment for the department of Commerce, of Marathwada University. The Committee also recommended a grant of Rs. 50,000/- each in priority II & III for the purchase of equipment. The Marathwada University in this connection informed the Commission that it was not possible to acquire the equipment in instalments. The University also indicated that the total amount of Rs. 2.00 lakhs (spared over 3 priorities) would be required in one instalment for the purchase of tabulator. The University therefore requested for the sanction of an amount of Rs. 2.00 lakhs as the 1st priority grant instead of spreading it over three priorities. In view of the position explained by the University an amount of Rs. 2.00 lakhs has been approved in one lot under this office letter No. F.2-1/76(D4a) dated 4th Nov. 1976.

- (8) South Gujarat University- Approval of a grant for the purchase of (i) Equipment and (ii) Books and Journals for the Department of Bio-Sciences.

The Visiting Committee which examined the Vth Plan proposals of the South Gujarat University felt that it would be desirable to start a department in Bio-Sciences (Not separate Departments of Botany and Zoology) to cater to needs of the areas which is rich in aquatic and forest resources. The Committee also felt that this department should be an integrated department, with staff specialization in the areas of (i) marine biology, (ii) algology, (iii) fishery biology, (iv) morphology (wood), (v) ecology (communities).

The Committee recommended the following facilities for the proposed department during Vth Five Year Plan:-

Item	Priority		
	I	II	III
Staff	-	1- Prof. 1- Reader 3- Lecturers.	-
Equipment	-	Rs. 3.00 lakhs	-
Books	-	0.50 "	0.50 lakhs.

Keeping in view the resources available with the Commission, the following items of expenditure were approved by the Commission in the first phase :-

Staff. 1- Professor
 1- Reader
 3- Lecturers.

The South Gujarat University intimated that in the absence of any approval of the Commission for providing requisite funds for purchase of equipment and books and journals, the approval of only teaching positions in the department will not serve any useful purpose. The University therefore requested for Commission's approval of Rs. 3.00 lakhs for equipment and Rs. 0.50 lakhs for books and journals as recommended by the Visiting Committee under Priority II.

In view of the position explained by the University approval to the provision of Rs. 1.5 lakhs for equipment and Rs. 0.50 lakh

for Books and journals for the department of Biological Sciences at present has been conveyed to the University under this office letter No. F.22-6/75(D-4a) dated 7.12.1976 on the condition that the expenditure on the purchase of equipment and books for the department may be incurred by the University only after the appointments of Professor and Reader have been made in the Department.

- (9) Poona-University - Approval of additional grant for the purchase of Equipment for Common facilities Programme during V Plan.

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The Commission on the recommendations of Vth Plan Visiting Committee approved a provision of Rs. 9.00 lakhs for the purchase of equipment under the common facilities programme at Poona University. The committee had also recommended a grant of Rs. 3.00 lakhs each in priority II and III for the purchase of equipment for common facilities programme.

The Poona University proposed to import two items viz. i) Liquid Nitrogen Plant for Physics Department and ii) NMR Spectrometer for the Chemistry Department at an estimated cost of Rs. 12,15,000 as under :-

i) Liquid Nitrogen Plant	Rs. 5,50,000
ii) NMR Spectrometer	Rs. 6,65,000

Rs.12,15,000

The University informed that the amount of Rs. 9.00 lakhs approved by the Commission for the purpose was not sufficient to cover the estimated cost of the above items of equipment. The University, therefore, requested for an additional grant. In order to enable the University to purchase the items referred to above an additional grant of Rs. 4.00 lakhs (i.e. Rs. 3.00 lakhs from Priority II and Rs. 1.00 lakhs from priority III) has been shifted to priority I. The approval for the additional grant of Rs. 4 lakhs for the purchase of equipment in question has been conveyed to the Poona University under this office letter No. F.4-1, dated 4th November, 1976.

- (10) Jabalpur University- Sanction of grant for Teaching for tribal Students at Post Graduate Level.

The Jabalpur University made a proposal for Compensatory teaching of the tribal students at the post graduate level and requested for a grant of Rs. 10,000/- for preparing teaching materials and for remuneration to teachers for delivering extra lecturers. The proposal has been accepted.

A grant of Rs. 10,000/- as requested by the Jabalpur University has been sanctioned to the University for preparation of teaching material under this office letter No. 13-2/76(D4a) dt. 23.11.76

- (11) Shivaji University- Starting of the Department of Education during the Vth Plan period.

The Shivaji University had made a proposal for opening up of new departments including Post-graduate Department of Education, to the Visiting Committee which examined the Vth plan proposals of the University. The committee in this regard suggested that the University may draw up detailed proposals and submit the same to the Commission for consideration.

The Shivaji University sent a proposal for the establishment of Department of Education as under :-

Non - Recurring

i)	Building	Rs. 2,00,000.00
ii)	Lib. Books and Journals and Back-volumes .	Rs. 50,000.00
iii)	Equipment	Rs. 50,000.00

Recurring

Staff

Professor-	1
Reader	2
Lecturers-	3

The proposal of the University has been accepted in principle under this office letter No.F.25-31/69(H.II/TE/D4a) dated 27th November, 1976. The University has been requested to obtain the concurrence of the State Government for maintaining the staff after the Commission's assistance ceases on 31.3.1981 and send the same to the Commission for final approval of the proposal.

(12) Gujarat University- Approval of Construction of Staff Quarters for Class IV Employees.

The University Grants Commission on the recommendations of the Vth Plan Visiting Committee accepted the proposal of the Gujarat University for the construction of extension to library building at a cost of Rs. 2 lakhs on 50:50 sharing basis during the Vth Plan, the commission's share limited to Rs. 1.00 lakhs.

The Gujarat University informed that an amount of Rs. 6.00 lakh collected by the University from students, teachers and the people as part of the centenary celebration of Sardar Vallabh Bhai Patel has been utilised for providing reading facilities to 400 students. Hence extension to the library as approved by the Commission during V plan is not needed. The University proposed to utilise the provision of Rs. 2.00 lakhs for the Class IV servants quarters as their need was acute so far as residential accommodation is concerned.

Since the proposal of the University did not involve extra financial burden on the Commission the Gujarat University has been permitted to utilise the allocation of Rs. 2.00 lakhs made for the extension of library building, towards the construction of Staff quarters for class I V employees. The Commission's share will be limited to Rs. 1.00 lakhs. The approval was conveyed to the University under this office letter No.F.18-6/75(D4-A) dated 25.11.1976.

(13) Tata Institute of Social Sciences, Bombay- Approval to the Construction of Extension of Library Building.

The University Grants Commission approved a provision of Rs. 2,70,000/- for the construction of Extension of Library

Building at the Tata Institute of Social Sciences, Bombay, during the 5th Five Year Plan. The Tata Institute of Social Sciences, Bombay submitted the plans and estimates of the project at a cost of Rs. 3,70,100/-. According to the norms laid down by Commission, the estimated cost of the building works to Rs. 3,07,593/-. This value of estimates according to the U.G.C. norms minus the provision of Rs. 2,70,000 approved by the Commission. The Institute suggested that the uncovered balance of Rs. 37,593/- may be met by transferring Rs. 40,000/- from the allocation of Rs. 50,000/- approved for equipment. The preliminary estimates at the cost of Rs. 3,07,593/- as well as the readjustment of the extra expenditure as suggested by the Institute have been accepted under this office letter No. F, 24-8/75(D-4a) dated 11.11.76 and dated 23. 1.1976.

The position of the allocation (a) Extension of Library building and (b) Equipment for teaching departments during V Plan will be as under:-

Purpose	Allocation approved during V Plan.	Allocation with the adjustment as suggested above.
1. Library building (Extension)	2,70,000	3,10,000
2. Equipment for Teaching Department.	50,000	10,000
Total	3,20,000	3,20,000

(14) Utilisation of the Women's Hostel as Men's Hostel at Anand Arts College, Anand.

Construction of Women's Hostel at Anand Arts College, Ananda was approved in 1969 and the hostel building was completed in 1971. Since then 3 more Arts Colleges have been opened at Anand, two of them are Women's College. The students of these colleges are generally day scholars coming from nearby villages from where road transport facilities are available. In view of this demand for hostel accommodation from the girls students has, reduced at the Anand Arts College, Anand. The Principal of the college therefore,

requested University Grants Commission to permit the college to convert the hostel into a Men's Hostel. The college also expressed their inability to repay excess amount on account of the difference in sharing basis for Women's and Men's hostels. The Registrar of Sardar Patel University also requested this office for favourable consideration. In view of these circumstances the proposal of the college was accepted.

(15) Vth Five Year Development Proposals of the Jamia Millia Islamia- Acceptance of the Commission.

The Commission at its meeting held on 7th Jan 1976 (Item No. 33) considered the report of the Visiting Committee on Jamia Millia Islamia and desired that the Jamia may be requested to frame its proposals in the light of the note attached Appendix-I.

The Jamia Millia Islamia sent its proposals on the lines suggested to it and the Commission appointed a Committee consisting of the following to consider the remaining Vth Five Year development proposals of the Jamia Millia Islamia:-

- i) Prof. K. P. Banthia.
- ii) Prof. Maqbool Ahmed.
- iii) Prof. A. J. Dastur.

The Committee has submitted its report and the recommendations of the Committee have accepted by the Commission, and the same have been conveyed to Jamia Millia Islamia. A summary of the grant agreed to is attached- Appendix. II

(16) Support for advanced research in humanities and Social Sciences- First Award during - 1976-77.

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The University Grants Commission invited proposals from University and College teachers for support for advanced research in the humanities and social sciences for the first award during 1976-77. The Commission received 162 proposals and

these were placed for consideration before the 13 concerned Panels in the humanities and social sciences which met in July, August, September, October, 1976. The Panel has recommended that the University Grants Commission may provide assistance for 26 projects at a total cost of Rs. 6,51,200/-. The Panel further suggested that 3 projects may be provided assistance under short term projects and further information views of experts be invited in respect of 74 other proposals. The Panel did not recommend any assistance for 59 projects. Subjectwise position in this regard is given below :-

Subject	Number of applications received	Number of proposals approved	Number of proposals approved under short term projects	Number of proposals under consideration	Number of proposals not accepted.	Amount.
1	2	3	4	5	6	7
1. Sociology & Social Anthropology.	6	2	-	8	6	43,200
2. Commerce	5	1	1	2	1	3,500
3. English & Foreign Languages.	6	-	-	2	4	-
4. Economics	14	2	-	7	5	43,000
5. Social Work	-	-	-	-	-	-
6. Law	1	-	-	1	-	-
7. Philosophy	3	-	-	1	2	-
8. Psychology	13	1	-	7	5	1,500
9. Teacher Education	13	-	1	10	2	-
10. M.I.L.	33	4	1	18	10	56,400
11. Linguistics	19	4	-	5	10	55,000
12. Pol. Science	20	4	-	8	8	60,700
13. History.	19	8	-	5	6	3,87,900
	162	26	3	74	59	6,51,200

66
The details of 36 advanced research projects approved in the humanities and social sciences at a total cost of Rs. 6, 51, 200 are given in the Annexure.

(17) Award of L.L.M. Scholarships during 1976-77

The Panel on Law at its meeting held on 25th October, 1976 considers the recommendations of the sub-committee for the award of L.L.M. Scholarships and recommended 47 candidates-against 50 Scholarships) for outright award of scholarships for P.G. studies-in Law to enable merited students to pursue their full time L.L.M. Course in Universities. The value of Scholarship which will be tenable for the duration of this course subject to maximum period of 2 years is Rs. 250/- per month.

The details of the Candidates selected and those in the waiting list alongwith a copy of the rules for the award are given in Annexure I & II respectively.

(18) Award of Junior Research Fellowship in Science during 1976-77.

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The Commission on the recommendations of the selection Committee appointed for the purpose which met on 25th October, 1976 has agreed to the award of 111 (one hundred and eleven Junior Research Fellowships in Science of the value of Rs. 400 per month with a contingent grant of Rs. 1,500 per annum during 1976-77 as per list attached Annexure III.

(19) Financial Assistance to teachers in the Universities and Colleges for Minor Research Projects in Science subjects- Selection of Projects for 1976-77

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A meeting of the Expert Committee appointed by the Commission

to examine the proposals received under the scheme "Financial Assistance to teachers in the Universities and Colleges for Minor Research Projects in Science subjects" was held on 26-27th November, 1976. A total number of 2016 applications were received in different science subjects out of which the committee has selected 1021 projects and a total grant of Rs. 35,20,233/- have been approved as detailed below: (order dated 21.12.76).

<u>S.No.</u>	<u>Subjects</u>	<u>No. of teachers selected</u>	<u>Grant approved.</u>
1.	Physics	130	Rs. 9,45,000
2.	Chemistry	359	Rs. 5,50,000
3.	Mathematics	62	Rs. 1,99,900
4.	Botany	172	Rs. 6,11,893
5.	Zoology	97	Rs. 5,49,210
6.	Geography	27	Rs. 1,01,900
7.	Geology	31	Rs. 1,22,630
8.	Engineering	45	Rs. 2,62,850
9.	Agriculture	10	Rs. 47,050
10.	Medicine	24	Rs. 1,16,500
11.	Microbiology	2	Rs. 6,500
12.	Home Science	1	Rs. 3,000
13.	Miscellaneous	1	Rs. 4,000
		1021	Rs. 35,20,233

The entire grants for the implementation of the approved projects in each case is being released in full.

(20) Extension of the tenure of the temporary post of Deputy Secretary.

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Pending receipt of the report of the Staff Inspection Unit, the tenure of the temporary post of Deputy Secretary which was last extended upto 31st December, 1976 as reported to the Commission vide Item No. 2(a) (9) at its meeting held on 18th October, 1976 has been further extended upto 30th June, 1977 (Afternoon) vide order dated the 4th December, 1976.

- (21) Deputation abroad of Shri R.K. Chhabra, Secretary, University Grants Commission to Poland and Egypt as a member of the delegation of the Ministry of Education and Social Welfare and Culture under the Cultural Exchange Programme from 5th December, 1976 to 15th December, 1976.

Shri R.K. Chhabra, Secretary, University Grants Commission, proceeded abroad to Poland and Egypt as a member of the delegation appointed by the Government of India in the Ministry of Education and Social Welfare and Culture to finalise the Indo-Polish and Indo - A.R.E. Cultural Exchange Programmes - 1977 and 1978 from 5th December, 1976 to 15th December, 1976.

The period of absence of Shri Chhabra had been agreed to be treated as on deputation abroad and during this period he received full pay and allowances at the rates admissible to him but for proceeding abroad on deputation vide orders dated 3rd December, 1976.

The expenditure on the passage of Shri Chhabra including Foreign Travel Tax and also on Pay and Allowances (including DA and medical facilities), etc. was debitabale to the existing sources in terms of Govt. of India, Department of Culture letter No.F.7-5/76-CI dated the 4th December, 1976.

- (22) Deputation abroad of Dr. D.Shankar Narayan, Additional Secretary, University Grants Commission, to Paris and U.K. in connection with the 1977 Work Plan on the Project of Special Assistance to Selected University Departments.

Dr. D. Shankar Narayan, Additional Secretary, University Grants Commission, proceeded abroad to Paris and U.K. in connection with the 1977 Work Plan on the Project of Special Assistance to Selected University Departments on 6th December, 1976 (forenoon) and returned to Headquarters on 19th December, 1976 (afternoon).

The period of absence of Dr. Shankar Narayan had been agreed to be treated as on deputation abroad and during this period he received full pay and allowances at the rates admissible to him but for proceeding abroad on deputation vide orders dated the 3rd December, 1976.

The expenditure on the passage of Dr. Shankar Narayan including Foreign Travel Tax and also his stay in Paris and U.K. was met by the UNESCO/UNEP out of the funds earmarked for the Project of Special Assistance to Selected University Departments.

- (23) Extension of the period of deputation of Dr. (Mrs.) Vina Mazumdar, Deputy Secretary, University Grants Commission, on foreign service terms as Chief Editor in the Indian Council of Social Science Research.

On receipt of a request from the Indian Council of Social Science Research for extension by three months of the period of deputation of Dr. (Mrs.) Vina Mazumdar, Deputy Secretary, University Grants Commission, as Chief Editor in the Indian Council of Social Science Research, it has been agreed to extend the term of deputation of Dr. (Mrs.) Vina Mazumdar with the Indian Council of Social Science Research from 1st January, 1977 (forenoon) to 31st March, 1977 (afternoon) on the existing terms and conditions (vide orders dated the 21st December, 1976.)

- (24) Regularisation of ad-hoc payment of Rs. 2,000 made to Shri Budh Ram Sharma, Special Public-Prosecutor in February, 1963 for contesting the case U.G.C. versus Commercial University Limited, Daryaganj, Delhi.

The University Grants Commission had filed a case against Commercial University Limited, Daryaganj, Delhi for contravening the provisions of Section 23 of the UGC Act, 1956, thereby committing an offence punishable under Section 24 of the said Act. The Deputy Commissioner, Delhi appointed Shri Budh Ram Sharma, one of the Public Prosecutors (Panel Lawyer) to conduct the case on behalf of the UGC in a Court in Delhi. Under the advice of the Ministry of Law (Department of Legal Affairs) obtained through the Ministry of Education, Shri Sharma was to be paid a fee of Rs. 24/- for effective hearing and Rs. 12/- for non-effective hearing in view of the long drawn out nature of the case. An ad hoc payment of Rs. 2,000/- was made by the Commission to the Lawyer in February, 1963 in accordance with the rules approved by the Law Ministry.

Since Shri Budh Ram Sharma, the Lawyer, did not render accounts of the ad hoc payment of Rs. 2,000/- made to him

inspite of repeated requests both oral and written, the matter was taken up by the Office of the Commission with the Deputy Commissioner, Delhi and later with the Ministry of Education and Social Welfare for settlement of the accounts of the above payment, who in their turn took up the matter with the Chief Secretary, Delhi and the Ministry of Law. Having failed to get the accounts in the proper form from Shri Budh Ram Sharma the Secretary, Bar Council of Delhi was requested to persuade Shri Sharma to render accounts of Rs. 2,000/- to the Commission as advised by the Ministry of Education at the instance of the Ministry of Law, Justice and Company Affairs. Shri Budh Ram Sharma is understood to have preferred to the Bar Council a claim of Rs. 2,860/- representing Rs.1860 for court hearings and Rs. 1,000/- for 5 visits in which he had to incur travelling expenses apart from his visiting fees, etc. After exchange of correspondence with the Bar Council of Delhi, the Council informed the Commission in November, 1976 to the effect that the Commission's complaint had been dismissed by the Bar Council. Under the circumstances, the "ad hoc" payment of Rs. 2,000/- made to Shri Budh Ram Sharma, Lawyer, has been treated as final payment (vide orders dated 16-12-1976).

- (25) Extension of the tenure of the temporary posts sanctioned for the work relating to the Third National Survey (Higher Education Sector) in the Office of the University Grants Commission.

....

As the work relating to the Third National Survey (Higher Education Sector) undertaken by the Commission continued, the tenure of the following temporary posts created for the Survey work in the Office of the University Grants Commission which was to expire on the 31st December, 1976, has been further extended up to the 31st January 1977 (vide orders dated the 30th December, 1976) as the need for the same was considered necessary :-

<u>Sl. No.</u>	<u>Name of the post</u>	<u>No of posts</u>
1.	Chief Coordinator	1
2.	Coordinator	2
3.	Senior Statistical Assistant	2
4.	Statistical Assistant	1
5.	Peon	1

2. The following temporary posts created for the above work which were no longer required have been abolished w.e.f. the 31st December, 1976 (AN) (Vide orders dated 30th December 1976):

<u>Sl. No.</u>	<u>Name of the Post</u>	<u>No of post(s)</u>
1.	Statistical Assistant	1
2.	Jr. Stenographer	1
3.	LDCs/Typists.	2

Appendix I to Item No. 2(a)(15)

Lines of development - Jamia Millia Islamia during V Plan.

- a) The Jamia should give special emphasis to strengthen and restructure its undergraduate courses (including teacher education) to make them more relevant and submit a detailed proposal for the consideration of the Commission.
- b) The Jamia may not institute postgraduate courses in Sciences including Mathematics during the current plan period.
- c) In addition to the Departments of History, Urdu and Education, the Jamia may develop the post-graduate teaching in the following Departments in the order of priority given below:
 - i) Department of Islamic and Arab-Iranian Studies
 - ii) Department of Social Work and Applied Social Sciences (Sociology & Psychology)
 - iii) Political Science
 - iv) Economics.

NOTE

- i) Opening of Postgraduate Course in Arabic and Persian (Iranian), would be on the condition that these Departments come together under one viable administrative Unit of "Department of Islamic and Arab-Iranian Studies".
- ii) The School of Social Work may be redesignated as "Department of Social Work and applied Social Sciences." Post-graduate Courses in this Department may be opened in (i) Social Work (ii) Sociology-Psychology may be introduced at the undergraduate level only.
- iii) Postgraduate courses in Political Science and Economics would be started if funds are available within the suggested 2/3rd allocation.

- d) Buildings (In order of Priority)
- i) Postgraduate Block for Departments of Humanities.
 - ii) Department of Social Work and Applied Social Sciences.
 - iii) Boy's Hostel
 - iv) Vice-Chancellor's Residence
 - v) Staff Quarters.

The items to be sanctioned, including books, and equipment for undergraduate courses, would be limited to Rs. 50 lakhs as UGC share against an allocation of Rs. 75 lakhs. The matching share which hitherto was provided by the Government of India would be provided in addition to this.

Appendix II to Item
No. 2(a)(15)

Details of grants agreed to the Jamia Millia
Islamia during the Vth Plan period.

Sl. No.	Scheme	Financial implications (Rs. in lakhs)
1	Spill over	9.97
2	<u>Basic</u>	
	Books	1.50
	Equipment	2.00
3	<u>Schemes accepted as 1st charge.</u>	
	i) Books	1.00
	ii) Equipment	0.40
	iii) Furniture/Fixtures	0.50
	iv) Staff	3P, 12R, 26L, 7* others
		* Janitor 2, Attendant 1, Cleaner 1, Asstt. Clerk1, & Stenographer 1, & one coach.
4	<u>New Schemes</u>	
	a) <u>Non-recurring</u>	
	1) Books	3.12
	2) Furniture	1.00
	3) Jamia College Bldg.	2.26
	4) Staff Quarters	0.70
	5) Reprographic	4.75
	6) Repairs & Campus Development	
		<u>11.83</u>

b) Recurring

2P, 5R, 2L, 13 others
6 Jr. Res. Fellowship

S.No. Department

Staff

- 1 Arab-Iranian Studies
- 2 Social Work & Applied
 Social Science .
- 3 Economics
- 4 Political Science
- 5 Geography

1L in Arabic from 1976
1R in Sociology from
1976
1P & 2R from 1977
1P & 2R from 1977
1L in Cartography from
1977

Other Staff:

- 1 Library Staff
- 2 Non-Teaching Staff

3 Professional Junior
& 3 Prof. Asstts. from
1976 in a phased mann
1 Nurse, 5 Typist
Clerk, 1 Development
Officer from 1976.

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Annexure to Item No. 2(a)(16)

Details of the proposals approved under the
Scheme of support of advanced research in
Humanities and Social Sciences for the first
award during 1976-77

S. No.	Name of the Investigator	Title of Project	Total amount approved
1	2	3	4

Subject : Psychology

1	Dr. Radha Krishna Naidu Reader in Psychology Allahabad University	An Exploratory Study of Environ- mental Correlates of Coronary Heart Disease among Indians	Rs. 1,500/- for pilot study
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History

1	Dr. A.V. Narasimha Murty Professor & Head of the Department of Ancient History & Archaeology, Mysore University	Revenue Admins- tration in Karnataka with special reference to taxation from early times to end of Vijayanagar (3 years)	Rs. 50,000/-
2	Dr. R.V. Joshi Department of History Poona University	Archaeological Explorations in the Manjra Valley covering the Bhir and Osmanabad Disyriect in Mahara- shtra and parts of Karnataka and Andhra Pradesh through which it flows (3 years)	Rs. 50,000/-

1	2	3	4
3	Dr. Madhukar Shripad Mate Reader Deccan College Postgraduate & Research Institute Poona	Late Medieval Painting in Maharashtra or Maratha Paintings (3 years)	Rs. 30,000
4	Dr. B.P. Sinha Professor & Head Department of Ancient Indian History & Archaeology, Patna University	Chirand Excavations (5 years)	Rs. 1,25,000
5	Dr. R.N. Nandi Department of History Patna College Patna-5 (Patna University)	Social Survey of early Indian Land Grants (30 months)	Rs. 47,500
6	Shri A.C. Sahu Reader and Head F.M. College Balasor	Some Aspects of British Trade Policy in India (1800-1900) (2 years)	Rs. 34,400
7	Shri S.N. Sen Head Vidyasagar College for Women Calcutta University	Decline and fall of the Maratha Empire (1796-1818) in two volumes.	Rs. 11,000
8	Shri P.L. Mehra Prof. of History & Head, Department of central Asian Studies, Panjab University	The Northern, North- Eastern Frontier in Indian History C. 1300-1947	Rs. 40,000
<u>Political Science</u>			
1	Dr. A.F. Usmani Reader in Political Theory and Behaviour, Department of Pol. Sc. Aligarh Muslim University	Politics of Coalition and President's Rule - A case study of Uttar Pradesh	Rs. 5,000

1	2	3	4
2	Miss Sudha Trikha Lecturer Rajasthan University	Govt. and Politics of South Asia: An Annotated bibliography (1941-74)	Rs. 8,900/-
3	Dr. S. Bhattacharya Lecturer Maharaja Manindra Ch. College Calcutta (Calcutta University)	Role of the Political Elites in a Develop- ing Society: A study of the role of the M.L.A's in West Bengal (1964-76)	Rs. 34,900/-
	Mrs. Nandini Loreti	Civic Culture of Women Students and their chang- ing attitude towards authority.	Rs. 11,900/-

Linguistics

1	Dr. Ram Gopal Kalidasa Prof. of Sanskrit and Acting Head Panjab University	The History and Principles of Vedic Interpretation.	Rs. 10,000/-
2	Dr. A. Pradhan Principal Hindi Teachers Training College Bhubaneswar	Place-Name Study of Ganjam District (Orissa)	Rs. 5,000/-
3	Shri G.K. Panikkar Reader University of Kerala	Language stratifi- cation and Social change in Lakshadvip- A Socio-Linguistic Analysis.	Rs. 30,000/-
4	Shri V.R. Prabodha Chandran Nayar Reader University of Kerala	Sociolinguistic Survey of the Tribal Dialects in the Idukki District of Kerala	Rs. 10,000/-

1	2	3	4
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Sociology

- | | | | |
|---|--|--|------------|
| 1 | Dr. K.G. Gurumurthy
Reader in Anthropology
Karnatak University
Dharwar | Cultural Trans-
plantation A case Study
of Tibetan refugees of
Mundgod. (30 months) | Rs. 17,000 |
| 2 | Dr. Muntaz Ali Khan
Asstt. Prof.
University of
Agricultural Sciences
Bangalore | A study on sociological
aspects of children
in rural Karnatak
(one year) | Rs. 25,800 |

Economics

- | | | | |
|---|---|--|--------------------------------|
| 1 | Dr. Bidyadhar Misra
Prof.
Department of Analytical
and Applied Economics,
Utkal University
Bhubaneswar-4 | A study of the
changes in the
Agrarian structure
in Cuttack District
(2 years) | Rs. 40,000 |
| 2 | Shri T.C. Mehta
Lecturer
Govt. College
Kota
(Rajasthan University)
Jaipur | Dynamics of Agri-
culture in Canal
Command Area-A
study of changing in
chambal command Area. | Rs. 3,000
for pilot
work |

Modern Indian Languages

- | | | | |
|---|--|--|------------|
| 1 | Dr. . K. dandaramaiah
Professor
Madurai University | A comparative study
of the biographics
of the saivaite
saints described in
Telugu, Kannada and
Tamil Literatures. | Rs. 26,400 |
|---|--|--|------------|

1	2	3	4
2	Shri M.S. Pillai Madras University	Tivakaram (3 years)	Rs. 7,000/-
3	Dr. N. Sanjeevi Professor & Head Madras University	Thirumandiram with an old Commentary (3 years)	Rs. 8,000/-
4	Sh. Nainar Mohamed Professor Janial Mohamed College Tiruchairapalli (Madras University)	A compilation of rare Manuscripts relating to Tamil Muslim Literature of the 19th and 20th centuries and its Editing and publi- shing (2 years)	Rs. 15,000/-
<u>Commerce</u>			
1	Shri P.V. Mathew Lecturer School of Management Cochin University Cochin	An enquiry into the reasons for the failure of small scale industries in Kerala. (3 years)	Rs. 3,500/-

Annexure I to Item No. 2(a)(17)

List of candidates selected for the award
of LL.M. Scholarships.

Sl. No.	Name	University
1	2	3
1	Shri Choudhary S.C.	Delhi
2	Shri Sharma S.K.	"
3	Shri Oudhbehari Lal	"
4	Shri Sharma Om Parkash	"
5	Shri Jain V.K.	"
6	Shri Kulra P.	"
7	Shri Aggarwal A.K.	"
8	Shri Menkundale P.N.	Poona
9	Shri P. Chandrasekharan	"
10	Smt. Patil S.G.	"
11	Shri Balvir Prasad	Lucknow
12	Shri Chopra S.K.	"
13	Shri Rajiva	"
14	Shri Mittal A.N.	Aligarh
15	Shri Hidayatullah	"
16	Shri Parashar R.K.	"
17	Shri Rakesh Kumar	"
18	Shri Ladoo Ram Loten	Rajasthan
19	Shri Bhagwan Singh	"
20	Shri Jain A.K.	"
21	Shri Birmiwai S.L.	"
22	Shri Tripathi Rakesh	Allahabad
23	Shri Ambwani Sunil	"
24	Shri Rambhatla V.R.	Andhra
25	Shri Pattamatta V.S. Pratap	"
26	Shri Madhira S R Chanora	"
27	Shri Hiremath V.G.	Karnatak
28	Shri Hegde S.G.	"
29	Miss Bhandri Pushpa	Udaipur
30	Shri Mehta C.S.	"
31	Shri Swarankar P.R.	"
32	Shri Kshirasagar V.P.	Nagpur
33	Shri Bhonde V.R.	"
34	Shri Rakesh Kakkar	Panjab
35	Shri Jindal A.K.	"

1	2	3
36	Shri Garg B.R.	Panjab
37	Shri Jain A.K.	"
38	Shri Sharma B.R.	"
39	Shri Kundra P.K.	"
40	Smt. Shambharwal K.K.	"
41	Shri Khychy S.L.	"
42	Shri Sinha Om Parkash	Banaras Hindu
43	Shri Prasad Rajnarain	"
44	Shri Gupta A.L.	"
45	Shri Kulkarni S.G.	Shivaji
46	Shri Kanakapura Ramaswamy S.S.	Mysore
47	Shri Rajagopalan Moorkanat	Cochin

Candidates placed in the waiting list
in order of priority for the award of
UGC I.L.M. Scholarship

1	Boota Singh	Panjab	S.C.
2	Bhide Sunanda Raghunath	Bombay	
3	Premnath Shamrao	Poona	
4	Vinorkumar Kruparam Bholu	Nagpur	
5	Kala Munet	Udaipur	
6	Sukhdarshan Singh Khehra	Panjab	
7	Abdul Hamid	Delhi	
8	Harpal Kaur	Delhi	
9	Ghulam Saqlain Masoodi	Delhi	
10	Gupta Sunil Kumar	Delhi	
11	Satpal Singh Makkar	M.S. University of Baroda	

Annexure II to Item No. 2(a)(17)

UNIVERSITY GRANTS COMMISSION

RULES FOR AWARD OF SCHOLARSHIP FOR FULL TIME LL.M. COURSES

The Commission has instituted 50 scholarships for LL.M. studies to be administered directly by the Commission to enable merited students to pursue their full time LL.M. course in Universities.

1 ELIGIBILITY

Candidates with a bachelor's degree in Law in first or second division with 55% marks or 'B' in the 7 point grade system who obtained more than 60% marks in law are eligible to apply for award. The awards are available to Indian nationals only.

2 VALUE AND DURATION

The value of scholarship is Rs. 250/- p.m. will be tenable for the duration of the course subject to a maximum of 2 years. Where a scholar is enrolled in a University other than from the University from which he obtained his LL.B. degree, he may also be paid travel expenses upto the extent of 2nd class rail fare from the place of their residence to the place where they are studying, once in a year during the tenure of award.

3 CONDITIONS OF AWARD

- a) The selected scholar shall pursue full time LL.M. course at a University which has LL.M. courses.
- b) The selected scholar shall not accept or hold any appointment paid or otherwise and shall not draw any stipend or scholarship from any other source during the tenure of award.
- c) The selected scholar shall send to the Commission through the Head of the University half yearly reports about progress in his/her studies.

- d) If it should appear at any time to the Commission that the progress or conduct of the scholar has not been satisfactory, his/her scholarship may be suspended or withdrawn.
- e) The selected scholar shall furnish brief details of the post he/she may take up after completion of his postgraduate studies under the award.

4 SELECTION

~~Selection~~ for the award of scholarship will be made by the University Grants Commission on the recommendations of a selection committee constituted for this purpose. The decision of the Commission in each case shall be final.

5 PAYMENT

The amount of the scholarship will be paid every month to the scholar by the University where he/she is studying. The institution concerned will draw the amount from the University Grants Commission. (The Commission will make an advance payment to the institution, if desired).

6 RESERVATION

10% scholarship are reserved for the scheduled caste/scheduled tribe candidates. If scheduled caste/scheduled tribe candidates with requisite qualification are not available, the scholarship will be treated as unreserved and will be awarded to the next qualified candidates.

APPENDIX I

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI

Award of Research Full time LL.M. Course

Statement to be furnished by the University
alongwith the request for drawing the grant
for the period ending 31.3.77

This is to certify that _____
has joined the Department of _____
under full time LL.M. course of the University Grants
Commission with effect from _____ (F.N.). He/
she will be provided with all necessary facilities
during his/her tenure of award. Also certified that he/
she is not receipient of emoluments from any other source
after joining the Scholarship awarded to him/her by the
University Grants Commission. The total amount payable
for him/her for the period ending 31.3.1977 towards
his/her scholarship comes to Rs. _____.

Registrar:

University:

S E A L

N.B. The joining report of the Scholar in original duly
countersigned by the Head of the Department may
kindly be attached to this statement.

APPENDIX II.

UNIVERSITY GRANTS COMMISSION

Certified that the amount of Rs. _____
(Rupees _____ only) out
of Rs. _____ sanctioned in respect of _____
_____ as scholarship for full time LL.M.
course vide University Grants Commission letter No. _____
_____ dated _____ has been fully
utilized for the purpose for which it was sanctioned and
in accordance with the terms and conditions laid down by
the University Grants Commission. The balance amount of
Rs. _____ has been carried forward/refunded vide
Demand Draft No. _____ dated _____ vide
letter No. _____ dated _____.

If as a result of check or audit objection some
irregularity is noticed at a later stage action will be
taken to refund, adjust or regularise the objected
amount.

Signature:

Supervisor

Head of the
Department

Registrar

SEAL:

UNIVERSITY GRANTS COMMISSION

Candidates selected for the award of Junior
Research Fellowship in Science - 1976-1977

S.No.	Subject	Name of Scholar Selected	University/Institute/ College where research is to be undertaken.
1	2	3	4
1.	PHYSICS	Shri Gudipati Jagan Mohana Rao	P.G.Centre (Guntur) Andhra University
2.	-do-	Jasti Rajani Kumari	Andhra University
3.	-do-	Shri Dontula Subba Rao	Andhra University
4.	-do-	Shri Venkataraman Radhakrishnan	Annamalai University
5.	-do-	Shri Raj Kumar Singh	Aligarh Muslim Univ..
6.	-do-	Km. Shah Nirmala Popatlal	Gujarat University
7.	-do-	Shri Kaki Nagavenkata Setya Sai Baba Janaki Ram	Hyderabad University
8.	-do-	Shri Subrata Kumar Ray	J.N.U.
9.	-do-	Shri Chhavi Nath Pandey	Lucknow University
10.	-do-	Shri Ishwerdatt Gupta	Meerut University
11.	-do-	Km. Sudha Krishnaswamy	Nagpur University
12.	-do-	Shri Devesh Kumar Avasthi	Punjab University
13.	-do-	Shri Prabhakar Singh	Punjabi University
14.	-do-	Km. Jayashree Nagnath Taskar	Poona University
15.	MATHEMATICS	Shri Afzal Beg	A.M.U.
16.	-do-	Km. Rachita Das	J.N.U.
17.	-do-	Shri Chhigan Lal Verma	Rajasthan University
18.	-do-	Km. Rama Ehargava	Roorkee University
19.	-do-	Smt. Chourasia Nilima N	Sardar Patel Univ.
20.	-do-	Shri Jibadhan Naik	Sambalpur University
21.	-do-	Shri Devendra Nath Srivastava	Agra College, Agra
22.	-do-	Km. Arati Misra	Khallikote College, Berhampur
23.	-do-	Km. R. Chaya Devi	Central College, Bangalore University
24.	STATISTICS	Shri Rani Raja Lakshmikantam	Andhra University
25.	-do-	Shri Deepak Agarwal	Lucknow University

1	2	3	4
26.	CHEMISTRY	Shri Nikhat Sultana	Aligarh Muslim Univ
27.	-do-	Shri Moghisuddin Ahmed	-do-
28.	-do-	Shri J.C. Chawla	-do-
29.	-do-	Shri G.V. Ramanadham	Andhra University
30.	-do-	Rita Mahrish	Delhi University
31.	-do-	Shri R.B. Roy	Gorakhpur University
32.	-do-	Shri Garimella Krishna Anjaneya	Andhra University
33.	-do-	Shri Subrata Laskar	Burdwan University
34.	-do -	Shri Ramesh Chand	Himachal Pradesh Univ
35.	-do-	Shri Sharnappa T.N.	Karnatak University
36.	-do-	Shri A.K.S. Chauhan	Lucknow University
37.	-do-	Shri C.H.S. Gill	Marathwada University
38.	-do-	Shri K.P. Kopally	Osmania University
39.	-do-	Shri H.P. Misra	Sambalpur University
40.	-do-	Shri T.L. Dhami	Panjab University
41.	-do-	Shri A.K. Manchanda	Panjab University
42.	-do-	Shri S.S. Shivpuri	Udaipur University
43.	-do-	Km. Prabha Bokadia	Vikram University
44.	-do-	Km. Alka Mehta	Govt. College, Mandsa
45.	-do-	Shri Suresh C. Sharma	V.S.S.D.College, Kanpi
46.	-do-	Shri S. Murli Dharan	Vivekananda College, Madras.
47.	BIO-CHEMISTRY	Shri Kashinath Singh	Banaras Hindu Univ.
48.	-do-	Shri B.K. Bhattacharya	Banaras Hindu Univ.
49.	-do-	Shri Inder Mohan Saxena	G.B. Pant University
50.	-do-	Smt. Indriani Chander Sekhar	Nagpur University
51.	-do-	Km. Rajesh Goel	D.A.V. College, Muzaffar Nagar

1	2	3	4
52.	BOA # 2	Shri Bipal Singh	Aligarh Muslim Univ
53.	-do-	Shri Potluri Venkateswara Prasad	B. h. U.
54.	-do-	Shri Kamlesh Kumar	B. h. U.
55.	-do-	Shri Kolluru Venkata Atchuta Ramiah	J. I. U.
56.	-do-	Km. Sunita Bakshi	Jiwaji University
57.	-do-	Smt. Indira C.	Kerala University
58.	-do-	Shri Putunker Bhanudas	Marathwada University
59.	-do-	Shri Rishi Pal Singh	Meerut College, Meerut
60.	-do-	Shri Chhavi Kumar Shrotri	Jodhpur University
61.	-do-	Shri Prem Parain Mathur	Udaipur University
62.	-do-	Smt. Madhathil Sumathiamma Prasanna Kumari Amma	Ram Narain Ruia College Bombay.
63.	-do-	Km. Indu Agarwal	D. S. B. College, Mainital
64.	-do-	Smt. Kamna Arie	Saifia College, Dhopal
65.	Zoology	Shri Manikyala Rao Dhulipala	Andhra University
66.	-do-	Km. Kajni Tiwari	B. h. U.
67.	-do-	Km. Ramaa Isvaran	Delhi University
68.	-do-	Shri Deshmukh Vinay Datatraya	J. I. U.
69.	-do-	Smt. Deshmukh Mandini Vinay	J. I. U.
70.	-do-	Shri Kesav Dev Mishra	Jiwaji University
71.	-do-	Km. Ashmi Jasuja	Jiwaji University
72.	-do-	Shri Ashok Kumar Singh	Magadh University
73.	-do-	Shri Jakkani Venkateswarsaiah	Osmania University
74.	-do-	Miss Shubna Bhatnagar	Osmania University
75.	-do-	Shri Karamchedu Bucci Gopalan	Osmania University

1	2	3	4
76	ZOOLOGY	Km. Nasreen	Osmania University
77	-do-	Km. Shubha Shrivastava	Jiwaji University
78	-do-	Sh. Govindaraju Venkata Rama Krishna	P.G. Centre, Warangal
79	-do-	Shri Vinay Kumar Sinha	Rajinder Agri. Univ.
80	-do-	Km. Heather Fernandez	P.G. Centre, Warrangal
81	-do-	Shri Nanduri Nageswara Rao	P.G. Centre, Warangal
82	-do-	Sh. Mane Sadashiv Yashawant	Rajaram College, Kolhapur
83	AGRICULTURE	Sh. Molloy Maruth Syamal	B.H.U.
84	-do-	Shri R.N. Kulkarni	Agri. College, Hebbal
85	-do-	Shri Manajit Bandyopadhyay	Haryana Agricultural University, Hisar
86	-do-	Shri Babu Ram	C.S.A.U. of Ag. & Tech. Kanpur.
87	-do-	Shri S.H. Phadnis	J.N.U.
88	-do-	Sh. Yogendra Prasad Yadav	N. A.U. Pusa (Bihar)
89	PHYSICAL ANTHROPOLOGY	Sh. Cristopher James Edwin	Panjab University
90	PHYSIOLOGY	Km. Adita Ghosh	Calcutta University
91	ANATOMY	Smt. Sarasudeen Bathuriya Beevi	Keral University
92	GEOGRAPHY	Shri Govind Prasad	Allahabad University
93	-do-	Shri Onkar Prasad	B.H.U.
94	-do-	Mrs. Janani Ramachandran	Bombay University
95	-do-	Km. Indrani Chatterjee	Calcutta University
96	-do-	Shri Debashis Das	J.N.U.
97	-do-	Shri Hiremath Virupaxayya Chandrashekharayya	Karnatak University

1	2	3	4
98	GEOGRAPHY.	Shri Gauri Shanker Prasad	Patna University
99	-do-	Km. Archana Tiwari	Sagar University
100	GEOLOGY	Shri Prahlad Rai	B.H.U.
101	-do-	Smt. Rabita Goswami	Dibrugarh University
102	-do-	Shri Pronab Hasker	Jadavpur University
103	-do-	Shri Amarendra Kumar Sinha	J.N.U.
104	-do-	Shri Bhashyam Krishnama Naidu	S.V. University College
105	-do-	Shri V.V. Hari Haran	Presidence Coll. Madras
106	GEOPHYSICS	Shri Ravinutala Lakshmi Narasinha Rao	Osmania University
107	-do-	Kum. Potluri Venkateswari Devi	Osmania University
108	-do-	Shri Shaganti Damodar	Osmania University
109	-do-	Shri Sashi Bhusan Rath	Roorkee University
110	-do-	Shri Partha Bandyopadhyay	Roorkee University
111	OCEANOGRAPHY	Shri Lohithakshan Harendu Prakash	Cochin University

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

Meeting :

Dated: 31st. Jan. 1977.

Item No. 2(b) : To receive the items of information.

.....

(1) Indo-Senegal Cultural Exchange Programme 1977 and 1978.

.....

The following item of the Indo-Senegal Cultural Exchange Programme has been assigned to the University Grants Commission for the implementation :-

Item No. I. "Both sides will encourage cooperation between the universities and educational institutions of the two sides. They will also exchange professors in the fields of fundamental sciences, technical education, social sciences, humanities, art culture and literature. Details of exchanges will be worked out by mutual consent."

.....

(2) Indo-Mexican Cultural Exchange Programme 1976-78.

.....

The following items have been assigned to the University Grants Commission for implementation under the above programme.

Sl. No.	Particulars
1.	Both sides shall foster the development of contacts and exchanges between their universities and other institutions of higher learning. The list of said institutions and the projects for cooperation shall be established by reciprocal consultation.
2.	Both sides will promote the inclusion in the curricula of institutions of higher learning, studies of their respective countries.
3.	Both sides will exchange specialists to give courses and lectures and establish areas of future collaboration within

their specialities.

To this end, the Institute of Astronomy of the National Autonomous University of Mexico invites a specialist to give two courses on 'Stellar Evolution' and 'Research techniques' for a duration of twelve months.

- 6. Both sides will foster the organization of seminars on topics of mutual interest in the area of social and human sciences to be held alternately in India and in Mexico.
- 8. Both sides will exchange for a period of six to twelve months specialists on subjects to be decided by the institutions participating in this programme.
- 9. Both parties will exchange yearly two or three specialists for periods of eight to twelve weeks duration to give lectures.
- 14. Both sides will exchange publications on higher learning in fields related to sciences, humanities and arts. To this purpose, both sides will provide lists and catalogues of the publications they wish to receive.
- 17. The Indian side expressed its interest in sending four or five Art and Architecture students to be trained in Mexico. The Mexican side will inform it on the date and conditions under which it can receive these students.

(3) Indo-Czech Cultural Exchange Programme 1976-78

.....

The following items have been assigned to the Commission for implementation.

Item No	Particulars of item	Duration
1	2	3

- 1. Both sides will encourage and develop bilateral contacts and exchanges between Czechoslovak Academy of Sciences & Universities and other institutions of higher learning in India in specified fields to be drawn up by mutual consultation.

1 ----- 2 ----- 3 -----

2. Both sides will encourage exchange of Scientific publications, documentation and periodicals.
3. Both sides will exchange 4 university teachers annually for study and lecture tour in the fields of Bio-medical Sciences, Agricultural Sciences, Industrial Microbiology, Chemical Engineering, Metallurgy, Physical & Inorganic Chemistry and Linguistics. Upto 3 months each
4. Both sides will exchange 4 university teachers for study and lecture tour within the framework of the friendly contacts established between Jadavpur University and Technical University, Brno. 4 weeks each
5. The Czechoslovak side will send and Indian side will receive 3 scientific workers in various fields of Indology, Philosophy, History, Literature and Regional Planning for research and academic study. The fields may be further identified by mutual consultation between the participating universities. Upto 3 months each.
6. Both sides will encourage bilateral cooperation between the following Indian and Czechoslovak Universities/Institutes in the fields mentioned against each.
 - i. Delhi University Charles University Mathematics
 - ii. Jawaharlal Nehru University. University of JE Purkyne, Brno. Life Science.
 - iii. Banaras Hindu University Palacky University Olomouc Bio-Medical Sciences.
 - iv. Mysore University Comenius University Bratislava Biological Sciences.
 - v. Indian Instt. of Tech. Delhi. College of Mechanical and Textile Engg., Liberec. Textile & Mechanical Engg.
 - vi. Indian Instt. of Tech. Kharagpur. Technical University Bratislava. Area of the studies to be determined by mutual consultation.

In addition to the above both sides will encourage and develop bilateral contacts and exchanges in either fields, namely, Metal Protection, Electronics, Theoretical Biology of Animal and Plant Breeding, and Organic Polymer Chemistry, etc. between universities and other institutions of higher learning in two countries.

8. The Czechoslovak side will send and Indian side will receive 1 language teacher for teaching Czech at the university of Delhi and 1 language teacher for teaching Slovak at the Punjab University at Chandigarh. One year extended by another year
10. Both sides will encourage exchange of educational and scientific publications, magazines, educational material including films and teaching aids in the fields of the natural sciences and mathematics.
11. The Indian side will send and the Czechoslovak side will receive a team of 3-4 educationists/professors to study the educational system in Czechoslovak universities. 4 weeks
12. Both sides will arrange for invitations of individuals or delegations to participate at international Congress, meetings or symposia in the fields of education, culture and health services organised in the other country.
13. Both sides will encourage organisation of joint seminars, with participation each year of 2-3 experts in the fields of Regional Planning, Natural Sciences and other subjects from each country. The details of the seminars will be worked out by mutual consent.
14. Both sides will continue to cooperate in
- (c) preparation of a Tamil Reader by exchanges of material and, if needed, by personal consultations.

20. Both sides will consider measures necessary to ensure correct and proper presentation of each other's country in its text-books, particularly in the books on subjects such as History, Geography, Economics, Civics and Linguistics. For this purpose, both sides will exchange material for evaluation. (Details will be worked out by mutual consent).
65. Both sides will explore the possibility of exchange of 2 specialists of health services and Medical Sciences. 30 days each

(4) Indo - P.D. R.Y. Cultural Exchange Programme for the year 1976-78.

The following item of the Cultural Exchange Programme between India and Democratic Republic of Yemen has been assigned to the U.G.C. for implementation:-

Item I(ii) : "The Indian side will send and the PDRY side will receive 5 (five) Lecturers for Higher College of Education in the fields of Domestic Science, Mathematics, Chemistry, Biology and Physics."

(5) Implementation of the revision of scales of pay of Universities and College teachers.

The Ministry of Education and Social Welfare on a reference from the Commission have sent a note indicating the Position of implementation of the revision of scales of pay of University/College teachers by the State Governments as on 20th December, 1976. A copy of the note is enclosed Appendix.

(6) Revision of salary scales of teachers in Engg. Colleges.

The Ministry of Education & Social Welfare have endorsed a copy of the letter addressed to the Education Secretaries (Technical education) regarding revision of salary scales of teachers in Engineering Colleges. A copy of the letter received from the Ministry of Education & Social Welfare is enclosed Appendix.

(7) Indo-Bulgarian Cultural Exchange Programme 1977-78

The following items have been assigned to the Commission for implementation.

Item No.	Particulars of Item	Duration	Implementing Agency.
1.	Both sides will encourage and develop bilateral contacts & exchange between Depts. of Universities & other Institutions of higher learning in the two countries. The list of Depts. of Universities & institutions which are to develop bilateral contacts shall be drawn up by mutual consultation. The details of the joint projects and related matters e.g. visits of teachers, experts and scholars and exchange of publications, teaching and research material will be worked out by mutual consent of the Depts. of Universities and Institutions having bilateral contacts in consultation with respective Governments.		U.G.C.
2.	Both sides will annually exchange upto 5 Professors or readers/associate Professors to deliver lectures, exchange of experience and establish contacts in the fields of humanities, social sciences, natural sciences, engineering and technology.	One month each	UGC/Min of Edu
3.	Both sides will facilitate participation of upto 4 academics in international symposia, conferences, to be held in either country.		U.G.C.
4.	The Bulgarian side will send and the Indian side will receive a lecturer for teaching Bulgarian Language at the Delhi University.		U.G.C.
5.	The Bulgarian side will send and the Indian side will receive two Bulgarian teachers for specialization in Sanskrit.	One academic year.	U.G.C.

(1)

(2)

(3)

(4)

7. The Higher Institutes of both the sides will exchange directly curricula and school programmes as well as other pedagogical material and scientific literature.

U.G.C./Ministry
of Education/
NCERT.

10. The two sides will exchange curricula, syllabi and other information on their systems of education at the request of either side.

11. Both sides will consider measures necessary to ensure correct and proper presentation to each other's country in its text books particularly in the books on subjects such as history, geography, economics, civics and languages (Details will be worked out by mutual consent.)

-.-.-.-

SLK

Annexure to Item 2(b)(5)

Implementation of Revision of scales of pay of University and College Teachers (as on 20.12.1976).

.....

The following scales of pay have been accepted by the Government of India for introduction in the Universities and Colleges.

<u>Universities.</u>		Rs.
i)	Lecturer,	700-40-1100-50-1600.
ii)	Reader.	1200-50-1300-60-1900.
iii)	Professors.	1500-60-1800-100-2000-125/2-2500.
<u>Colleges-Post-Graduate/Under-Graduate.</u>		
i)	Demonstrator/Tutor.	500-20-700-25-900. (for existing incumbents only)
ii)	Lecturer.	700-40-1100-50- 1300. Assessment- 50-1600.
iii)	Principal.	(i) 1200-50-1300-60-1900. (ii) 1500-60-1800-100-2000-125/2-2500.

While some States have issued orders for implementing the revised scales of pay as recommended by the Government of India or lower scales of pay, others have proposed to introduce lower scales of pay. Some States have only accepted the scheme in principle but orders are yet to issue. The position in respect of various states (as on 20.12.1976) is as follows:-

1. Andhra Pradesh.

The State Government have issued orders revising the scales of pay of university and college teachers. The orders are under examination in the Ministry.

2. Assam.

The proposals received from the State Government were examined in the Ministry. They have been advised to reformulate their proposal in the light of the advice given.

3. Bihar.

The Government of Bihar have implemented the revised scales of pay as recommended by the Central Government for university and college teachers with effect from 1.4.1973. Teachers of Government Colleges in Arts, Science and Commerce are not covered by these orders.

4. Gujarat.

The State Government have implemented the revised scales of pay w.e.f. 1.1.1973. The State Government have accepted the scales of pay recommended by the Government of India except that in place of the scale

of Rs. 1500-2500, for Principals of colleges, they have agreed to a scale of Rs. 1500-2200 (the other scale for Principals, viz. Rs. 1200-1900 has been accepted).

5. Haryana.

The State Government have implemented the revised scales of pay recommended by the Government of India w.e.f. 1.1.1973, for university and college teachers.

6. Himachal Pradesh.

The Government of Himachal Pradesh have issued orders regarding the implementation of the revised scales recommended by the Central Government for university and college teachers in the State with effect from 1.4.1975.

7. Jammu and Kashmir.

The State Government have issued orders regarding the implementation of pay for university teachers w.e.f. 1.1.1973:-

Professor.	(i)	Rs. 1500-1900 (Normal scale)
	(ii)	Rs. 1900-2100 (Selection Grade)
Reader.		Rs. 1100-1600.
Lecturer.		Rs. 700-1300.

The proposal of the State Government for Central assistance for the implementation of these scales is under examination.

The State Government was requested to clarify whether the revised scales are the scales adopted w.e.f. 1.7.1972 or whether these scales were declared before the Central Government announced the scheme of revision of pay scales and were prepared to be given effect to retrospectively from 1.7.1972. In the latter case, there would be no justification for the Central Government to give any assistance for the revision of pay scales of college teachers. In case the revision was made subsequent to the announcement by the Central Government regarding the revision of scales of pay, Central assistance would be available only from 1.1.1973. They were also advised to consider an upward revision of the scales proposed and then adopt the formula for fixation of pay on the lines recommended by the Ministry.

The State Government had revised the scales of pay of college teachers w.e.f. 1.7.1972, alongwith the general revision of pay scales of other Government employees on the recommendation of the State Pay Commission. The revised scales are given below:-

(i)	Principal.	(i)	Rs. 1100-50-1300-75-1600.
		(ii)	Rs. 1100-50-1500.
(ii)	Professor	}	Rs. 475-25-600-EB-30-720-40-800- EB-50-1250 (Running Grade).
	Coordinator		
	Lecturer.		

8. Karnataka

The Government of Karnataka informed in the middle of December, 1975 that the matter was under their examination and it will take sometime more to arrive at a decision.

9. Kerala

The Government of Kerala have introduced the following scales of pay for universities and colleges teachers w.e.f. 1.7.1973:-

Universities:

	Rs.
Lecturer.	600-40-800-50-1100-50/2-1250.
Reader.	850-50-1350-50/2-1450.
Professor (1/3 of total no. of professors to be placed in the scale of Rs. 1600-1800).	1250-50-1650-50/2-1750.

Colleges:

	Rs.
Demonstrator/Tutor.	345-13-358-14-400-15-505-15/2-580.
Lecturers.	510-25-635-30-695-35-835-40-875- 40/2-995.
Professor (Grade.II)	710-40-750-50-1050-50/2-1200.
Professor (Grade.I)	850-50-1350-50/2-1450.
Principal:	
(i) Under-Graduate	(i) and (ii)
(ii) Post-Graduate Colleges.	1050-50-1450-50/2-1550.

The State Government expressed their inability to accept some of the conditions attached to the scheme viz, maximum qualifications for recruitment for the post of lecturers, direct recruitment to the post of University and college teachers, non-payment of remuneration for examination work etc. The State Government was however, requested to consider accepting the above conditions. According to the reply received from the State Government recently, they are not agreeable to modify their proposals. The proposals of the State Government have not been found acceptable.

10. Madhya Pradesh.

The Government of Madhya Pradesh propose to adopt the following scales of pay for university and college teachers in the State w.e.f. 1.1.73:-

University Teachers.

	Rs.
Lecturer.	620-40-900-50-1400.
Reader.	1100-50-1600.
Professor.	1300-50-1500-75-1800-100-2000.

* Professor of Eminence.

2250. (Fixed)

* (in accordance with the rules and conditions to be laid down by the U.G.C.).

College Teachers.

Lecturer. (which includes the present assistant professors).	620-40-900-50-1050-EB-50-1300.
Professors.	1100-50-1500.
Principals of Degree colleges.	1100-50-1600.
Principals of Postgraduate colleges.	1300-50-1500-75-1800-100-2000.

The State Government propose to apply higher qualifications prescribed for future recruitment to the existing teachers also. They have been requested to reconsider this. The State Government had also not accepted originally certain other essential conditions stipulated by the Ministry for implementation of the scheme which they have since accepted. The proposal is thus still under consideration.

11. Maharashtra.

The Government of Maharashtra have issued orders to introduce the revised scales of pay as recommended by the Central Government w.e.f. 1.1.73. They have, however, informed that the federation of the University teachers organisations, claiming to be the scale representatives of the University/college teachers in the State has filed a writ petition in the High Court of Bombay alleging that the Government is not competent to lay down any conditions viz. qualifications, workload, vacation, assessment, remuneration for examinership, etc. and that the Resolution of the Government is bad in law in view of the incompetence of Government, and as such, it should be quashed.

The High Court admitted the application on 15th November, 1975 without hearing the Government side and issued an adinterim injunction to the implementation of certain paragraphs of the Government Resolution.

12. Manipur.

The Government of Manipur have issued orders implementing w.e.f. 1.1.1973, the revised scales of pay for college teachers on the lines recommended by the Government of India.

13. Meghalaya.

The Government of Meghalaya has issued orders for implementing the revision of scales of pay as recommended by the Government of India for all college teachers in the State w.e.f. 1.4.1975. These orders do not, however, apply to teachers of the non-deficit colleges in the State.

14. Nagaland.

The Government of Nagaland have issued orders revising the scales of pay of college teachers in the State. The orders are under examination.

15. Orissa.

The Government of Orissa have issued orders for introduction of the revised scales of pay as recommended by Government of India for university teachers only w.e.f. 1.4.1974. As for college teachers the State Government has indicated that it would not be possible for them to accept the scheme recommended by the Govt. of India. They propose to prescribe certain lower scales for college teachers. The proposals are under examination.

16. Punjab.

The Government of Punjab have issued orders implementing w.e.f. 1.4.1975, the revised scales of pay of university and college teachers on the lines recommended by the Government of India.

17. Rajasthan.

The Government of Rajasthan have issued orders revising the scales of pay of teachers in universities and in the regional Engineering college based on the recommendation of the Govt. of India. The orders are under examination.

18. Tamil Nadu.

The Government of Tamil Nadu have recently informed that the matter is under their consideration and the final decision would be taken shortly.

19. Tripura.

The Government of Tripura have accepted the scheme of revised pay scales in principle and are studying the financial implications vis-a-vis their financial resources.

20. Uttar Pradesh.

The Government of Uttar Pradesh have revised the scales of pay w.e.f. 1.1.1973 in respect of teachers in universities and non-government colleges (except colleges affiliated to Sampurnanand Sanskrit Vishwavidyalaya, Varanasi) on the lines recommended by the Government of India.

21. West Bengal.

The Government of West Bengal have issued orders implementing the revised scales of pay as recommended by the Government of India w.e.f. 1.1.1973 in respect of teachers in universities and non-government colleges including government sponsored colleges. The State Government have issued orders on 14.8.1976 extending the UGC scales of pay to teachers of Government colleges also.

In the case of Union Territories, generally, the revised scales are sanctioned in the colleges on the basis of the adoption of the revised scales by the Universities to which these college are affiliated. The

position of implementation of the revised scales in the Union Territories is as follows:-

- (i) Andaman & Nicobar Islands: The revised U.G.C. scales have been sanctioned to the college teachers in this Territory w.e.f. 1.4.1975.
- (ii) Arunachal Pradesh: The proposals will be considered when the Government of Assam accepts the scheme.
- (iii) Chandigarh: The revised scales have been sanctioned to the teachers of Punjab University w.e.f. 1.4.1975. The proposal of the Chandigarh Administration to sanction the revised scales to the teachers in affiliated colleges in the Union Territory is under consideration.
- (iv) Goa-Daman and Diu: The proposal of the Goa Admn, on the basis of the scheme implemented by the Government of Maharashtra is under consideration.
- (v) Pondicherry: The proposal in respect of this Territory will be considered after the Government of Tamil Nadu has accepted the scheme.

Appendix to Item No. 2b(6)

Copy of letter No. F. 19-36/74-T.5 dated the 30th September, 1975 from Shri V.R. Reddy, Deputy Educational Adviser(T), Govt. of India, Ministry of Education and Social Welfare, (Department of Education) Shastri Bhavan, New Delhi, addressed to the Education Secretaries (Technical Education) All State Governments and copy endorsed to the Secretary, U.G.C. New Delhi.

.....

Sub: Revision of salary scales in Engineering Colleges.

Sir,

The All India Council for Technical Education at its meeting held on May 17, 1974, recommended that the revised scales announced by the Central Government for teachers in Universities and Colleges should be made applicable to teachers in Technical institutions. The Council, however, felt that before implementing the decision on the revised pay scales of teachers in the Technical Institutions, the details of qualifications, experience and other requirements prescribed for various categories of teaching posts of technical institutions should be examined vis-a-vis those recommended by the University Grants Commission for teachers in Universities and colleges for whom the revised pay scales are applicable.

In pursuance of this recommendation, the matter was examined by a special committee appointed by the Chairman, All India Council for Technical Education. The Committee submitted its report. The Government of India examined the recommendations of the Committee and decided as under:-

1. In view of the fact that the existing staff structure in all engineering colleges in the country comprised of Professors, Assistant Professors and Lecturers as in the University Departments and the existing scales of teachers in these institutions in several States are comparable to the scales obtaining in University Departments for its teaching staff before the recent revision, the revised scales adopted by State Govts. for teachers in the University Departments in their States should be made applicable to the teachers in engineering colleges.
2. Qualifications given in Annexure I should be prescribed for teachers in engineering colleges while implementing revised scales of pay.
3. The implementation of the revised scales should be subject to conditions regarding mode of appointment, age of superannuation, remuneration for examination work etc., as outlined in Annexure-II.
3. The Government of India will assist the State Governments who are willing to adopt the revised scales of pay for engineering colleges as outlined above to the extent of 80% of the additional expenditure involved in giving effect to the revised scales of pay upto the level of

.....2/-

U.G.C. scales subject to the following conditions:-

- i) Central assistance to this extent will be available for the period from January 1, 1973 to March 31, 1979 ;
 - ii) the State Governments will bear the entire balance of expenditure and will not pass on the liability for any portion of it to the managements of private colleges or institutions ;
 - iii) the State Government will take over the entire responsibility for maintaining the revised scales with effect from April 1, 1979.
5. The revision of pay scales as suggested, and payment of Central assistance will be further subject to conditions stipulated in Annexure-I & II.

I am to request that necessary action to introduce the revised pay scales in engineering colleges in your State may kindly be taken at an early date and proposal submitted to the Government of India to enable them to release their share of Central assistance.

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Annexure-I.

Qualification prescribed for teaching posts in Engineering colleges against the revised scales.

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Engineering Colleges.

Professor.

First class Master's Degree/Doctorate Degree in appropriate field with minimum 7 to 10 years' distinguished experience in teaching/research in institution of University Standard at Postgraduate level. Specialised knowledge in one or more specified fields with experience in guiding research. Professional/Scientific work of outstanding merit would be preferred.

Assistant Professor.

First class Master's Degree/Doctorate Degree in appropriate field with minimum of five years experience in teaching/research in Institutions of University standard. Specialised knowledge in one or more specified field/subject with outstanding teaching research experience and Doctorate Degree or published work of equal standard would be preferred.

Lecturer.

First Class Master's Degree in appropriate field, with two years in industrial/research experience in any Institution of University standard. Doctorate Degree or published work of equal standard desirable.

Note: In respect of teachers who are teaching non-engineering subjects (such as Physical Sciences, Mathematics, Humanities etc.) the minimum qualifications for appointment will be the same as prescribed by the University Grants Commission from time to time.

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Annexure-II.

Conditions for Introduction of the revised scales.

1. The revised pay scales are inclusive of dearness pay, dearness allowance and interim relief that were admissible to the teachers according to the approved rates as on December 31, 1972. No Central assistance will be available for the allowance sanctioned/that may be sanctioned, on or after January 1, 1973.
2. Central assistance will be provided in respect of only those posts which were in existence on January 1, 1973. All posts created after that date will have to be provided in revised pay scales but these will not be eligible for Central assistance.
3. Recruitment to all categories of teachers shall be made strictly on merit and on the basis of All India advertisement and selection. The qualifications prescribed for the posts should essentially be related to academic attainments in the subject concerned and should not be linked with language or other regional considerations. Appointments should not be made on communal or caste considerations. Selection Committees should have not less than two outside experts (3 in the case of Professors/Principals) appointed by the University.
4. The minimum qualifications for the admissibility of the revised scales of pay at the recruitment stage of Lecturers in the colleges shall be a good academic record (First Class Master's degree or equivalent qualifications) with research experience or industrial experience of not less than two years. These qualifications shall be observed in future recruitment.
5. The existing Lecturers in colleges who do not possess the prescribed qualifications may be allowed pay in the revised scales on the conditions that they should attain minimum qualifications within five years failing which they will not be allowed to earn their increment till they have attained the minimum qualifications.
6. No teachers/Principal shall be paid any remuneration for examination work including invigilation work within the University/Institution.
7. The fixation of pay in the revised scales will be according to the formula recommended by the Third Central Pay Commission and accepted by the Government of India with modification for Class I Officers, if any, where the pay fixation formula cannot cover cases without giving rise to some anomalies such cases should be referred to the Government of India for consideration.

Report of the Special Committee appointed by the All India Council for Technical Education on the revision of pay scales of teachers in Engineering Colleges and Polytechnics.

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The All India Council for Technical Education at its meeting held on 17th May 1974 recommended that the revised scales announced by the Central Government for teachers in universities and colleges should be made applicable to teachers in engineering colleges and polytechnics. The Council, however, felt that before implementing the decision on the revised pay scales of teachers in engineering colleges and polytechnics, the details of qualifications, experience and other requirements prescribed for various categories of teaching posts in technical institutions should be examined vis-a-vis those recommended by the University Grants Commission for teachers in universities and colleges for whom the revised pay scales are applicable. The Council authorised its Chairman to obtain the views of the State Governments and appoint a Committee to examine all these questions and take a decision on the revised scales of pay of teachers in engineering colleges and polytechnics on the recommendations of this committee.

In pursuance of this recommendation, the Union Education Minister in his capacity as the Chairman of the All India Council for Technical Education, appointed a special committee under the Chairmanship of Dr. B.D. Nag Chaudhuri, Vice-Chancellor, Jawaharlal Nehru University. The Committee consists of the following members:-

1. Dr. B.D. Nag Chaudhuri, Vice-Chancellor, Jawaharlal Nehru University, New Delhi. Chairman
2. Shri Mohan Mukerji, Additional Secretary, Ministry of Education and Social Welfare. Member
3. Prof. Rais Ahmed, Director, National Council for Educational Research and Training, New Delhi. "
4. Dr. K.A.V. Pandalai, Director, Indian Institute of Technology, Madras. "
5. Dr. Jagdish La, Principal, Motilal Nehru Regional Engg. College, Allahabad. (Now acting Director, IIT, Kanpur) "

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6. Shri G.S. Kadu, Member
Director of Technical Education,
Government of Maharashtra,
Bombay.
7. Shri V.R. Reddy, Member
Deputy Educational Adviser(T) Secretary
Ministry of Education and
Social Welfare, New Delhi.

The Committee held two meetings on 3.10.1974 and 21.3.1975. Shri H.S. Shahani, Joint Educational Adviser (Tech.) Ministry of Education and Social Welfare attended both the meetings by special invitation. M/s Mohan Mukherji and G.S. Kadu could not attend any meeting. Dr. Jagdish Lal attended the first meeting.

At the first meeting, the Committee noted the revised scales announced by the Central Government for teachers in universities and colleges, namely:-

Universities.

Lecturer.	Rs. 700-40-1100-50-1600
Reader.	Rs. 1200-50-1300-60-1900
Professor.	Rs. 1500-60-1800-100-2000-125/2-2500.
Professor of Eminence.	Rs. 3000 (fixed)

Affiliated Colleges (Postgraduate and Undergraduate)

Demonstrator/Tutor (Existing incumbents)	Rs. 500-20-700-25-900
Lecturer.	Rs. 700-40-1100-50-1300- Assessment -50-1600
Principal.	i) Rs. 1200-50-1300-60-1900 ii) Rs. 1500-50-1800-100-2000-125/2-2500.

The Committee then considered which of these scales should be made applicable to the teachers in the engineering colleges and polytechnics. The Committee observed that the existing staff structure in all engineering colleges in the country comprised of Professors, Assistant Professors, Lecturers and in many cases, Associate/Assistant Lecturers, which is the same as in the university departments. The existing scales of teachers in engineering colleges in several States are comparable

to the University Grants Commission scales of university teachers existing before the recent revision. The teaching staff in polytechnics consists of Heads of Departments, Lecturers and Instructors. The All-India Council for Technical Education, in the past, recommended the same scale of pay for Lecturers in both engineering colleges and polytechnics. The scales of Heads of Departments and Principals are comparable to those of Assistant Professors and Professors respectively in the colleges. The Committee also considered the question of qualifications to be prescribed for teachers in technical institutions in the event of adopting the revised scales of pay and other conditions to be prescribed. Having considered all aspects of the matter as outlined above, the Committee took the following decisions:-

1. The revised scales for teachers in the university departments should be made applicable to the teachers in engineering colleges.
2. It would be appropriate if polytechnic teachers and their scales of pay are equated with the levels corresponding to those obtaining in colleges as recommended earlier by the All-India Council for Technical Education.
3. The qualifications prescribed for corresponding categories of teachers in the Indian Institutes of Technology and in engineering departments of the Central universities should be insisted upon for the teachers in engineering colleges. However, in the case of polytechnics, considerable emphasis should be laid on practical experience than on research.
4. With regard to existing persons who do not possess the qualifications to be prescribed on the implementation of the revised scales, the rules laid down by the University Grants Commission in that regard should be followed.

The Committee noted that the All-India Council for Technical Education authorised its Chairman to obtain the views of the State Govts. on the implementation of the revised scales in the colleges and polytechnics under the State Governments as well as in the private sector. In view of this recommendation, the Committee thought it proper to obtain the views of the State Governments on the implementation of the revised pay scales before making its final recommendations to the All-India Council for Technical Education on this matter.

In accordance with the above decisions of the special committee at its first meeting, a letter was addressed to all the State Governments and Union Territories to obtain their views on the general question of extending the revised scales of pay announced by the Central Government for university teachers to the teachers in engineering colleges and polytechnics with effect from 1.1.1973. 15 State Governments and Union territories have sent their replies. The Union Territories of Delhi and

Goa have agreed with the decisions of the Committee while the State Governments of Bihar, Himachal Pradesh, Kerala, Orissa, Punjab, West Bengal, Maharashtra, Karnataka, Haryana, Andhra Pradesh, Assam and Chandigarh Administration have stated that the matter was under consideration. The State Government of Madhya Pradesh have stated that the scales of pay of teachers in engineering colleges and polytechnics had been revised as recently as in 1972 and therefore it would be difficult for them to undertake any further revision from 1973.

At the second meeting held on 21.3.1975, the Committee took note of the views expressed by the State Governments and the Union Territories, reviewed the decisions taken earlier.

After taking all aspects of the matter into account the Committee makes the following recommendations:-

1. In view of the fact that the existing staff structure in all engineering colleges in the country comprises of Professors, Assistant Professors and Lecturers as in the university departments and the existing scales of teachers in these institutions in several states are comparable to the UGC scales obtaining in university departments for its teaching staff before the recent revision, the Committee recommends that the revised scales for teachers in the university departments should be made applicable to the teachers in engineering colleges as given below:-

- | | | |
|-------|-----------------------|---------------------------------------|
| (i) | Professors. | Rs. 1500-60-1800-100-2000-125/2-2500. |
| (ii) | Assistant Professors. | Rs. 1200-50-1300-60-1900. |
| (iii) | Lecturers. | Rs. 700-40-1100-50-1600. |

2. Taking into consideration that the All-India Council for Technical Education had in the past recommended the same scale of pay for Lecturers in both the engineering colleges and polytechnics and the scales of pay for the post of Head of Department and Principal are comparable to those of Assistant Professors and Professors respectively, in the colleges, the Committee recommends the following scales of pay to the teachers in polytechnics:-

- | | | |
|-------|---------------------|--|
| (i) | Principal. | Rs. 1500-60-1800-100-2000-125/2-2500. |
| (ii) | Head of Department. | Rs. 1200-50-1300-60-1900. |
| (iii) | Lecturer. | Rs. 700-40-1100-50-1300-Assessment- 50-1600. |

3. The Committee recommends that the qualifications given in Annexure-I should be prescribed for the teachers in engineering colleges and polytechnics while implementing the revised scales of pay.

4. The Committee recommends that the implementation of the revised pay scales should be subject to certain conditions regarding the mode of appointment, age of superannuation, remuneration for examination work etc., as outlined in Annexure II.

5. The Committee recommends that the pay fixation in the revised scales should be according to the formula suggested by the Third Central Pay Commission and accepted by the Government of India.

6. The Committee recommends that the Government of India may offer to the State Governments financial assistance to the extent of 80 per cent of the additional expenditure involved if they wish to adopt the revised scales recommended by the Committee for teachers in engineering colleges and polytechnics. The Committee further recommends that the Central assistance at the same rate may also be made available if the State Governments decide after taking local conditions into consideration to introduce the scales of pay different from but not higher than those recommended above.

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Annexure - I

QUALIFICATIONS TO BE PRESCRIBED FOR TEACHING POSTS IN
ENGINEERING COLLEGES AND POLYTECHNICS IN THE
REVISED SCALES RECOMMENDED BY THE SPECIAL COMMITTEE

.....

ENGINEERING COLLEGES

Professor : First Class Master's Degree/ Doctorate
Degree in appropriate field with minimum 7 to 10 years'
distinguished experience in teaching/research in institution
of University standard at postgraduate level.
Specialised knowledge in one more
specified fields with experience in
guiding research. Professional/Scientific
work of outstanding merit would be preferred.

Assistant
Professor First Class Master's Degree/Doctorate
Degree in appropriate field with minimum
of five years experience in teaching/
research in Institution of University
standard. Specialised knowledge in one or
more specified field/subject with
outstanding teaching/research experience
and Doctorate Degree or published work of
equal standard would be preferred.

Lecturer First class Master's degree in appropriate
field, with two years industrial/research
experience in any Institution of University
standard. Doctorate Degree or published
work of equal standard desirable.

POLYTECHNICS

Principal (i) First Class Bachelor's Degree in
Engineering or Technology or equivalent
(ii) 10 to 12 year's of industrial experience
in Production or design or maintenance and/
or teaching experience.
(iii) Qualities or leadership and Organizational
ability.

Head of
Department (i) First Class Bachelor's Degree in Engineering and
Technology or equivalent.
(ii) 8 years' of industrial experience in production or
design or maintenance and/or teaching experience.

- (iii) Qualities of leadership and organizational ability desirable.

Lecturer.

- (i) First Class Bachelor's Degree in Engineering or Technology or equivalent.
- (ii) 5 years' of industrial experience in production, design or maintenance and/or teaching experience.

In every rare cases of the candidates possessing exceptionally good industrial experience, where significant contributions were made in the development of technology, the educational qualifications may be relaxed.

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

Meeting:

Dated : 31st January, 1977.

Item No. 2 (c) To approve the Statement of Proposals which could not be accepted by the Commission.

Proposals of Colleges which could not be accepted under Rupees five lakhs schemes.

S.No.	Name of the College,	University	Purpose	Estimated Cost	Date of order	Reasons
1.	Bahona College, Bahona.	Dibrugarh.	Boys Hostel	1,59,426	4.12.76	Low en- rollment " " " " "
			N.H.S.C.	35,000	"	
			Class Room	1,84,695	"	
			Staff		"	
			Quarters.	55,148	"	
			Workshop	20,200	"	
Girls Hostel	2,70,695	"				
2.	U.N. College, Soro.	Utkal	Class Rooms	1,61,325	4.12.76	All the faculty Staff are Temporary
			Books	1,10,000	"	
			Equip	1,55,000	"	

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Annexure - I

QUALIFICATIONS TO BE PRESCRIBED FOR TEACHING POSTS IN
ENGINEERING COLLEGES AND POLYTECHNICS IN THE
REVISED SCALES RECOMMENDED BY THE SPECIAL COMMITTEE

.....

ENGINEERING COLLEGES

Professor : First Class Master's Degree/ Doctorate
Degree in appropriate field with minimum 7 to 10 years'
distinguished experience in teaching/research in institution
of University standard at postgraduate level.
Specialised knowledge in one more
specified fields with experience in
guiding research. Professional/Scientific
work of outstanding merit would be preferred.

Assistant
Professor First Class Master's Degree/Doctorate
Degree in appropriate field with minimum
of five years experience in teaching/
research in Institution of University
standard. Specialised knowledge in one or
more specified field/subject with
outstanding teaching/research experience
and Doctorate Degree or published work of
equal standard would be preferred.

Lecturer First class Master's degree in appropriate
field, with two years industrial/research
experience in any Institution of University
standard. Doctorate Degree or published
work of equal standard desirable.

POLYTECHNICS

Principal (i) First Class Bachelor's Degree in
Engineering or Technology or equivalent

(ii) 10 to 12 year's of industrial experience
in Production or design or maintenance and/
or teaching experience.

(iii) Qualities or leadership and Organizational
ability.

Head of
Department (i) First Class Bachelor's Degree in Engineering and
Technology or equivalent.

(ii) 8 years' of industrial experience in production or
design or maintenance and/or teaching experience.

6. Shri G.S. Kadu, Member
Director of Technical Education,
Government of Maharashtra,
Bombay.
7. Shri V.R. Reddy, Member
Deputy Educational Adviser(T) Secretary
Ministry of Education and
Social Welfare, New Delhi.

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Universities.

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Reader.	Rs. 1200-50-1300-60-1900
Professor.	Rs. 1500-60-1800-100-2000-125/2-2500.
Professor of Eminence.	Rs. 3000 (fixed)

Affiliated Colleges (Postgraduate and Undergraduate)

Demonstrator/Tutor (Existing incumbents)	Rs. 500-20-700-25-900
Lecturer.	Rs. 700-40-1100-50-1300- Assessment -50-1600
Principal.	i) Rs. 1200-50-1300-60-1900 ii) Rs. 1500-50-1800-100-2000-125/2-2500.

The Committee then considered which of these scales should be made applicable to the teachers in the engineering colleges and poly-technics. The Committee observed that the existing staff structure in all engineering colleges in the country comprises of Professors, Assistant Professors, Lecturers and in many cases, Associate/Assistant Lecturers, which is the same as in the university departments. The existing scales of teachers in engineering colleges in several States are comparable

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to the University Grants Commission scales of university teachers existing before the recent revision. The teaching staff in polytechnics consists of Heads of Departments, Lecturers and Instructors. The All-India Council for Technical Education, in the past, recommended the same scale of pay for Lecturers in both engineering colleges and polytechnics. The scales of Heads of Departments and Principals are comparable to those of Assistant Professors and Professors respectively in the colleges. The Committee also considered the question of qualifications to be prescribed for teachers in technical institutions in the event of adopting the revised scales of pay and other conditions to be prescribed. Having considered all aspects of the matter as outlined above, the Committee took the following decisions:-

1. The revised scales for teachers in the university departments should be made applicable to the teachers in engineering colleges.
2. It would be appropriate if polytechnic teachers and their scales of pay are equated with the levels corresponding to those obtaining in colleges as recommended earlier by the All-India Council for Technical Education.
3. The qualifications prescribed for corresponding categories of teachers in the Indian Institutes of Technology and in engineering departments of the Central universities should be insisted upon for the teachers in engineering colleges. However, in the case of polytechnics, considerable emphasis should be laid on practical experience than on research.
4. With regard to existing persons who do not possess the qualifications to be prescribed on the implementation of the revised scales, the rules laid down by the University Grants Commission in that regard should be followed.

The Committee noted that the All-India Council for Technical Education authorised its Chairman to obtain the views of the State Govts. on the implementation of the revised scales in the colleges and polytechnics under the State Governments as well as in the private sector. In view of this recommendation, the Committee thought it proper to obtain the views of the State Governments on the implementation of the revised pay scales before making its final recommendations to the All-India Council for Technical Education on this matter.

In accordance with the above decisions of the special committee at its first meeting, a letter was addressed to all the State Governments and Union Territories to obtain their views on the general question of extending the revised scales of pay announced by the Central Government for university teachers to the teachers in engineering colleges and polytechnics with effect from 1.1.1973. 15 State Governments and Union territories have sent their replies. The Union Territories of Delhi and

Goa have agreed with the decisions of the Committee while the State Governments of Bihar, Himachal Pradesh, Kerala, Orissa, Punjab, West Bengal, Maharashtra, Karnataka, Haryana, Andhra Pradesh, Assam and Chandigarh Administration have stated that the matter was under consideration. The State Government of Madhya Pradesh have stated that the scales of pay of teachers in engineering colleges and polytechnics had been revised as recently as in 1972 and therefore it would be difficult for them to undertake any further revision from 1973.

At the second meeting held on 21.3.1975, the Committee took note of the views expressed by the State Governments and the Union Territories, reviewed the decisions taken earlier.

After taking all aspects of the matter into account the Committee makes the following recommendations:-

1. In view of the fact that the existing staff structure in all engineering colleges in the country comprises of Professors, Assistant Professors and Lecturers as in the university departments and the existing scales of teachers in these institutions in several states are comparable to the UGC scales obtaining in university departments for its teaching staff before the recent revision, the Committee recommends that the revised scales for teachers in the university departments should be made applicable to the teachers in engineering colleges as given below:-

(i)	Professors.	Rs. 1500-60-1800-100-2000-125/2-2500.
(ii)	Assistant Professors.	Rs. 1200-50-1300-60-1900.
(iii)	Lecturers.	Rs. 700-40-1100-50-1600.

2. Taking into consideration that the All-India Council for Technical Education had in the past recommended the same scale of pay for Lecturers in both the engineering colleges and polytechnics and the scales of pay for the post of Head of Department and Principal are comparable to those of Assistant Professors and Professors respectively, in the colleges, the Committee recommends the following scales of pay to the teachers in polytechnics:-

(i)	Principal.	Rs. 1500-60-1800-100-2000-125/2-2500.
(ii)	Head of Department.	Rs. 1200-50-1300-60-1900.
(iii)	Lecturer.	Rs. 700-40-1100-50-1300-Assessment- 50-1600.

3. The Committee recommends that the qualifications given in Annexure-I should be prescribed for the teachers in engineering colleges and polytechnics while implementing the revised scales of pay.

4. The Committee recommends that the implementation of the revised pay scales should be subject to certain conditions regarding the mode of appointment, age of superannuation, remuneration for examination work etc., as outlined in Annexure II.

5. The Committee recommends that the pay fixation in the revised scales should be according to the formula suggested by the Third Central Pay Commission and accepted by the Government of India.

6. The Committee recommends that the Government of India may offer to the State Governments financial assistance to the extent of 30 per cent of the additional expenditure involved if they wish to adopt the revised scales recommended by the Committee for teachers in engineering colleges and polytechnics. The Committee further recommends that the Central assistance at the same rate may also be made available if the State Governments decide after taking local conditions into consideration to introduce the scales of pay different from but not higher than those recommended above.

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CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

Meeting :

Dated : 31st January, 1971

Item No. 3 : To approve the statement of grants released after the last meeting of the Commission held on 20th December, 1976.

No.	University/College	Subject	Instalment	Amount
2		3	4	5
<u>AGRA UNIVERSITY</u>				
		Award of Teacher Fellowship to Shri Ram Awatar.		2,641.67
		Award of Teacher Fellowship to Shri V.N. Chauhan.		2,600
		Award of Teacher Fellowship to Smt. Raj		2,433.33
		Grants to affiliated colleges for establishment of Book Banks. Release of grant.		5,625
		-do-		6,000
	<u>Affiliated Colleges.</u>			
	College, Khabad.	-do-		6,000
	College, a.	College Maint. and Social Sciences Development Programmes- Payment of grant		27,000
	Mahavidyalaya, a.	-do-		18,750
	College, garh.	-do-		7,500
		-do-	Ind	9,000
	College, a.	Financial Assistance to Teacher for Research work.		750
		-do-		1,000

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Agra University (Affiliated College Contd)

D.E.I. Women's Training College, Agra.	Implementation of the Scheme introduction of work experience in the colleges.	6,500
B.D.K. Mahavidyalaya, Agra.	Grants to affiliated colleges for the development of undergraduate educational facilities during the Vth Plan period.	3,000
St. J. College, Agra.	University Grants Commission Assistance for the research project entitled Ecology of High Altitude Soil Anthropode of Dr. Santokh Singh, Head of the Department of Zoology and Entomology, St. Johan's College, Agra University, Agra.	14,000
M.M.S.H. College, Badainun.	Students Aid Fund in the College.	1,070
SS College Mumukshu Ashram, Shahjahanpur.	-do-	640
D.E.I.H.F.I. Degree College, Dayalabagh, Agra.	Special Grant for books & Journals	2nd 2,000
Agra College, Agra.	University Grants Commission Assistance for the research Project entitled A pseudopotential study of the celetronic properties of Transition metals by Dr. J.S. Upadhyaya and other Department of Pysics. Agra College, Agra.	7,200

1,24,709

2. Awadh University, Faizabad.

Affiliated Colleges.

S.L.B.S. College, Conda.	Students Aid Fund in the College	2,250
B.N.K.D. Degree College, Faizabad.	Students Aid Fund in the colleges	2,250
D.B.D. College, Faizabad.	-do-	1,750

6,250

A.P. Singh University, Rewa.

Affiliated Colleges

M.T. College, Mangarh.	Grant to college Libraries for loan of Books to students	11,250
M.D. College, Mam.	-do-	4,000
M.T. College, Mangarh.	Book Bank	2,826.90
M.T. D.College, Ma.	-do-	3,248
M.T. Sce. College, Ma.	Students Aid Fund in the Colleges.	2,072
		23,396.90

Aligarh Muslim University.

Award of Teacher Fellowship Sh. S.S. Varshaney.	3,080.05
Jnr. Research Fellowships in Sees Fello- Ships.	3,000
-do-	4,700
Organisation of the First convension of the Indian Association of Sedimentologistis, Sheduled to be held from Dec. 26-28, 1976.	5,000
Purchase of Furniture for the building of part-time P.G. Diploma course in R. Admin- tration.	6,000
Aligarh Muslim University -Recurring grant for payment of salary of staff for Department of Radiology of Jawaharlal Nehru Medical College.	20,000
Writing of university level books.	6,842
University Grants Co mmission Assistance for the research project.	22,000
-do-	6,000

76,632.05

Allahabad University.

University Grants Commission Assistance for the research project entitled Study of conduction band of metals and semi conductors by x-ray Absorption Spectroscopy by Dr. B.K. Agarwal, Department of Physics, Allahabad University.	12,300
Construction of Education Department	
Sanction of grant for.	20,000
-do-	10,000
-do-	15,000
University Grants Commission Assistance for the research project entitled use of activatable protecting groups in the synthesis of Oligonucleosides by Dr. (Mrs.) Krishna Misra, Department of Chemistry, Allahabad University, Allahabad	
Release of 2nd Instalment grant.	3,000
Award of Teacher Fellowship to Shri R.P.Khare, Lecturer in Physics, Ewing Christian College, Allahabad.	1,000
Appointment of additional staff during Vth Plan period Sanction of grant	4,00,000
Construction of Staff Quarters	20,000
-do-	15,000
Award of Teacher Fellowship to Sh. K.N. Radhakrishna Nair, Lecturer.	2,650
Purchase of Equipment for Central Workshop & Photography Section during the Vth Plan period.	20,000
-do-	1,00,000
Affiliated College	
Camp Degree College, Allahabad.	
Extension of laboratory building	12,125
	6,31,075

Andhra University

Sociology Workshop	5,000
University Grants Commission Assistance for the research project entitled Dielectric properties of Polymers Solid State & Solutions By Dr. Mrs. A. Shanmathi, Reader in Physics Andhra University Release of grant.	5,800
--do--	12,920
Financial Assistance to Teachers for reserach learned work in Humanities and Social Sciences- Payment of Second instalment of grant.	2,250
Financial Assistance to Teachers for Research work	2,000
--do--	1,500
--do--	1,250
--do--	2,500
Programme of Special Assistance to Selected Departments Department of Physics- Release of on account grant regarding.	9,200
Organisation of Regional workshop in sociology.	15,000
Research Fellowship in Engg.	1,237
Award of Teacher Fellowship	2,525
--do--	2,616
--do-- Ist	20,000
--do--	12,533
Research Fellowships in Engg.	435.48
--do--	435.48

p. to.

Andhra University Contd

Research Fellowships in Engg.	322.58
-do-	1,576.00
-do-	1,000
-do-	1,000
Programme of Special Assistance to Selected Departments- Department of Physics. Release of on account of grant - Regarding.	95,000
Utilisation of services of o/s retired teachers	5,325
-do-	10,996
-do-	2,000
-do-	895
-do-	4,354
Construction of Class Rooms Final	36,345
College Science Improvement Programme	50,000
Establishment of Health Centre Final	16,906
Financial Assistance to teachers	258
Financial Assistance to teachers	2,500
Book bank	3,750
Students Aid Fund	1,006

3,33,485.54

7. Annamalai University

U.G.C. Assistance for the research project	5,000
Centre of Advanced Study in Linguistics	1,50,000
Workshop on Population Education	20,000

p. t. o.

Malai University Contd.

UGC Assistance for the Research project	5,000
Basic grant for the purchase of equip.	50,000
Centre of Advanced Study in Linguistics Seminar on Socio-Linguistics and Dialectology during 1976-77.	12,000
Utilisation of services of o/s retired teachers	5,822
Students Aid fund to colleges for 76-77	1,750

2,49,572

Bangalore University

UGC assistance for the research project	86,000
Financial Assistance to Teachers for Research project. - -	Final. 1,400
-do-	2,500
Visiting Professor-Ship for the 5th Plan	25,000
College Science Improvement Programme	2,00,000
UGC assistance for the research proj.	12,000
-do-	19,400

Associated Colleges

College, Mysore.	Financial Assistance to Teachers for research in Sces.	500
College, Mysore.	-do-	2,500
College, Mysore.	-do-	4,500
National College, Mysore.	Students Aid Fund to Colleges for the Year 1976-77.	1,616

p.t.o.

Bangalore University (Contd)

Affiliated Colleges.

MES Teachers Colleges Bangalore.	Students Aid Fund to Colleges	750
F.G.College, Karnatak.	-do-	1,256
Municipal College, Karnatak.	Establishment of Book Bank	1,875
Govt. Sec. College, Bangalore.	-do-	3,750
		3,63,047

9. Banaras Hindu University

Senior Junior Research Fellowships in Science Humanities including Social Sciences/ Research Fellowships in Engineering and technology- Payment of fellowship and contingency grant.	3,993.33
-do-	3,500
-do-	1,000
-do-	1,500
-do-	3,500
University Grants Commission Assistance for the research Project entitled Thermoetric Titrations and related Measurements in Aqueous and some non-aqueous Media. Dr. L.M. Mukherjee, Chemistry.	7,800
Utilisation of Services of o/s retired teachers payment of grant in respect of Dr. MS Karamarker	6,185.48
University Grants Commission Assistance for the research project entitled Cellular Proliferation and Hypertrophy in Developing Brain- the possible effects of Undernutrition of Dr. K.Subba Rao, Deptt. of Chemistry, Banaras Hindu University, Varanasi.	10,000

Banaras Hindu University Contd.

Programme of Special assistance to Selected Departments- Department of Metallurgy- Release of 'on account' grant- regarding Improvement of Scanning Electron- Microscope.	3,50,000
Construction of a Canteen Building for 100 persons under Students Amenities Programme.	12,579.68
UGC assistance for the research project entitled Age related changes in RNA population in differentiated tissues of the rat by Dr. R. Maya Sundar, Deptt. of Zoology, BHU.	47,800
-do-	19,800
Banaras Hindu University- Construction of a Building for workshop in the Institute of Medical Science Providing gasoline, Compressor Air and Water Connection.	14,000
Salary of Additional Staff sanctioned under Fifth Plan Development Scheme.	10,00,000
Grant for purchase of library books under fifth plan undergraduate development scheme.	15,000
Grant for purchase of equipment under fifth plan undergraduate development scheme.	20,000
University Grants Commission assistance for the research project entitled Hormonal regulation of enzyme activities in the liver & Kidney of developing rat by Dr. (Miss) Behrose S. Gandhi, Women's College, Banaras Hindu University, Varanasi Sanction of grant.	19,800
BHU Institute of medical sciences- construction of Principals Bungalow.	1,451.55
University grants commission assistance for the research project entitled Electronic Behaviour of Biological Materials of Dr. S.N. Bhat, Department of Chemistry, Banaras Hindu University, Varansi, release of grant	17,800
-do-	19,800
Extension to the Deptt. of Metallurgical Engineering IV Plan.	87,000

Banaras Hindu University Contd.

Programme of Special Assistance to selected departments- Departments of Metallurgy- release of on account grant.		2,00,000
Banaras Hindu University- construction of 550 bedded Hospital attached to the Instituted of Medical Sciences.	XVth	5,00,000
Construction of Hindi Bhavan under Golden Jubilee grant scheme.		20,000
University grants Commission Assistance for the research project entitled Regulation of Puffing and Gene activity in the Polytene cells of <i>Protophila</i> by Dr. S.C. Lakhota, Department of Zoology, Banaras Hindu University.		20,000
-do-		9,234
-do-		15,000
Research Fellowships in Engg.		1,557- 87
Purchase of furniture for I.T.C. Cafeteria & Canteen Building.		7,500
Financial Assistance to Teachers for for Research work in-Sciences.	Final	1,500
-do-		1,500
Banaras Hindu University- construction of 550 Bedded ward in SS Hospital attached to Institute of Medical Science Part III comprising of X-Ray Block, Laboratory & theatre Block S.H. construction of overhead Tank & boring a Tubewellwater supply. Ist		2,50,000
		26,87,981.91

10. B.N. Chakravarty University.

U.G.C. assistance for the research project entitled Land utilisation- Land use planning in Haryana, by Dr. Jasbir Singh, Department of Geography, P.N. Chakravarty University, Kurukshetra- release of grants.	24,500
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Chakravarty University (Contd)

	University Grants Commission Assistance for the research project entitled X-ray Diffraction and three dimensional Crystals and Molecular Structure Determination of Compounds of Chemical, Bio-Chemical and Solid State Interest of Dr. P.C. Jain, Department of Chemistry, B.N. Chakravarty University.	4,800
	Award of Teacher Fellowship	2,346
	UGC Assistance for the research project	3,000
<u>Identified Colleges</u>		
College of Education, Bina.	Purchase of Books & Journals.	5,000
College of Education, Kanya Gurukul, Bina.	Construction of Womens hostel.	5,555
College of Education, Bina.	With Five Year Plan Development Scheme	2,500
College for Bina City.	Construction of Additional Teaching Accommodation	16,000
M.D. R. College Bina Dadri.	With Five Year Plan Development Scheme.	25,000
Medical College, Bina.	Financial Assistance to Teachers	750
College of Education, Bina.	Release of 2nd instalment towards Book Bank	1,500
College Bina Cantt.	Establishment of Book Bank.	3,750
College Bina City.	Setting up of Book Bank	3,750

B.N. Chakravarty University (Affiliated Colleges)

A.College, Ballabgarh	Grant towards the loan of books to students	5,625
D.C. for Women Faridabad.	Students aid in the college.	1,000
MM College, Fatehgarh.	-do-	1,000
S.D. College, Ambala.	-do-	2,750
S.A.Jain College, Ambala Cantt.	-do-	2,250
MMahavidyalaya Bhiwani	-do-	1,000
A.K. Mahavidyalaya, Shahabad.	-do-	750
GK College, Karnal.	-do-	660
H.K.S.D. College, Kaithal.	-do-	2,750
H.P.S. College of Education, Khanpur Kalan	-do-	750
S.D.College Panipat.	-do-	2,250
Govt. College, Mohindergarh.	-do-	1,750
IGGovt. College, for women Rohtak.	-do-	2,750
MM College, Sahabad. Haryana.	-do-	1,000

1,24,736

Ranchpur University

Grant in aid for the purchase of equipment for Central workshop.	75,000
5th Annual Conference of the Orissa Mathematics Society.	2,000
Award of Teacher Fellowship	2,967.74
-do-	2,411
-do-	1,000
National Associationship scheme	1,000
Financial Assistance to teachers in the universities.	3,000
Grant for purchase of equipment under fifth plan	3,000

Attached Colleges.

Womens College, pur.	Grant for Setting up of book bank	2,000
-do-	-do-	1,409

 13,807.74

Bhagalpur University

UGC Assistance for the research project	4,800
Support for advanced research in the Humanities	2,000
Unassigned grant for 76-77	13,500
-do-	4,700
Symposium on Physiology of Micro-Organisation	1,418

Attached Colleges.

College,	Grant for Setting up Book Bank	2,500
College, pur.	Financial Assistance to Teachers for research	2,500
College, pur.	-do-	2,500

 33,918

13. Bhopal University

Grant in aid for the purchase of lib. Books	1,00,000
Utilisation of Services of O/s retired teachers	2,000
Allocation of unassigned grant for UGC unit.	6,000
Financial Assistance to teachers in the universities	3,000
Grant to College Libraries for loan of Books	6,000

Affiliated Colleges.

Lal Bahadur Shastri U College. Serohn.	Grant to College Libraries for loan of Books	4,500
--do--	Book Bank	1,500
Samrat Ashok Technological Institute, Vidisha	Students Aid Fund in the College,	1,000
S.S.L. Jain College, Vidisha	Students aid fund in the colleges.	3,750

1,27,750

14. Bihar University

Grant in aid towards Field work at the Department of Sanskrit.	5,000
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Affiliated Colleges.

L.S. College, Bihar.	Financial Assistance to teachers.	1,500
--do--	--do--	2,500
--do--	--do--	3,000
Gopeshwar College, Gopalganj.	--do--	2,000
BMD College, Dayalpur.	--do--	15,000

p. to.

Bar University (Affiliated Colleges)

S. College, Baffarpur.	Financial Assistance to Teachers for research	1,500
College, Bager.	-do-	1,000
S.S. College, Bhawal.	Writing of university level books	9,800
R. P. College, Bhar.	Students aid fund in colleges.	327
		31,627

University of Calcutta.

University Grants Commission Assistance for the Research project	15,000
Writing of University level books.	2,000
UGC assistance for the research project.	35,000
-do-	9,800
-do-	9,800
-do-	23,000
-do-	10,800
16th Annual Conference of AILT Association	5,000
-do-	5,000
UGC assistance for the research project	1,12,000
Senior /Jnr. Research Fellowship in Sce.	2,220
-do-	1,000
Award of Teacher Fellowship to Lecturer	2,282
-do-	1,000
UGC assistance for the research project	19,800
Payment of Fellowship	6,000
Financial assistance to teachers in the universities	2,500
-do-	2,500
-do-	3,000

University of Calcutta (Contd)

Financial assistance to teachers in the universities.	3,000
-do-	5,000
-do-	5,050
-do-	1,500
-do-	1,500
-do-	2,500
-do-	2,000
-do-	2,500
-do-	2,500
-do-	2,500
-do-	1,500
-do-	3,000
-do-	3,000
-do-	4,000
-do-	3,500
-do-	2,000
-do-	3,000
-do-	2,150
Construction of (i) teaching accommodation	15,000
Extension of Library and Laboratory of facilities	30,000
Students and welfare Programme	25,000
Financial assistance for the construction of Men's Hostel.	70,000

Affiliated Colleges

Instt of PG Medical Edn. & Res., Calcutta.	UGC assistance for the research project	4,800
P. College, Calcutta.	Development of PG studies.	20,000
G. College, Calcutta	Students aid fund in colleges.	3,650
D.I. College, Howrah.	-do-	3,410
PB College, Midnapore.	-do-	1,886
HH Prafullanagar. Parganas	-do-	2,864
M.G. Mahavidyalaya, West Bengal	-do-	750
T. Mahavidyalaya, Midnapore.	-do-	805

uttan University Conted (Affiliated Colloges)

Home	Students and Fund in colleges.	1,750
Bengal.		
College,	-do-	1,750
uttan.		
Mahavidyalaya,	-do-	1,750
Bengal.		
Mahavidyalaya,	-do-	2,112
Bengal.		
College.	-do-	300
Bengal.		
abasi College,	-do-	1,080
Bengal.		
R. college,	-do-	1,000
argana.		
College,	-do-	2,250
Bengal.		
College,	-do-	932
Bengal.		

5,03,271

ambay University

Writing of University level books	1,852
Research Fellowship in Humanities.	4,800
Centre of Advanced Study in Applied Chemistry.	75,000
Organisation of workshop in English Language	15,000
National Associateship Scheme	1,500
Research Fellowship in Humanities.	1,500
Conference of Coordinators of COBSIP colleges.	30,500
Support for Advanced research in the Humanities	5,000
Utilisation of services of o/s retired teachers	8,500
College Science Improvement Programme	60,000
Writing of University level books	1,000

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Bombay University (Contd)

Affiliated Colleges.

SP College of Engg. Bombay.	Writing of University level books	1,000
Goa M. College, Santa Cruz.	Financial Assistance for research work in Soc.	900
--do--	--do--	1,000
S College of Arts Bombay.	--do--	500
S.College for Women Bombay.	--do-- loan for book bank	4,500
--do--	College Humanities and Social Sciences Development	45,000
P. College, Bombay.	Students Aid Fund in the colleges.	22,800
		2,60,800

17. Bundelkhan University

Affiliated Colleges.

A. C. D. College, Atra.	Development of undergraduate Education	3,000
--do--	--do--	1,500
N.Mahavidyalaya, Lalitpur.	Students Aid fund in the colleges.	750
A.D. College, Atra.	--do--	3,250
A. Mahavidyalaya, Mauranipur.	--do--	1,000
		9,500

18. University of Burdwan.

University grants Commission assistance for the research project.	22,000
Grant in aid towards the improvement of undergraduate education.	80,000
--do--	15,000

Madras University Contd

Grant in aid towards the construction of Press building.	50,000
Award of Teacher Fellowship	2,241
Grant in aid towards the purchase of Scientific eqpt.	2,00,000
Financial Assistance to teachers in the univ.	5,000
Financial Assistance to teachers in the universities.	4,300
Writing of University ^{level} level books	1,675 2,960
Grant for setting up book bank.	8,000

Affiliated Colleges.

Mahavidyalaya, West Bengal.	-do-	8,000
R.K. S. S. West Bengal.	-do-	4,500
D. College, West Bengal.	-do-	2,640
College, West Bengal.	-do-	1,000
Engg. College, Madras.	-do-	2,250
B. College, West Bengal.	-do-	5,000
Mahavidyalaya, West Bengal.	-do-	3,250
V. College, West Bengal.	-do-	2,000

4,19,816

University of Calicut

Grant in aid for the purchase of Books and Journals in Humanities.	66,000
Construction of Radiation Research Lab.	15,000
Organisation of Indian History Congress	5,000
Award of Research Fellowship on the basis of Vth Plan	30,000
UGC assistance for the research project.	3,000
Unassigned grant for the year 76-77	13,500

Calicut University (Contd)

	Unassigned grant for the year 76-77	-
	Grant in aid for the purchase of Equipt.	5,000
	-do-	5,000
	Financial assistance to Teachers for research work	1,000
	-do-	4,000
	-do-	1,500
	-do-	1,000
	-do-	500
<u>Affiliated Colleges.</u>	Improvement of undergraduate Educational facilities.	1,00,000
NSS College, Kerala.	Students Aid fund in the College.	1,750
-do-	-do-	1,000
G. A. Sc. College, Kerala.	-do-	1,015
S.S. College, Taliparamba Kerala.	-do-	1,000
Govt. College, Kasarogod.	-do-	1,000
Govt. L. College, Kerala.	-do-	156
V. College, Kerala.	-do-	1,500
G. College, Kerala.	-do-	1,399
St. T. College, Kerala.	-do-	2,756
P. W. College, Kerala.	-do-	1,750
MES M. College, Kerala.	-do-	1,000
C.S.E. College, Kerala.	-do-	2,250
G.S. College, Kerala.	S -do-	1,000
S.K.V. College, Kerala,	-do-	2,306
G.V. College, Kerala.	-do-	2,831

2,73,213

Award of Research Fellowship on the basis of Vth Plan Visiting Committee Report. 15,000

15,000

Delhi University

Award of Teacher Fellowship to Mis. Lalit Bala Mathur 2,290

-do- 2,407

Purchase of equipment for Humanities. Ist 75,000

Financial Assistance to Teachers for researchwork 1,250
Centre for advanced Study in Chemistry. 3,75,000

-do- 1,58,000

UGC Assistance for the research project 4,800

Support for advanced research in the Humanities 25,000

Appointment of additional staff in Humanities 1,00,000

Purchase of Books & Journals 2,00,000

UGC assistance for the research project 12,675

Development of -do- 14,500

Areas Studies Programme in VPlan period 50,000

UGC Assistance for the research project 10,000

Support for writing of text books on Education 3,000

UGC assistance for the research project 9,000

Release of grants for South Delhi Campus 32,720

36th Annual Conference of the Association of Surgeon 5,000

Research Fellowships in Sciences Humanities. 3,993

-do- 3,313

-do- 1,500

-do- 47.80

51th All India Education Conference at Delhi 5,000

Mrs. Sarojini Anuja - Research Fellow in Humanities. 529

UGC assistance for the research project 19,600

-do- 1,00,000

Additional Teaching posts for development of M/Studies 8,841

Indi- Polish Cultural Exchange Programme. 20,000

UGC assistance for the research project 10,000

Payment of UGC fellowship of the value of Rs. 450/- 4,800

Financial Assistance to teachers for research project 500

-do- 2,400

-do- 750

-do- 1,500

-do- 1,000

Delhi University Contdx

	Financial Assistance to teachers in the universities	1,000
	-do-	2,500
	-do-	1,750
	-do-	2,250
	-do-	1,500
<u>Affiliated Colleges</u>		
D.Z.C. College, Delhi.	Purchase of land for the college building	10,000
B. College, H. College New Delhi.	Purchase of Electric Calculator	2,400
L.B. College, Delhi.	Construction of New Boundary wall	25,000
S.S. College, Delhi	Gravel grant to Dr. Deshba Deshbandhu	494
M. House, Delhi.	Provision of a collapsible gate in the Principal House	800
V.M. College, Delhi	Construction of college Buildings.	20,000
R.A. College New Delhi.	Construction of Tube Well.	25,000
NPL. Hill Side Road, New Delhi.	NPL Seminar on Time and Frequency.	6,000
B.M. College, New Delhi.	Purchase of Library Books	1,401
D.S. College, New Delhi.	Financial Assistance	2,000
Dr. J.H. College, Delhi.	Purchase of furniture, and Electrical Material	5,000
Delhi School of Social Work. Delhi.	National Service Scheme	228
Dr. Z.H. College, Delhi.	Construction of New Laboratory block	5,000
S.V. College, New Delhi.	Purchase of Library Books	2,500
S.G.T.B. K. College, Delhi.	Transfer of Botany and Ecology to the college	2,235
-do-	-do-	1,000

University (Affiliated College Contd)

College, Delhi.	Purchase of Library Books	8,000
B. A. College, Delhi.	Travel grant in respect of Dr. Miss S. Pathavati.	6,937
College Delhi.	Grants to affiliated college of Delhi	3,750
se,	Grants to affiliated colleges of Delhi University.	11,250
	-	
College, Delhi.	-do-	5,625
	-	
Salwan College, Delhi.	-do-	6,212
	-	
College, Delhi.	-do-	3,777
	-	
College,	-do-	7,500
	-	
Studies, Delhi.	-do-	3,276
College,	-do-	2,700
	-	
B. K. College,	-do-	7,500
	-	
College, Delhi.	-do-	287
College	-do-	3,051
	-	
College,	-do-	3,226
M. V. College, Delhi.	-do-	2,500
	-	
		14,06,954.80

Dr. B. R. Ambedkar University

Grant in aid towards purchase of eqpt.	Ist	25,000
		p. t. o.

Dibrugarh University (Contd)

	Research Fellowship in Sciences	1,50
<u>Affiliated Colleges.</u>		
J. Engg College, Jorhat.	Financial Aid to students in colleges.	1,00
G. College, Sibsagar.	-do-	1,75
NL College, Assam.	-do-	1,00
S.M.D. College, Assam.	-do-	65
D.C. Barua Girls College, Assam.	-do-	89
D.H.S. Kanoi Commerce College, Assam.	-do-	1,00
S. College, Assam.	-do-	20,00
		52,78

22- Guhati University

	UGC assistance for the research project	19,8
	Allocation of grant for UGC unit, 76-77	10,0
	Unassigned grant for the year 74-75	54,9
	Award of Teacher Fellowship	2,9
<u>Affiliated Colleges</u>		
N.G. College, Assam.	Development of Play field	1,5
N. College, Assam.	Financial Assistance to teachers in universities.	2,0
B. College, Assam (Kamrup)	Construction of Laboratory building	6,2
G.C. College, Shilohar.	Financial Assistance to Teachers for research work	7
G.P. W. College, Imphal.	Grant for setting up Book Bank.	3,0

Affiliated College(Gauhati University)

G.College, Assam.	Students Aid Fund of the colleges.	750
A. Colloge, Assam.	do	750
K. Colloge. Assam.	-do-	1,509
G.C.College, Assam.	-do-	1,000
B. R.M. Colloge. Assam.	-do-	1,000
		1,06, 198

23. Garhwal University (Affiliated Colleges)

DWT Colloge, U.P.	Students Aid fund in the colleges	670
D.W.S.College, Dehradun.	Payment of salary to Sh. Dinesh Joshi.	3,804
DAV Colloge, Dehradun.	Financial Assistance to teachers in the Univ.	2,500
DWT Colloge, Dehradun.	-do-	2,500
		9,474

24. Gorakhpur University

Jnr. Research Fellowship	2,045
UGC Assistance for the research project	9,800

Affiliated Colleges

J.L.N. Colloge, Gorakhpur.	Purchase of Lib. Books	2,167
S.D.Colloge, Varanasi.	Grant for purchase of Books.	20,000

Gorakhpur University (Contd)

S.D. College, Varanasi.	Grant for purchase of equipment	20,000
U.P. College, Varanasi.	do-	3,000
B.R.B. College, Deoria.	-do-	4,500
S.C. College, Ballia.	Financial assistance to teachers for research work	1,250
UP College, Varanasi.	-do-	3,600
BRD College, Deoria	Construction of See Block under fourth Plan	4,992
DCSK College, Azangarh.	Financial Assistance to teachers	300
BKPC College, Mirzapur.	-do-	1,750
St. A. College, Gorakhpur.	Students aid in the colleges	3,750
KS Mahavidyalaya	-do-	267
MG D. College, Gorakhpur.	-do-	1,572
G.D. Vindal Mahavidyalaya. Mirzapur.	-do-	1,000
H.L. Niwas D. College, Basti.	Additional Grant for Book Bank	4,100
G.S.D. College, Azangarh.	-do-	4,500
S.B. D. College, Badliapur.	-do-	5,625
BRD D. College, Deoria.	Grant for Book Bank	4,688
SGD College, Azangarh.	-do-	4,519
J.L.N. College, Gorakhpur.	-do-	4,688
-do-	Additional Book Bank grant	7,031
B. D. College, Deoria.	-do-	6,900
-do-	-do-	8,335

1,31,971

25. Gujarat University

UGC Assistance for the research project	2,000
Summer Institute in Political Science for college	999
Extension of Physics Department for PG Centre	50,000
Salary of Staff Humanities	50,000
Construction of Extension of Science Lab,	16,231

Affiliated Colleges.

S.S.K.S. and S.O.M. college, Gujarat.	Financial Assistance to the affiliated colleges	1,00,000
K.M. Arts College, Kalol.	Financial assistance to teachers	3,000
S.R.P. A. College of Education, Gujarat.	-do-	1,900
D.D. Gokul College of Secondary Education, Vidyamandir Campus, Palampur, Gujarat.	-do-	1,950
B.V. Commerce College, Godabad.	-do-	3,000
S. and Law College, Gujarat.	Book Bank	1,500
D.S. Commerce and D. Patel Arts College, Gujarat.	-do-	1,500
C.M. Arts & Commerce College, Gujarat.	-do-	1,500
mt. CC Mahila Arts College, Gujarat.	Grant to Colleges Library	4,500

Gujarat University (affiliated colleges)

Affiliated Colleges.

MV Arts College, Ahmedabad.	Students Aid fund in the colleges.	2,400
Govt. Arts College, Gujarat.	-do-	1,750
S.Arts & Commerce College, Ahmednagar.	-do-	2,800
R.B. S.College, Ahmedabad.	-do-	570
M.V. College, Ahmedabad.	-do-	2,750
M.Arts College, Mohasna.	-do-	2,750
		2,76.90

26. Guru Nanak Dev University

Financial Assistance to Teachers for research work 3,750

Affiliated Colleges.

DAV College, Panjab.	Improvement of undergraduate education	20,000
-do-	-do-	45,000
-do-	-do-	80,000
K.College, Amritsar.	Financial Assistance to teachers in the Univ.	3,500
DAV College, Punjab.	Improvement of undergraduate educational facilities.	10,000
-do-	-do-	8,000
K.College, Amritsar.	College Humanities and Social Sciences	10,000
D.College, Jullundur	Grant towards the loan of Books to students	5,625
G.College, Amritsar.	-do-	4,500

G.N.D. University (affiliated colleges)

Govt. College of Education, Panjab.	Grant towards the loan of Books to students.	5,625
G.N. College, Gurdaspur.	-do-	5,625
M. College, Amritsar.	-do-	8,437
IGG College, PT Distt. Amritsar.	-do- Aid fund.	1,000
-do-	Students aid fund in the colleges.	750
L. College, Bhagwara.	-do-	2,250
L. College,	-do-	1,730
L. College, Panjab.	-do-	3,250
L.G.S.K. College, Bahali	-do-	750
A.V. College, Amritsar.	-do-	750
A.V. College, Amritsar.	-do-	2,750
N. K. College, Rupurthala.	-do-	1,500
L. College, Amritsar.	Book Bank.	4,638

2,29,480

Himachal Pradesh University

Financial assistance to teachers	2,500
-do-	2,500
-do-	2,300
-do-	2,500
-do-	2,500

H.P. University (contd)

	UGC assistance for the research project	34,600
Affiliated Colleges. R.P.S.College, Simala.	Students aid Fund in the colleges.	1,000
COSD College, Bajjnath.	-do-	750
Govt. College, Kulu.	Grant towards the loan of books to students	5,625
		54,215

28. Haryana Agriculture University

	Financial Assistance to Teachers for research work	100
	-do-	406.50
	-do-	968.20
	Writing of university level books	3,600
	-do-	1,288.83
		6,363.53

29. Hyderabad University

	Payment of maintenance grant to the Hyderabad University for the year 76-77	7,00,000
	Institution of M.Phil Fellowships	25,000
	Construction of Buildings -See	2,00,000
	Purchase of books and journals 6th	5,00,000
	Purchase of workshop and Woodworking 3rd	25,000
		14,50,000

30. Indore University

	Construction of library building	1,00,000
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: 32 :

: 31 :

Indore University Contd.

Salary of staff approved on the basis of IV Plan	90,000
Allocation of Unassigned grant for UGC unit	13,500

Affiliated colleges

Development grant under 3 lakhs scheme	25,000
Indore. Financial Assistance for research work	1,250
G.P.G College, Indore. Travel grant to Dr. S.K Bhatt	4,411
olkar See College, Indore. Financial assistance to affiliated colleges	6,000
S.V.College, f Commerce, Indore. Loan of books to students.	3,250
K. M. College, Indore. Grant to College Libraries	4,500
ovt. D.College, how. Students aid fund.	1,617
	2,49,538

1. University of Jabalpur.

Establishment of an Examination Reform	10,000
Allocation of unassigned grant and grant for UGC UGC unit	15,000
Financial Assistance to teachers in the Univ.	1,650
<u>Affiliated Colleges</u> Research Fellowships	4,220
vt. Sce. College, balpur. Students aid Fund in the colleges.	2,886
P. Mahila Maha dyalaya, balpurn. -do-	480
vt. Sce. College, balpur. Financial Assistance to teachers	750
-do- -do-	1,000
A.College, balpur. Book Bank	3,250
	39,236

32 : Jadavpur University

Basic grant for the purchase of Books for the Development of Engg. and Technology during the Vth Plan period.	30,000
Senior Research Associateship in Humanities including social Sciences .	7,226
Utilisation of services of o/s retired teachers Payment of Grant in Respect of Dr. K?P. Goswami.	6,209
Development of Area studies programme IV plan	1,30,000
Grant in aid construction of one additional floor over second floor of existing post graduate science Block.	Ist 50,000
Writing of university level books	1,000
Payment of P.G. Courses in Pharmacy outside 4th plan.	30,000
University Grants Commission Assistance for the Research project entitled Kinetics of oxidation of some organic etc. under Dr. KK Sengupta Department of Chemistry Sanction of grant.	9,600
	& _____
	<u>2,64,035</u>

33. Jamu University

Award of Fellowships sanctioned for the fifth plan period under development schemes for science department	10,000
-do-	10,000
Financial assistance to teachers for research learned work in Humanities and Social Sciences payment of second instalment of grant.	750
-do-	Ist 3,000
-do-	n 5,000

	<u>28,750</u>

34. J.N. Krishi Vishwavidyalaya.

Financial Assistance to teachers in the university and colleges for undertaking research or learned work in Humanities including Social Sciences/Science- Payment of first instalment.		3,000
-do-	Final	2,500

 5,500

35. J.L.N. Tech. University.

Affiliated Colleges.

R.Engg. College, Warangal.	Financial Assistance to teacher for research learned work in Sciences-Payment of Second instalment.	2,000
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-do-	-do-	1,000
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 3,000

36. Jiwaji University

Affiliated Colleges.

S.V.R.S.Mahavidyalaya, Adokhar.	Grant to colleges Libraries.	4,500
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MLBA & C. College, Gwalior.	Award of teacher fellowship to Smt. Lakshmi Tonar, Lecturer in Sociology.	1,000
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Govt. P.G. College, Morena.	Students Aid Fund.	2,057
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Govt. College, Morar	-do-	556
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MIT&S Gwalior.	-do-	600
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G. College, Shivpuri.	Financial Assistance to affiliated colleges for the expansion of Book Bank.	6,000
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S Govt. College, Jabra.	Book Bank Grant.	Final 1,500
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 16,213

37. J.L.N. University.

Purchase of furniture for various Schools	1,00,000
Purchase of Chemicals & Consumables during vth Plan. Ist	1,00,000
Constr. of 72 residence for faculty staff. 18th	35,000
Laying of Grassing & Digging of tree holes etc.	11,100
Development of site for Sectors 1, 13 & 14 residential and guest House married research Scholars Hostel etc. 3rd	2,00,000
Research fellowships in Science/Humanities including Social Sciences/Research Fellowships in Engineering & Technology payment of Fellowships to Shri J. Acharya.	4,800
Financial Assistance to Teachers for research learned work in Humanities and Social Sciences. payment of Second instalment of grant.	625
Appointment of Teaching Staff during Vth Plan period. IInd instalment	8,00,000
Purchase of a 3 Wheeler Lambretta Scooter.	14,301
Maintenance of Horticulture works in the JNU Campus during 76-77	2,00,000
Development of site for academic complex 8th	2,00,000
University Grants Commission Assistance for the research project entitled Effect of Light and Hormones on the control of enzyme synthesis in Higher plants.	17,200
Jnr. Research Fellowships in Sciences.	4,467.74
-do-	3,313.33
-do-	4,622.58
-do-	4,441.94
	16,99,871.5

38. Jodhpur University

Financial Assistance for research work in Science. 1,500

Jodhpur University (Contd.)

Financial Assistance to teachers in the universities and colleges for undertaking research or learned work in Humanities including social Sciences- Payment of first instalment.	1,925
University Grants Commission Assistance for the research project entitled Studies on Photosynthetic characteristics of Indian Desert Plants with special reference to Gpathway of Carbon Reduction By. Dr. N. Senkhala, Department of Botany, Jodhpur University- Release of Grant .	13,200
-do-	20,000
Junior Research fellowship in Humanities	1,309
National Associateship.schene.	1,500

39,434

39. Kalyani University

Financial Assistance to teachers for research or learned work in Science payment of second instalment of grant.	2,500
Junior Research Fellowships in Sciences	2,561.29

5,061.29

40. Kanpur University

Affiliated Colleges.

V.S. M. College of Science. Allahabad.	Students Aid fund in the colleges.	1,000
S.D. K. Mahavidyalay, Ghiri.	-do-	642
O.N. Degree College, Fatehgarh.	-do-	1,000
P.K. College, Kanpur.	College Humanities and Social Sciences Development programme payment of grant.	15,000

Kanpur University (Contd)

C.C.College, Kanpur.	Grant for purchase of equipjont and Books	17,764.3
DBS College, Kanpur.	Financial Assistance to Teachers	1,200
J.Mahavidyalaya, Etawah.	Development of Undergraduate education	4,500
--do--	Grant for Book Bank	3,750
--do--	Additional Grant for Book Bank	5,625
P.N.P. College, Kanpur.	Additional Grant for Book Bank	7,031
--do--	--do--	4,000
	Ind	
		5,930.50

41. Karnatak University

Financial assistance to teachers in the Univ.	4,000
Junior Research Fellowships in Humanities	1,500
Development Scheme under Vth Plan period.	15,000
University Grants Commission assistance for the research project	4,800
--do--	5,800
--do--	5,000
Development Scheme under 5th Plan period	20,000

Affiliated Colleges.

Smt. A.S.M. College Bellary.	Financial Assistance to teachers for research work	500
Engg. College, Karnatak.	Students Aid Fund	1,176.8
S.V.M. College, Karnatak	--do--	750
PGJS College, Karnatak.	--do--	1,750

Karnatak University Contd

K.I. Society's College, of Commerce.	Students Aid fund to colleges.	2,257
Govt. College, Belgaum.	-do-	726
KMS S Karnatak College of Commerce Karnatak.	-do-	750
V.College, Karnatak.	-do-	4,200
S.M.College, Karnatak.	Grants towards the loan of Book	5,525
GG College of Commerce, Karnatak.	Establishment of Book Bank	3,750
Smt. As. College, for women, Karnatak.	Establishment of Book Bank	1,000

78,577

42. Kashmir University

Award of Teacher Fellowship	1,000
Financial Assistance to Teachers for research work in humanities.	500

Affiliated Colleges.

S.P. College. Srinagar.	Students Aid Fund in the colleges.	1,389
-do-	University Grants Commission Assistance for the research project entitled The effects of ecological changes on Kashmir Valley Lakes by Dr. DP Zutshi and Dr. BA Subla, Department of Botany and Zoology, Sri Partap College, Srinagar- Release of grant.	17,600

20,439

43. Kashi Vidyapeeth
Varanasi.

Award of Scholarship for PG studies
to the students belonging to hill areas 3,000

3,000

44. University of Kerala

University Grants Commission assistance
for the research project entitled Probability
models in fertility of Professor Miss A.
George Department of Statistics, - -
University of Kerala, Karivattom P.O.
Trivandrum. 4,800

42 Annual Conference of the Indian Math. 5,000

Symposium on account Research and
development to hold at Kasargod. 15,000

Junior Research Fellowship in Humanities 3,845

Salary of Staff approved during the Fifth
Plan period for Humanities and Social
Sciences. 2,00,000

Salary of the staff approved during the
Fifth Plan period. 2,50,000

Grants towards fellowships approved by
the Commission during the Vth Plan 40,000

Students aid fund-75-76 10,942

Affiliated colleges.

S.T.T.College,
Kerala. Grants to teachers training colleges
for the Construction of Library Bldg. 30,000

U.College,
Trivandrum. Utilisation of services of O/S retired
teachers payment of grant in respect
of Sh.V.Inandakuttan Nair. 6,161.2

-do- -do- 6,209.6

SHCollege,
Kerala National Service Scheme 9,000

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Affiliated College (Kerala University)

SS College Ernakulam.	NRSC Payment of grant for the	Ind	10,000
L.C.S.Sce. Trivandrum.	Writing of University level books		2,000
SS N-College, Quilon.	College Humanities and social science Development programme.		20,000
-do-	Fifth Five Year Plan Undergraduate Development Scheme- Construction of Lecture Theatre.		65,000
P.M. T.College, Kerala.	Students aid fund.		106
KRF College, Quilon.	-do-		750
St. X. College for Women.	-do-		1,045
NSS College, Nilavel	-do-		10,000
GMS College, Kerala	-do-		2,070
College for Women Trivandrum.	-do-		2,179
D&B. College, Kerala.	-do-		1,502
BM College, Kerala.	-do-		1,466
A College, Kerala	-do-		3,750
St. S.College, Kerala.	-do-		2,500
St. T.as College, Kerala.	Grants towards the loan of books to students		2,500
K.E. College, Kannanam.	-do-		2,500
G. College, Kerala.	-do-		4,000
BM N. College, Kerala.	-do-		5,000
NSS College, Kerala.	-do-		5,000
VOC T.College, Puthicoris.	Book Bank		4,500

7, 17, 825.97

45 : Kumaon University

Organisation of a workshop on question banks	5,000
Utilisation of services of o/s retired teachers	1,669.35

Affiliated Colleges.

D.S.B. Govt. College, Nainital.	Financial Assistance to Teachers for research work	4,000
-do-	-do-	1,000
Govt. P.G. College, Almora.	-do-	1,350
D.S.B. College, Nainital.	-do-	2,000

 15,019.35

46. Lucknow University

Organisation of Symposium on Reproductive Biology in relation to fertility and Population control.	6,000	
-do-	6,000	
Award of Teacher Fellowship	2,290.33	
Assessment of the work of Jr. Research fellowships so as to become eligible to receive fellowship	1,200	
University Grants Commission Assistance for the research project entitled An experimental and theoretical study of Conformation, Conformational Statistics and conformation on Transition in Macromolecules with special emphasis on Biopolymeric system.	11,000	
Financial Assistance to Teachers for research learned work in Sciences- Payment of Second instalment	2,000	
Jnr. Research Fellowships in Sce./Humanities	5,425	
-do-	3,475	
Utilisation of services of o/s retired teachers	3,719	
Financial Assistance to Teachers for research project	1,000	
Award of Teacher Fellowships payment of Salary	4,456.67	
<u>Affiliated Colleges.</u> N.K.V.D. College, Lucknow.	Students aid fund in the colleges.	2,505
DAV College, Lucknow	Book Bank	3,000

 p. t. o. 56,531.05

L.N. Mithila University

liated Colleges.

College, r.	Financial Assistance to Teachers for Research work	1,000
College, r.	Setting up of Book Bank in colleges	1,500
College, hanga, r.	Grant for setting up Book Bank.	1,000
		3,500

University of Madras

UGC assistance for the research project	5,000
-do-	7,200
Maintenance grant for M.Tech. Studies.	1,25,000
Financial Assistance to Teachers for research work	500
Centre of Advanced Study in Botany-University of Madras Release of recurring grants.	25,000
National Conference on Crystallography.	5,000
UGC assistance for the research work.	10,000
Research Fellowships in Engg. & Tech.	982.76
Development schemes under-V Plan period	20,000
-do-	10,000
-do-	10,000
-do-	10,000
-do-	10,000
-do-	10,000
Jnr Research Fellowship in Sciences	5,100
Award of Postgraduate Scholarships of the value of Rs. 400 p.m. to the students of 76-77 admitted against the approved intake in the faculty	49,000

liated Colleges.

New College, as.	Financial Assistance to Teachers for research work	1,750
College, as.	-do-	3,000
	-do-	2,400

Affiliated Colleges (Madras University)

M.C.College, Madras.	Financial Assistance to Teachers for research work	750
V.College, Vellore.	-do-	1,500
-do-	-do-	2,000
Madras C. College, Tambaram.	Award of Teacher Fellowship to Sh. G.W. Cornelius	2,750
P.S.G. Arts College, Coimbatore.	Purchase of Library Books and Journals.	60,000
-do-	Purchase of Equipment	20,000
S.R.College, Tiruchirapalli.	Improvement of Under-graduate Educational facilities	30,000
-do-	-do-	20,000
P.College, Madras.	Utilisation of Services of o/s retired teachers	2,000
SM College, Madras	-do-	2,000
NCM College, Tamilnadu	Improvement of Undergraduate educational facilities	15,000
R.M.V. College, Madras.	U.G.C. assistance for the research project	12,000
St. J. College, Tircuripalli.	-do-	29,970
PSG College of Technology.	-do-	20,000
V.College, Madras.	College Humanities and Social Sciences Development	20,000
Govt. Arts College, for Women T. Nadu.	Construction of Hostel Building.	15,000
NCM College, Pollachi.	UGC assistance for the research project	21,000
C.G. Arts College, Tirupura.	Students Aid fund to colleges	100
Govt. College of Technology Coimbatore	-do-	1,836
Govt. Arts College, Thanjavur	-do-	1,157

University of Madras (Affiliated Colleges Contd)

W.C.College, Mas.	Students Aid Fund to Colleges for the year 76-77	1,750
College, patra.	-do-	1,750
M.College, yattam.	-do-	699
onal Engg. College, chirapalli.	-do-	2,740
		5,93,934.76

Madurai University

University Grants Commission Assistance for the research project	36,800
UGC assistance for the research project	5,000
-do-	1,50,000
-do-	28,200
-do-	4,800
Financial Assistance to Teachers for Research work	1,500
-do-	2,000
-do-	2,000
-do-	2,000
-do-	1,000
-do-	3,250
-do-	2,000
-do-	2,000
-do-	3,500

Affiliated Colleges.

College, Mas.	College Science Improvement Programme- Selected Colleges.	60,000
College, Athapuram.	Students Aid fund to colleges	1,750
College, Soyi	-do-	1,000

Madurai University (Contd)

P.K. College, Kanyakumari.	Students aid fund to colleges for the year 76-77	1,000
Y. College, Madurai.	-do-	1,750
S.K.G. S. Arts College, Tirunelveli.	-do-	750
V.V. College for Women Tamil Nadu.	-do-	1,750
S.T. Hindu College, Kanyakumari	-do-	3,750
A.A. College, Aramboly.	-do-	1,000
T.College, Madurai.	-do-	1,076
SA College for Women Pallatur P.	Grants towards the loan of Books setting up of book Banks.	5,625
M.M. College, Madurai.	-do-	11,250
P.K. College, Nagercoil.	-do-	2,500
V.O.C.College, Tuticorin.	-do-	4,750
	Final	
		3,42,001

50. Magadh University

Award of Teacher Fellowship 2,233.76

Affiliated Colleges.

K. College, Nalanda.	Financial Assistance to Teachers for research work IIInd	625
S.N.S.College, Bihar.	-do-	625
HD J.College, Bihar.	Utilisation of services of o/s retired teachers.	2,000
Gaya College, Bihar.	Construction of Mens Hostel. Release of Grant Final	4,000

Madh University (Contd)

Affiliated Colleges.

Singh College, r.	Financial Assistance during Vth Plan for Development Scheme.	5,000
College, r.	-do-	1,200
		15,683.76

M.S. University of Baroda,
da.

Award of P-G Scholarship of the Value of Rs.400 to students admitted to PG Courses.	1,20,000
Establishment of Students Aid fund in University	19,000
Organisation of workshop on Architectural Edn.	17,000
Financial Assistance to Teachers for research work	2,750

1,58,750

Marathwada University

Establishment of Health Centre.	19,900
Summer institute in English languages teaching	30,000
Award of Teacher Fellowship to Shri K. Anhaddev	2,225

Affiliated Colleges.

Shri Chhatrapati Maharajashtra.	Construction of Science Laboratory block.	75,000
S. college of Sc. Maharashtra.	Basic Grant to college for the purchase of L/Book	500
College, ed.	Financial Assistance to Teachers for research work	2,500
	-do-	Final 2,500
Shri Chhatrapati Maharajashtra.	-do-	1,500
College, ed.	-do-	2,500

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Marathwada University (Affiliated University Contd)

Y. Mahavidyalaya, Nanded.	Financial Assistance to Teachers for research work	3,500
N.E.S. S. College, Nanded.	-do-	2,500
-do-	-do-	Final 2,500
S.A. College of Arts Aurangabad.	-do-	500
B.P. Arts & Commerce College, Kinwat.	Grant towards the loan of books to students.	8,000
M. College of Sce. Aurangabad.	Grants to colleges lib. loan of Books to students	3,000
S.B.S.S. College, Science.	Students aid fund in the colleges.	800
P.E.S.Mi. College, Aurangabad.	-do-	2,700
		1,60,125

53. Meerut University Meerut.

Higher Education & Research -Development Schemes	Ist 4,00,000
Award of Teacher Fellowship	1,000
-do-	2,379
Snr Research Fellowships in Soc.	1,506.80
Fellowships in Sciences/Humanities including Social Sciences.	2,000
-do-	1,500
-do-	2,000
-do-	500
-do-	1,000
-do-	5,500
-do-	1,500
-do-	1,000
-do-	1,000
-do-	500

Affiliated Colleges.

MFPV College, Saharapur.	Financial Assistance to teachers in the Universities	2,000
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Affiliated Colleges Contd. Meerut University

College, Bandshar.	Financial Assistance to teachers in the universities		1,000
College, Arja	-do-		2,000
College, Mut	Award of Teacher Fellowship		1,943
College, Baffarnagar.	Development of Under graduate education		7,500
College, Baffarnagar.	Fifth Five Year Plan - Improvement of undergraduate education.		20,000
-	-do-	IIInd	20,000
-	-do-	IIIrd	15,000
Jain College, Arampur.	Financial Assistance to teachers for research work		1,000
M. D. College, Arkee	Improvement of Undergraduate studies.		1,800
College, Arampur.	Payment of Salary of Lecturer		3,630
College, Baffarnagar.	College Humanities and Social Science Development Programme.		9,550
Degree College, Arkra.	Book Bank		1,875
College, Arampur.	Additional Grant for Book Bank		5,625
Mahavidyalaya, Arampur.	Students Aid Fund in the Colleges.		360
D. College, Baffarnagar.	-do-		355
College, Bandsharar	-do-		1,260
College, Arampur.	-do-		1,338
College, Bisabad.	-do-		4,750
College, Arkra.	-do-		185
D. College, Arkra.	-do-		1,000

: 48 :

: 49 :

University of Meerut (affiliated colleges)

Amar Singh College, Lakhnauti.	Students Aid fund in the Colleges.	625
K.L. D.A.V. College, Roorkee.	--do--	762
R.M.P.P.V. College, G. Narsan (Saharanpur.)	--do--	773
M. College, Meerut.	--do--	5,000
I.D.P.D. College, Bulandshahr.	--do--	1,815.
		5,26,44

54: Mysore University

	Visiting Professorship for the Vth Plan period	30,000
	Appointment of German Language teacher	4,200
	Award of Teacher Fellowship to Sh. J.Hedge.	2,790
	Recurring grant under increase intake Scheme College Humanities and Social Sciences	1,80,1,000 5,000
Affiliated Colleges.		
Y.College, Mysore.	Purchase of semi Micro Analysis equipment	4,999
U.E.College, Mysore.	Construction of teachers flats.	10,000
JSS College, Karnatak State.	Establishment of Book Bank	1,500
S of S work Mangalore.	--do--	1,500
G.D.College, Saratkal.	--do--	1,500
K.M. College, Manipal.	Students Aid fund in the colleges	2,850
V.C. of Arts Sce. Puttur.	--do--	1,722.
S.J. C.C. of Engg. Mysore.	--do--	1,254
S.V.S. College, Tantval.	--do--	730
AVK Gillege for Women, Davangere.	--do--	1,000

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Affiliated College (Mysore University)

College, Mysore.	Students Aid Fund to Colleges for the year 76-77	3,250
T College for Engg.	-do-	1,007
Yangere.	-do-	-
College, Matak.	-do-	1,000
GC Govt. College, Micknogalur.	-do-	1,252
P. College, Matur.	-do-	-
ational College, Association Mysore.	Grants towards the loan of Books Bank	4,500
of Education Mysore.	-do-	4,500
P. College, Matur.	-do-	4,200
unicipal First Grade College, Matak State.	-do-	5,625
L.S.L. College, Mysore	-do-	5,625
College of Arts Sce. Mysore	-do-	4,220
Commerce Matur.	-do-	-
of Engineering Mysore.	-do-	8,500
College of Engg. Matak.	-do-	8,500
Engg. College, Mysore.	-do-	8,500
ical College, Mysore.	-do-	11,250
Science College, Matak State.	-do-	4,600
College of Arts Science, Mysore.	-do-	8,500

Affiliated Colleges (Mysore University) Contd.

G.C. of Education, Mangalore.	Grants towards the loan of Books setting up of Book Banks	4
MM College of Education, Karnatak Govt. College, Mangalore.	-do-	4,500
T.College, Mysore.	-do-	4,500
B.M.S. G. College, Karnatak.	-do-	4,500
S.P.E.College, Udipi.	-do-	4,500
A.V.K. College, Hassan.	-do-	4,500
		3,65,184

55. Nagpur University

Grant in aid for the award of Junior Fellowship to the students admitted to P-G Courses	50,000
Allocation of Unassigned grant during the 5th Plan	25,62
Jnr. Research Fellowships in Sce.	3,300
Reseado-	1,133
Financial assistance to Teachers for Research work	1,500
UGC assistance for research work	3,000
Financial Assistance to teachers in the University	1,250
-do-	2,000
-do-	8,960
Extension of Teachers Hostel.	10,000

Affiliated Colleges

DC of P.College, Aravati.	BOOK BANK	10,000
A.M.D. Mahavidyalaya, Kampur.	Travel Grant to Dr. Daba Rani Sidana.	3,861
BLT College of Sce. AKOLA	Book Bank	3,250

Affiliated Colleges (Nagpur University)

EM A. College, Nikhli.	Financial Assistance to affiliated colleges.	4,600
Mahavidyalaya, Wardha.	-do-	4,500
S. College, Wardha	-do-	6,000
State C of Education	Students Aid Fund in the colleges.	316
Mahavidyalaya Wardha.	-do-	2,175
S. College, Wardha.	-do-	556
Mahavidyalaya, Wardha.	-do-	1,750
AC and MP D Memorial College, Nagpur.	-do-	1,077
Mahavidyalaya, Wardha.	-do-	1,085
MA & College, Wardha.	-do-	600
P. Patil Sa Mahavidyalaya, Wardha.	-do-	142
Mahavidyalaya, Wardha	-do-	1,127
Mahavidyalaya, Wardha.	-do-	516
MA & M K Kachotiya Wardha.	-do-	228
S. C of Commerce, Wardha.	-do-	1,543
B. City College, Wardha.	-do-	842
C of Education Wardha.	-do-	235
K.V. Mahavidyalaya, Wardha.	-do-	227
Mahavidyalaya, Wardha.	Financial Assistance to teacher s in the Univ.	2,500
S College, Wardha.	-do-	2,500
Institute of Sce. Wardha.	-do;	1,700
M.P. College, Wardha.	Loan of Books	3,250

Nagpur University (Affiliated Colleges) Contd.

S.C. of Education Wardha.	Grant to Colleges Libraries for Loan of Books	4,500
L.N.B.A. Mahila Mahavidyalaya, Vestnal.	-do-	6,000
V.A. of Commerce Buldana.	-do-	4,500
MB Patel College of Arts and Commerce, Bhandara.	-do-	4,500
College of Engg. Amravati.	-do-	8,000
GS College of Commers Wardha.	-do-	2,782
		1,91,625.6

56. University of North Bengal.

	Un-assigned grant for 76-77	13,500
	UGC assistance for the research project	7,200
<u>Affiliated Colleges.</u>	Financial Assistance to teachers for research	250
University College, Kutganj	Financial Assistance to Teachers for research work	2,500
DG College, Darjeeling.	-do-	5,000
A C T College, Jalpaiguri.	Grant for setting up Book Bank	4,500
A.C.College of Commerce Jalpaiguri.	-do-	8,000
M. College, West Bengal.	-do-	381
B. College, West Dinajpur.	-do-	2,250
		43,581

North Eastern Hill University

Workshop on English Language and Literature.	25,000
Purchase of Library Books	1, 60,000
Purchase of Books & Journals	80,000
Writing of University Level Books	9,999.40
Book Bank Setting up of	1,800
Purchase of Books and Journals and Laboratory	10,000

Related colleges

A. College, Long.	Financial assistance to colleges.	15,000
College, na.	Students Aid Fund in the Colleges.	<u>750</u>
		<u>2,42,549.40</u>

Omania University

Financial Assistance to teachers	1,250
-do-	1,000
Utilisation of Services of \checkmark standing retired teachers.	6,016
PG courses in Engr. & Technology.	1,50,000
Grant in aid for purchase of Books and Journals	1,10,000
Support for advanced research in the Humanities	10,000
UGC assistance for the research project	75,000
Appointment of Additional Teaching staff Humanities and Science Departments	4,00,000
Grants towards fellowships for Science and Humanities	45,000
Writing of University level books	2,000
Organisation of s/term course in Geophysical field	25,000

Related College

College, rabad.	Establishment of Health Centre.	2,960
College, rabad.	Setting up of Book Bank Sanction of grant regarding	3,250
College, bad.	-do-	2,500
A S College for n, rabad.	-do-	2,500

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Osnania University (Affiliated Colleges)

E.College, Secunderabad.	Grants towards the loan of Books to students	5,000
G.C.College, Hyderabad.	-do-	5,000
C of E A Mahila Sabha. Hyderabad.	-do-	4,000
A.S.College, Mahbub Nagar.	-do-	1,500
OK M A & Sec College Warangal.	-do-	2,750
G.College Siddipet.	-do-	1,750
GG A College, Mizoramabad.	-do-	480
MAL D.Govt. Arts & Sec. College, Gadwal.	-do-	566
St. A.College, of Edn. Secunderabad.	Financial Assistance to teachers in the univ.	750
MB Sec. College, Hyderabad.	-do-	
New Sec. College, Hyderabad.	-do-	1,500
C.K.M. Arts College, Warangal.	-do-	1,500

8,61,272

59. Panjab University . Chandigarh

Centre of Advanced Study in Mathematics.	13,800
UGC assistance for the research project	27,700
Allocation of Unassigned grant .	20,500
Financial assistance for research project	3,000
Programme of Special assistance to selected Deptt.	15,000
Writing of University love books	1,000
13th All India Sociological Conference	5,000
Utilisation of services of o/s retired teachers	6,185

ab University (Contd)

	Utilisation of services of outstanding retired teachers	1,967.23
	Jnr. Research Fellowships in Sciences.	1,500
	Salary of staff approved during the fifth plan	3,00,000
	Purchase of books and journals	15,000
	Purchase of Lib. books and journals Ind	6,000
	Financial Assistance to teachers in the universities	2,000
<u>listed Colleges.</u>		
Nursing digarh.	Grant towards the loan of books to students.	4,500
for women iana.	-do-	8,457
College, jah.	-do-	4,500
M. College, ar.	Establishment of Books bank.	1,875
College, ab	Establishment of Book banks	4,688
	-do-	3,750
M. College, r.	Students aid fund in the colleges.	1,000
College, ab.	-do-	750
College, ab.	-do-	3,750
College	-do-	750
For Women, digarh.	-do-	3,750
	-do-	2,750
N. College iana.	-do-	2,750
	-do-	1,000
College, ab.	-do-	1,000
College, iana.	-do-	1,000
College, ar.	-do-	675

Panjab University (affiliated colleges)

A.N. College, Panjab.	Students aid fund in the colleges.	2,755
N.G.College, Panjab.	-do-	750
SGCS K College, Punjab.	-do-	1,750
MCC oc Education Ludhiana.	-do-	1,000
GNN College, Punjab.	-do-	750

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4,72,602.2;

60. Punjabi University, Patiala.

Financial assistance to teachers in the universities.	1,625
UGC assistance for the research project	1,800
Establishment of Research xxx centres. Hind	86,618
Allocation of unassigned grant	10,000

Affiliated Colleges

G.R.College, Nabha.	Grants towards the loan of books to students	8,457
-do-	-do-	2,750
-do-	-do-	1,750
S.D. College, Barnala	-do-	1,700
G. College, Panjab.	-do-	1,875
-do-	Book Bank	750
MM G.P.G. College, Punjab.	-do-	1,675

1,13,000

Punjab Agricultural University, Ludhiana

Financial assistance to Teachers for research work 2,250

2,250

Punjab Rao Agricultural University, Akola.

Financial assistance to Teachers for research work 5,000

5,000

Patna University

Construction of Geography Block-4th Plan. 5,000

Grant in aid towards Museum and Air-conditioning of Microtomy room. 20,000

-do- 20,000

-do- tenth 10,000

Construction of Biology Block 80,000

Establishment of a Students Home in the Univ. 5,000

Grant in aid towards Construction of Boys Hostel 2,00,000

U.G.C. Assistance for the research project 26,800

Construction of Building for Geology block 15,000

Basic grant for the purchase of Books & Journals 25,000

Grant for the purchase of equipment for A.I.H. 15,000

Research fellowships in Sciences 1,500

-do- 1,500

Award of Teacher Fellowship 3,177

-do- 3,217

Consolidation and development of Higher Tech. Edn. 2,25,000

-do- Ist 74,000

Utilisation of services of O/S retired teachers 2,225.81

-do- 5,750

UGC assistance for the research project 33,200

J/Senior Research Fellowships in Science 963.67

Patna University (Contd)

UGC assistance for the research project	11,000
Construction of Geography Block	5,000

Affiliated Colleges.

P. College, Patna.	Students aid fund in the colleges.	2,250
B.N. College, Patna.	Snr/Jnr. Research Fellowships in Sciences	6,300
		7,96,08

6. Poona University

Purchase of Equipment for the Departments of Hum. College Science Improvement Programmes.	48,000 1,00,000
Higher Education and Research- Development Scheme	4,00,000
Construction of STAFF Quarters	71,000
-do- for womens	29,120
Utilisation of Services of O/s Retired Teachers	4,854.
-do-	5,000
Travel Grant in respect of Sh. K.Singh	335
Programme of Special Assistance to Selected Departments Department of Chemistry.	1,49,483
Establishment of Students Aid Fund	15,000
Writing of University level book	4,500
Utilisation of Services of /o/s retired teachers	2,547.5
National Associateships	1,500
Financial Assistance to teachers for research work	1,500
-do-	1,500
Utilisation of services of o/s retired teachers	5,375
Senior junior research fellowships	2,503.6
Construction of Teachers Hostel.	15,000

University (Affiliated Colleges)

Arts College,	Development of PG Studies in Science & Humanities	10,000
&P. College,	Book Bank.	3,250
val.		
& Commerce,	-do-	1,500
ge,		
agar.		
Arts College,	-do-	6,000
.		
ce College,	-do-	4,500
.		
College,	-do-	2,750
.		
College,	-do-	1,000
ashtra.		
ge of Edn.	-do-	400
ashtra.		
f Commerce,	-do-	2,101
.		
A College,	-do-	750
.		
rts College,	-do-	1,000
r.		
& Commerce	-do-	1,000
ge,		
on.		
led,	-do-	1,000
.		
ollege of	-do-	1,000
and Research	-do-	
.		
of S.S.	-do-	750
.		
lege,	-do-	3,123
.		
Arts	-do-	2,750
College,		
mer.		
. College,	-do-	2,934
on.		

9,03,057.48

65.
Rabindra Bharati Univ.

: 69 :

Allocation of grant for UGC Unit	6,000
	<u>6,000</u>

66. Rajasthan University

UGC Assistance for the research project.	22,000
Establishment of Science Education Centre.	1,00,000
UGC Assistance for the Research Project	4,000
Organisation of summer institute in English Language	30,000
Financial assistance to university teacher	2,250
Writing of University level books	1,000
UGC Assistance for the research project	11,000
JRF in Humanities	1,500
Liason and dialogue between Philosophy teachers	500
Holding of a seminar on History	3,000
Award of Teacher Fellowship	2,800
Third Annual Conference	2,000
Eighth Annual Conference	2,000
JRF in Humanities	1,500
Award of Studentship	14,000
Writing of university level books	3,600
UGC assistance for the research project	6,800
Construction of Women's hostel	60,000
Financial assistance to teachers for undertaking research projects.	5,000
-do-	4,500
-do-	1,450
-do-	5,000
-do-	1,700
-do-	2,000
-do-	1,000
Construction of science laboratories	60,000
Grants for the improvement of practice	10,000
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Rajasthan University (contd).

Affiliated colleges:

	Construction of library building at	60,000
	Grants for purchase of items for Audio Visual	12,000
	Grants for purchase of books & journals	12,000
	Students' Aid Fund in the colleges -	1,000
	-do-	2,250
	-do-	750
	-do-	2,240
	-do-	1,442
	-do-	1,750
	-do-	433
	-do-	5,000
	-do-	1,000
	-do-	204
	-do-	750
	-do-	1,000
	-do-	516
Government College, Sirohi	-do-	50.50
Malviya Regional Engg. College, Jaipur	Grants to college libraries	11,250
SMS Medical College, Jaipur	Grants to college libraries	11,250
Gandhi Shikshak Mahavidyalaya, Gulabpura	-do-	8,000
Lohia College, Churu	Students Aid Fund	958
		<hr/>
		4,92,449.65
		<hr/>

67. Ranchi University

Revision of salary scale of college teachers.	1,15,918
Organisation of the 7th All India Convention.	5,000
Revision of salary scale VII All India Convention of Clinical Psychologists.	1,21,425
	2,000

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Ranchi University (contd)

Affiliated colleges :

Ranchi College, Ranchi	Financial Assistance to Teachers for research work	1,000
Giridih College, Giridih	Construction of Non-Resident Student Centre	5,000
Jamshedpur Women's College Bistupur.	Setting up of Book-Bank	3,250
-do-	Student's Aid Fund in College	1,750
Marwari College, Ranchi	-do-	2,250

68. Roorkee University :

		<u>2,57,583</u>
	Basic grant for purchase of equipment	1,00,000
	UGC Assistance for the research project	6,500
	Introduction of Environmental Engg.	15,000
	Estimates of anticipated expenditure	3,00,000
	Research Associateship	10,000
	Teacher Fellowship	2,616.6
	UGC Assistance for the research project	10,400
	Award of PG Studentship	39,000
	Financial Assistance to teachers for research project.	10,000
	-do-	3,500
	-do-	5,500
	-do-	4,500
	UGC Assistance for the research project	61,000
	Support for research in Science.	4,27,500

69. Ravi Shanker University :

	Conference of Indian Association of American Studies.	2,000
	Construction of Library Building	50,342

Affiliated colleges :

Govt. College of Science, Raipur.	JRF in Sciences.	3,100
-do-	Students Aid Fund in the Colleges.	1,224
DBDKS Arts & Commerce, College, Baledabazar.	-do-	475
Govt. College of Edn., Bilaspur.	-do-	750
Govt. Girls Degree College, Bilaspur.	-do-	1,520

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1953-54

Ravi Shankar (affiliated colleges) contd.

~~Govt. Girls Degree College, Bilaspur~~
~~Govt. Degree College, Bilaspur~~

TRS College, Bewa.	Support for advanced research	5,000
Govt. Degree College, Kanker.	Book Bank	1,500
Govt. PG College, Jabikapur	Development of PG studies.	65,000
Arts & Commerce College, Bagbahare.	Grant to college libraries.	4,500

1,35,411

70. Rohilkhand University

Affiliated colleges :

Bareilly College, Bareilly.	Financial assistance to teachers	2,500
-do-	Grants to affiliated colleges (development)	7,500
-do-	-do-	4,000
Hindu College, Morabad. (UP)	Book Banks	5,625
JS Hindu College Amroha	Students Aid Fund	723

71. Rohtak University :

Affiliated colleges :

DAV College, Hasangarh	Financial assistance to teachers	4,000
GR College of Edn., Rohtak.	-do-	4,000
CR College of Edn., Rohtak	-do-	3,000

72. Sampurnanand Sanskrit Vishwavidyalya :

31,348

<u>Affiliated colleges :</u>	JRF in Humanities	3,340
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3,340

73. Sambalpur University :

UGC Assistance for the research project	9,800
Establishment of Study Centres	15,000

Sambalpur University(contd)Affiliated colleges :

Jawaharlal College, Patanagarh	Financial assistance to teachers	3,000
GM College, Sambalpur	Development of PG Studies	50,000
Rourkela -do-	Purchase of books and equipments.	50,000
-do-	-do-	50,000
Regional Engg. College, Rourkela.	Students' Aid Fund	3,000
Kuchinda College, Kuchinda.	-do-	516
Univ. College of Engg.	Students' Aid Fund	857
Govt. College, Sundargarh.	-do-	836
Bonaigarh College, Bonaigarh.	Book Bank	4,500
Lajpat Rai Law College, Sambalpur.	Book Bank	8,000
Rourkela Law College, Rourkela.	-do-	5,500
		<u>2,01,009</u>

74. Saugar University

	Writing of University level books	596.51
	Teacher Fellowship.	2,750.
	Fellowship in Engg. & Technology.	3,200
	UGC Assistance for the research project	7,500
	Purchase of library books & Journals	1,00,000
	SRF in Humanities	1,500
<u>Affiliated colleges:</u>		
Thakur N.S. Mahavidyalaya, Gotegam.	Financial assistance to teachers	1,000
SRT NES College, Baumaw.	Students Aid Fund	182
Motilal Nehru Law College, Khandwa.	-do-	294
Govt. Degree College, Demoh (MP)	-do-	1,676
MGM Mahavidyalaya	Book Bank	1,500
Govt. PG College, Balaghat.	-do-	3,232.7
Govt. College, Pipery (MP)	-do-	1,500

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Sagar University (affiliated colleges) contd.

MGM Mahavidyalaya, Kareli.	Book Bank	2,000
		1,26,931.26
<u>Saurashtra University: (contd)</u>		
	Salary of Staff for Education Deptt.	8,000
Lakshmirji Engg. College, Morvi	Retired Teachers.	5,125
Kavishree Botedkar Arts & Commerce, Botad.	Book Bank	3,000
Shri MPS Municipal College, Jamnagar.	Book Bank	10,000
KHM Arts & Commerce College, Porbandar.	Book Bank	3,250
MB Arts & Commerce College, Gondal.	Bank Bank	6,000
Shri KO Shah Municipi- pal Arts & Commerce College, Dhoraji	Book Bank	8,000
RG Teachers College, Porbandar	Book Bank	4,500
MS Mahavidyalaya, Bhavnagar.	Students Aid Fund	750
Sheth HJ Law College, Bhavnagar.	-do-	524
SSP Jain Arts & Commerce College, Dhrangadhra	-do-	1,000
Kamani Science College & P. Arts College, Amreli	-do-	1,750
Shri S. Arts & College, Dwarka.	-do-	750
		52,649
76. <u>Sardar Patel University :</u>		
	Salary of Staff	10,000
	UGC Assistance for the research project	10,000
<u>Affiliated colleges :</u>		
VP Mahavidyalaya, Vallabh Vidyanagar.	Students Aid Fund	1,000
		21,000

77.

: 66 :

SNDT Women's University :

	SNDT Allocation of unassigned grant	21,505.12
	Grant-in-aid for the Study Centre	22,464.67
	Teacher Training	80,000
	Study Centre	12,355.72
<u>Affiliated College:</u> Nooth Mahila College Bombay	Book Bank	6,000
		<hr/> 1,42,325.51

78. Shivaji University :

	Assistance for Indians working in Universities abroad.	2,500
	Finance Assistance to Teachers	1,800
<u>Affiliated colleges:</u>		
Smt. K.I. College, Sangli.	Health Centre	8,101.48
Salwant College, Sangli.	Students Hostel	14,591
Arts & Commerce College, Satara.	Additional Teaching Accommodation.	10,000
Willington College, Sangli.	Financial Assistance to teachers	1,500
T.R.G. College of Commerce, Satara.	Book Bank	15,000
Miraj Medical College, Miraj	Book Bank	8,000
Arts, Sc. & Commerce College, Ramanand Nagar	Book Bank	8,000
Mahavir Mahavidyalaya, Kohlapur.	Book Bank	4,500
Mangalwadha College, Mangalwadha.	Book Bank	8,000
DGB D.Evening Law College, Sholapur.	Book Bank	8,000
Lal Bhadur Shastri College, Satara.	Book Bank	3,250
Dr. VM Medical College, Sholapur.	Book Bank	6,000
College of Edn., Barsi,	Students' Aif Fund	490

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Shivaji (affiliated colleges) contd.

Balasaheb Desai College, Patan.	Students Aid Fund	804
Dahiwadi College, Dahiwadi.	-do-	408
Vivekanand College, Kolhapur.	-do-	1,750
Chhatrapati Shivaji College, Satara.	-do-	2,520
Science College, Satara.	-do-	1,000
Chintaman Rao College of Commerce, Sangli	Book Bank	3,250
DSP Dayanand College of Arts & Science, Sholapur.	Book Bank	3,000
BSD College, Patan	Book Bank	1,500
DAV Velankar College of Commerce, Sholapur	Book Bank	3,250
Lal Bahadri S. College, Satara.	Book Bank	7,500
Pandharpur College, Pandharpur	Book Bank	6,000
		<u>1,20,714</u>

79. South Gujarat University :

	Estt. of Deptt. of Education	1,00,000
	-do-	1,00,000
	Financial assistance to teachers	4,500
<u>Affiliated Colleges:</u>	-do-	2,000
SKM Law College, Bulsar.		
UTH Mahila Arts Nadiad.	Students' Aid Fund	750
ZF Wadia Women's College, Surat.	Play Field	1,500
SP Regional College, Surant	UGC Assistance for Research Project	8,800
Arts & Commerce College, Chikhali, Gujarat.	Students' Aid Fund	1,750
Shri J. Arts & Sc. Coll, Ereach.	-do-	1,430

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: 89 :

: 68 :

South Gujarat University (affiliated colleges) contd.

MB Arts & Sc. Coll. Rajpipla.	Students Aid Fund	1,750
Sir KP College of Comm. Surat	-do-	1,775
BKM Sc. College, Vaslad	-do-	840
Smt. JP Shroff Arts Coll. Walsad.	-do-	2,250

80. Sri Venkateswara University :

2,27,345

Financial Assistance for research	8,000
-do-	3,400
F	3,000
University G.C. Assistance for research project.	34,800
Appt. of Staff	3,15,000
Grants towards Fellowships	30,000
JRF	2,129.91
Teacher Fellowship	2,675
Teacher Fellowship	2,708.31
PG. Centre	5,000
Students Welfare Programme	3,998.31
Purchase of laboratory equipment, etc.	23,371.81
Development schemes	1,10,000
Financial Assistance to teachers	1,000
-do-	1,500
Students' Aid Fund	8,750
-do-	1,000
-do-	693
Students Aid Fund	1,000

81. Udaipur University :

5,53,056.

UGC Assistance for the research project	6,800
Teacher Fellowship	1,000
Unassigned grant	423
Financial assistance to teachers	1,000

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Jaipur University Contd.

Financial Assistance to teachers in the Universities.	1,000
-do-	2,250
-do-	1,700
-do-	1,500
Writing of university level books monographs.	5,330.40
Grant towards the loan of books to students	3,500

Affiliated Colleges.

N. College, Jaipur.	Students aid fund in the colleges.	1,446
		25,949.62

2. University of Agricultural Sciences, Bangalore .

Financial Assistance to teachers for research work.	1,250	
		1,250

3. Utkal University

Support for advanced research in the Humanities.	4,000
Grant in aid towards the living room furniture	20,000
-do-	2,00,000
Award of Teacher Fellowsh . . .	2,575
-do-	2,750
-do-	2,750
-do-	2,750
-do-	2,583.33
-do-	2,641.67
-do-	2,475.81
Grant in aid for the Establishment of Students Aid fund for 1976-77	1,569
Psychology Department- Participation under the UGC Examination Reform programme organisation of Wksp.	1,15,000 15,000

Affiliated Colleges.

SS College, Buri.	Financial Assistance to teachers in the Universities	1,000
M. College, Bilaspore,	-do-	1,250
.College, Bittak	Purchase of books & Journals during Vth Plan	40,000

Affiliated Colleges (Utkal University (Contd))

K. C. College, Cuttack	Purchase of Books & Journals during the Vth Plan	40,00
Angul College, Angul.	Construction of Staff quarters	
M. College Orissa.	Students Aid fund in the colleges	75
R. College, Cuttack	Award of Teacher Fellowship to Smt. Subasini.	2,70
-do-	Students aid fund in the colleges .	70
K. College, Cuttack	-do-	2,20
V. College, Orissa .	-do-	70
C. College, Orissa.	-do-	3,20
M. College, Orissa.	Grant for setting up Book Bank	40
K College, Orissa.	-do-	3,80
BJB College, Orissa.	-do-	40
		<hr/> 4,770

84. Vikram University

University Grants Assistance for the research work 40
 Financial Assistance to teachers in the universities 10

Affiliated Colleges

Govt. College, Raigarh.	Students aid fund in the colleges	10
-do-	-do-	
G.D. College, (M.P.)	Students Aid fund in the colleges	
S.H.C. College, Bhanpura.	-do-	40
M. College, Ujjain.	Book Bank	

ated Colleges (Vikram University Contd)

age re.	Book Bank	20,000
ollege,	-do-	1,500
age,	Financial Assistance to affiliated colleges.	4,500
		<hr/>
		39,899
		<hr/>

sva Bharati

	Financial Assistance to teachers for research work	3,500
	-do-	12,800
	-do-	12,200
		<hr/>
		28,500
		<hr/>

INSTITUTIONS DEEMED TO BE UNIVERSITYan Institute of Technology & Sce.

	P.G. course in Pharmacy- Recurring grant	1,000.75
	Writing of university level books	977.50
		<hr/>
		1,978.25
		<hr/>

arat Vidyapith, Ahmedabad.

	Construction of Teachers Quarters II	30,424
		<hr/>
		30,424
		<hr/>

an Instt. of Social Sces, Bangalore.

	Vth Plan grants Equipment Control Instruments	75,000
	-do-	Ist 1,00,000
	-do-	50,000
	Research Fellowship in Engg.	1,000
	-do-	1,000

p. t. o.

Indian Institute of Social Sciences (Contd)

Programme of Special Assistance to Selected Departments		4,75,00
V Plan grant- Equipment		75,00
-do-	Ist	5,00,00
-do-		2,00,00
-do-		1,00,00
-do-		25,00
-do-		1,51,00
-do-		1,50,00
-do-		2,00,00
-do-		1,50,00
-do-		1,20,00
-do-		75,00
-do-		50,00
-do-		50,00
-do-		2,00,00
Implementation of collaborative project on the ..		50,00
Vth Plan grant- equipment.		20,00
-do-		2,50
-do-		1,00,00
		<hr/> 29,20,00

4. Indian School of Mines.

Establishment of Students Aid fund.		1,00
Allocation of unassigned grant during 76-77		10,00
Vth Plan Allocation - Clearance of Arrear work in Lib.		1,00,00
Basic grant for the purchase of equipment		10,00
Golden Jubilee Grant to Indian School of Mines		1,00,00
		<hr/> 2,21,00

5. Indian Agricultural Research Institute.

Writing of university level books		4,20
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6. Jamia Millia Islamia.

Salaries of the additional staff for Humanities and S/Cde.		1,00,00
-do-	IInd	1,00,00

2,00,00

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ata Institute of S/Sciences.

Unit in Sociology of Education- Sanction of Grant for	50,000
Salary of additional Staff.	70,000
-do-	15,000
	<hr/>
	1,35,000
	<hr/>

stitute of Technology.

Award of Teacher Fellowship	2,798.39
	<hr/>
	2,798.39
	<hr/>

lian Institute of Technology

Award of Teacher Fellowship to Sh. Ram Yatan Thakur.	3,277
-do-	2,000
-do-	2,500
	<hr/>
	7,777
	<hr/>

Total Plan - 2,52,54,936.96

p.t.o.

NON-PLAN

Aligarh Muslim University

Central Universities - Maintenance grant for 76-77 1,39,37,500

1,39,37,500

Banaras Hindu University

Maintenance grant for 76-77 1,79,37,500

1,79,37,500

University of Delhi

Maintenance grant for 76-77 91,25,000

Affiliated Colleges.

D. College, (Day) Maintenance grant for 1976-77 N. Delhi.	5th	3,25,000
D.Z.H. M. College, Delhi.	-do-	4,63,000
G.D. College, New Delhi.	-do-	2,00,000
PG.DAV College, New Delhi.	-do-	2,53,000
D.S. College, New Delhi.	-do-	4,75,000
H. Pur College, New Delhi.	-do-	3,75,000
B.S. College, New Delhi.	-do-	3,20,000
S. Venkataswara College, New Delhi.	-do-	5,41,000
Central Institute of Education Delhi.	-do-	71,000
School of Social Sciences Delhi.	-do-	1,05,000
JIM New Delhi.	-do-	3,31,000
Ranjas College, Delhi.	-do-	4,55,000
College of Vocational Studies. New Delhi.	-do-	48,990
Rajdhani College, New Delhi.	-do-	4,10,000
LSR College, for women New Delhi.	-do-	5,39,000

p. to. 1,40,33,990

Non Plan contd.

J.N. University, New Delhi,	Maintenance grant for 1976-77	With	41,25,000
			<hr/>
			41,25,000
			<hr/>

Visva Bharati Santiniketan.

	Maintenance grant for 1976-77	With	36,25,000
			<hr/>
			36,25,000
			<hr/>

Indian School of Minos. Dhanbad.	Payment of block grant during 1976-77 -do-		15,00,000
			<hr/>
			15,00,000
			<hr/>

Jamia Millia Islamia.

	Maintenance grant in r/o Jamia Millia Islamia		9,40,000
			<hr/>
			9,40,000
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Total N.Plan. 5,60,98,990.00

Total Plan = 2,52,54,936.96

Total Non Plan = 5,60,98,990.00

Grand Total = 8,13,53,926.96

UNIVERSITY GRANTS COMMISSION

Meeting :

Dated : ~~31st~~ January, 1977.

Item No.4 : To receive the statement showing expenditure incurred by the University Grants Commission during the year 1976-77 (upto 30th November, 1976.)

Section I Non Plan Project	Budget Estimates 1976-77 (Rs in lacs)	Provisional expenditure upto 30.11.1976 (Rs. in lacs)
Administration Charges	68.00	43.51
<u>Block Grants</u>		
i) Grants to Central Universities	193.00	146.51
ii) Grants to Institutions deemed to be Univ.	336.00	232.00
	++ 23.15	
iii) Grants to State Universities for specific purposes	10.00	4.00
Maintenance Grants to Delhi Colleges	800.00	626.65 *31.02
Grants not covered under Block grant- Health Service Scheme	8.00	-
Total Section - I	<u>3172.00</u> +23.15	<u>2368.67</u> *31.02

Section II - Plan Projects

Grants to Central & State Universities for Humanities.	372.00	119.14 * 0.10
Grants to Central & State Universities for Science	735.00	248.07 *0.22
Grants to Central & State Universities for Engineering and Technology.	616.10	226.50 *0.10
Grants to Constituent/affiliated Colleges	462.00	139.19 *0.23
Grants to Central & State Universities for Misc. Schemes	1767.45 +22.00	400.29 *0.69
Misc. Expenditure	31.30	17.97
Unesco Coupons	-	0.40
Total Section II	<u>3383.85</u> +22.00	<u>1151.56</u> *1.34
Total Section I & II	<u>7155.85</u> +45.15	<u>3520.23</u> *32.36

Rs. 100.00 lacs to be provided by the Deptt. of Coal during the year 1976-77.
Rs. 23.15 lacs (under Non-plan) & Rs. 22.00 lacs (Under Plan) allocated by M/Edn. S.W. for C.I.E.F.L. Hyderabad for the year 1976-77.

Section III. Expenditure out of grants received from Government of India and the other sources for specific purposes.

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SCHEME UNDER OPERATION BY THE COMMISSION

A. Out of Grants received from Minis-try of Educati n & Social Welfare

i)	Evaluation of Books	2,700
ii)	Fellow for Writing of Books	2,36,890
		@36,820
iii)	National Award of Prizes	@18,869
iv)	National Service Scheme	1,91,083
v)	National Sports Organisation Programme (Continuing Scheme)	
	a) Construction of Gymnasium	2,98,099
	b) Play fields	1,42,086

B. Out of grant from N.C.E.R.T.

i)	National Survey on Higher Education	@ 78,078
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C. Out of grant from Gandhi Smarak Nidhi

i)	Construction of Gandhi Bhavan in Universities	-
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D. Out of Interest received on Endowment Funds

i)	Hari Gn Ashram Trust Endowment Fund	-
	a) Science	-
	b) Life Science	-
ii)	Dr. Zakir Hussain Memorial Lectures	3,884
iii)	Shri Aurbindo Memorial Lectures	-
iv)	Ram Charit Manas	-

Total Section III : 70,08,509

STotal Section I, II & III 3530.31
*32.36

(Rupees in Lakhs)

SECTION IV DEPOSITS & ADVANCES

i)	Conveyance Advance	18,815
ii)	Festival Advance	5,900
iii)	House Building Advance	1,89,377
iv)	Fan Advance	100
v)	UGC Departmental Canteen	-

Total Section IV : 2,14,132

Expenditure during 1975-76 upto 30.11.1975 was as under *

(Rupees in Lakhs)

Section I Non- Plan Project	7743.58
Section II Plan projects	1144.31

Total Section I & II 8887.89

○ Administration charges

* By adjustment.

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

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Meeting :

Dated : 27th January, 1977

Item No. 5: To consider the observations of the Panels in the Humanities and Social Sciences on the guidelines for introduction of M.Phil courses.

The Commission at its meeting held in July, 1976 desired that the guidelines for M.Phil courses Annexure I circulated to the universities may be placed before the Panels for their comments and brought up again before the Commission.

The M.Phil guidelines were placed before the Panels on English & Foreign Languages, Sociology & Social Anthropology, Psychology, Political Sciences, Commerce, Law, Philosophy, Social Work Teacher Education, History, Economics, Linguistics and Modern Indian Languages. A summary of the observations and views of these panels on the various aspects of the M.Phil guidelines under appropriate headings is attached Annexure II.*

The Panel on Sociology and Social Anthropology authorised its Convener (Professor Yogendra Singh) to prepare a comprehensive note on the M.Phil guidelines. This note has been received and is attached Annexure III.@ The observations and comments made in this note are not incorporated in Annexure I because this note is better read as a whole rather than in parts.

The observations of the various Panels on the M.Phil guidelines are given in full in Annexure IV.£

The matter is placed before the Commission for consideration.

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Guidelines for Introduction of M.Phil Courses

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OBJECTIVE

(1) The M.Phil degree should be looked upon as the first research degree whose components will be course work as well as research work. It would provide facilities for undertaking research. Wherever possible, training would be provided in research methodology.

(ii) The M.Phil degree will also provide an opportunity to candidates to proceed to the second research degree, viz., Ph.D., it being understood that the research work done for M.Phil degree could be incorporated for the research work to be done for the Ph.D. degree. Ordinarily, candidates who desire to pursue research would first be admitted to M.Phil course. Only those will be permitted to proceed for the second research degree (ph.D) as have either obtained an M.Phil degree or have given satisfactory evidence of having attained equivalent level of work.

CONTENT

(i) The M.Phil students may be required to take (a) A number of courses on advanced topics and research methodology ; and (b) Submit a dissertation and/or to undertake project work or design work- the exact proportion of these be decided by the panel of subject concerned, keeping in view the needs of the subject.

(ii) The M.Phil students may be required to take a number of courses which should normally not exceed four courses to be prescribed by the department concerned. Apart from or in lieu of some of these courses, other courses for the M.Phil may be prescribed according to individual needs. Students may be encouraged to take courses in allied subjects including languages, wherever possible.

(iii) It is expected that the courses may be designed so that they not only enhance the capacity to take up research but also add to a students understanding of his subject.

(iv) M.Phil students should be required to attend and participate in at least six seminars to be organised by the department/centre for the purpose of discussing new results or developments in the subject and/or interpretation of data.

(v) Out of the total credits for M.Phil, about 50% may normally be allocated to dissertations which may include project or design work.

DURATION

The duration of the M.Phil course should be generally two semesters (one academic year) with permission to complete the dissertation subsequently either as a regular candidate or as an ex-student. The duration in which the course work and dissertation should be completed be fixed separately. The course work could be completed in a period not longer than five semesters in all. The semesters should include one successful seminar pertaining to the scholars dissertation.

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ADMISSION REQUIREMENTS

Admission to the M.Phil programme should be made on the basis of:

- (i) Satisfactory performance at the Master's degree examination and test conducted by the department concerned;
- (ii) Admission recommended by the department concerned shall have to be approved by the Board of Research Studies in the Universities concerned.

EVALUATION

It would be desirable if the course work and the performance at the seminars is evaluated during the duration of the course on a continuous basis. The candidates who may be declared fit for the award of M.Phil. degree would be given grade A or B normally only the students placed in Grade A may be allowed to proceed to work for a Ph.D. degree.

ATTENDANCE

M.Phil students will be required to participate in seminars and lectures during the semesters to the satisfaction of the department concerned which may recommend to the Board of Research studies the removal of the name of students who were irregular in attendance from the M.Phil rolls.

ADMINISTRATION OF THE M.PHIL. DEGREE PROGRAMME.

- (i) M.Phil programme should be instituted in universities having strong teaching departments in the concerned disciplines;
- (ii) M.Phil programme shall be administered by the department concerned through its M.Phil Committee;
- (iii) The M.Phil Committee will:
 - a. recommend students for admission to the M.Phil course.
 - b. draw the syllabus for the courses;
 - c. assign these courses to the concerned teachers of the departments;
 - d. organise seminars;
 - e. to guide in the selection of topic for dissertation research
 - f. Make arrangements for evaluating performance of the M.Phil students at the seminars;.

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- g. recommend names of examiners for M.Phil dissertation to the University; dissertation may include in all cases research work such as project or design;
- h. recommend to the university for the award of or otherwise of the degree to the students on the basis of assessment.

ACADEMIC ST/FF

The responsibility of introducing M.Phil courses in the postgraduate teaching department in particular will rest with the department itself on the assumption that the department has the necessary infrastructure for instituting such additional responsibility i.e. having the requisite academic and supporting staff and other physical facilities, such as, library, laboratory etc. Marginal assistance could be provided by the Commission to such departments/introduce M.Phil courses where a certain number of college teachers are accommodated to pursue their M.Phil/Ph.D. programme.

∠ intending to _____

Comments of the Panels on the Guidelines
for M.Phil Programmes

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A summary of the observations and the views of the Panels in the Humanities and Social Sciences on the various aspects of guidelines for the M.Phil Programme are given below under appropriate headings.

A. OBJECTIVE

1. The Panels on English and Foreign Languages and Linguistics:

The M.Phil degree should be looked upon as the first research degree comprising of course work and research dissertation. Ordinarily candidates who desire to work for the second and (Higher) research degree, namely, Ph.D. may first be admitted to M.Phil course. Only those should be permitted to proceed for Ph.D. who have either obtained M.Phil degree or have given satisfactory evidence of having completed course work and research of an equivalent level. The M.Phil degree will be a terminal degree for those who do not have the ability or aptitude for advanced research for the Ph.D. degree.

The M.Phil degree should not be a necessary condition for admission to Ph.D. although, in most cases, doctoral candidates will have passed the M.Phil degree.

2. Panel on Philosophy:

While the Panel was in general agreement with the guidelines proposed for institution of the M.Phil Courses in the universities it nevertheless felt that there is a possibility of conceiving other types of M.Phil courses oriented more towards the teaching at the collegiate level.

3. Panels on Social Work and History

The Panels generally agreed with the guidelines proposed for the institution of M.Phil course in the universities.

4. Panel on Political Science:

(a) It should be made explicit that M.Phil can serve as a terminal degree also; it should not be treated as preparatory course for the Ph.D. degree.

(b) There should be no necessary linkage between M.Phil/Ph.D. and the new revised grades; otherwise quality of both these degrees would get diluted in the rush of teachers wishing to join M.Phil/Ph.D. courses with which various universities are obviously in a position to cope.

(6)

5. Panel on Commerce.

(a) M.Phil should be treated as an intermediate degree between postgraduate degree and the Ph.D. degree. It need not necessarily qualifying degree for Ph.D. programme.

(b) Its objectives should be (i) to expose the candidate to the frontiers of his own subjects fully and to acquaint him with allied subjects, (ii) to expose a candidate to teaching technology relevant to his subject which in case of commerce students should include a meaningful association with industrial, commercial and agricultural enterprises. (iii) to expose a candidate to research methodology relevant to his subject.

6. Panel on Psychology:

The Panel felt that M.Phil degree need not be a prerequisite course for Ph.D. programme in Psychology. Wherever M.Phil is introduced it should be primarily a content course which would help the teachers of the affiliating college in teaching the subject better.

7. Panel on Teacher Education

The M.Phil degree should not be made a necessary condition for admission to Ph.D. programme. A view was expressed that it may not be necessary to insist on M.Phil programme in case of teachers in teachers' colleges and university department of education in view of the fact that normally, they have two post-graduate degrees, one in basic discipline and the other in education, whereas the requirement for new teacher in a university or a college would be only a postgraduate degree and M.Phil course of one year.

8. Panel on Law.

The Panel was of the opinion that for the Faculty of Law the objective of M.Phil. course should be woven into the LL.M. course which follows the 3 years LL.B. course. The new course being suggested by the workshop for LL.M. amply serves this purpose and, therefore, the Panel feels the LL.M. should be equated to M.Phil and there should be no intermediate degree between the LL.M. and the Ph.D. degrees.

F. DURATION

1. Panel on History.

The panel was in general agreement with the guidelines.

2. Panels on English & Foreign Languages and Linguistics:

The minimum duration for the M.Phil course should be 3 semesters. It will not be possible to complete the course work and the dissertation for M.Phil in one academic year or 2 semesters, because a number of courses which will be required for the M.Phil programme will be such as will not have been covered in the M.A. Programme, and it will not be possible to complete all of them in less than one academic year. The duration of the M.Phil course may, therefore, be one academic year of course work followed by one or two semesters which could be given exclusively to the dissertation or the project work.

3. Panel on Political Sciences:

The M.Phil course should remain a whole time course and the teachers wishing to join it should avail themselves of the fellowships which the UGC has made available for the purpose.

4. Panel on Commerce.

The M.Phil should be a whole time course and should not be run on part time basis or through correspondence.

5. Panel on Economics.

Whereas full time M.Phil course were greatly desirable to enable university teachers to attend them, their salaries during the period of study will have to be protected. If for one reason or another this condition cannot be fulfilled 3 summer vacation course should be organised for them and they should be given F.A./and D.A. for attending them. University teachers giving instructions for these courses during vacation should be given special monetary compensation or equivalent leave should be credited to their account.

6. Panel on Teacher Education :

It would be an advantage to institute correspondence-cum-contact programme and regular part-time programme for teachers who wish to enroll themselves for M.Phil courses.

C.CONTENT

1. Panel on English & Foreign Languages:

The M.Phil students should ordinarily be required to undertake (i) advanced course work in a given discipline; (ii) inter-disciplinary studies related to main interest of the scholars; (iii) courses in research methodology; and (iv)

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dissertation or project. The students may also be encouraged to take courses in allied subjects including languages wherever possible.

2. The programme for M.Phil. in Foreign Languages should provide for advanced courses in the following areas of specialisations:

- a. Literature including stylistic.
- b. Applied Linguistics and Phonetics specifically related to respective languages.
- c. Methodology of teaching of Foreign Language.

(It was noted that candidates admitted to the M.Litt./Ph.D. courses in English at CIEFL were required to pursue postgraduate diploma courses before proceeding to M.Litt. and Ph.D.).

2. Panel on Linguistics:

The M.Phil student should ordinarily be required to undertake (1) advanced course work in a given discipline (2) inter-disciplinary studies related to the main interest of the scholars, (3) courses in research methodology and (4) dissertation or project.

3. Panel on Psychology:

The M.Phil course should include some course in methodology of research to initiate them into research. The course should also emphasise practical skills of communication which are essential for any good teaching in any subject for some Ph.D. candidates. There is need for tailor made courses to suit the individual requirement of the candidate. This course has to be prescribed by the guide for some candidates if he feels that a particular candidate is deficient in certain areas which are absolutely necessary for Ph.D. research.

4. Panel on Economics

The course work in Economics should comprise research methodology, advanced economic analysis, mathematical and statistical techniques and scientific methods.

5. Panel on Modern Indian Languages:

For teachers who will not and cannot proceed to Ph.D. programme the M.Phil degree should have the following components:

- (a) Courses in an advanced knowledge in the special field of a teacher.

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- (b) A course on research methodology appropriate to the special interest of the teacher.
- (c) A course on communication and evaluation skills (elements of pedagogy) appropriate for college classes.
- (d) The project work.

6. Panel on Teacher Education:

The M.Phil course is meant for a very large number of teachers in the affiliated colleges, as such it should have the following ingredients :

- (1) An advanced course in the special area of the specialisation of a teacher.
- (2) Elements of research including research methodology.
- (3) Elements of communication and evaluation skills.
- (4) Role of Higher Education and of the university and college teachers in contemporary Society.

D. RELATION BETWEEN M. PHIL AND PH.D.

1. Panel on English & Foreign Languages and Linguistics:

The M.Phil degree should not be a necessary condition for admission to the Ph.D. although in most cases doctoral candidates will have passed the M.Phil degree.

2. Panel on Psychology:

For every Ph.D. candidate M.Phil course need not be insisted on.

3. Panel on Political Science:

Direct registration for Ph.D. should be possible.

4. Panel on Teacher Education:

The M.Phil degree should not be made a necessary condition for admission to the Ph.D. Programme.

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E. M. SCHEMMEUS

1. Panel on English & Foreign Languages.

There is no need for a separate committee for M.Phil courses. All universities have a committee which looks after research and advanced studies. The same committee may oversee the M.Phil course.

2. Panel on Economics:

Only teachers with research degree and research guidance experience or published research work of recognised merit should be allowed to handle M.Phil courses. A minimum of 3 teachers would be essential for a department or institution to be recognised for running these courses.

Because of the needs of dissertation and detailed guidance for M.Phil students, there should be a minimum senior teacher student ratio of 1:6.

3. Panel on Modern Indian Languages:

The University should have freedom to devise courses under different categories to suit the requirements of individual teachers.

4. Panel on Commerce:

The UGC should get a book compiled on research methodology relevant to disciplines of different natures after getting suitable methodology evolved through various panels.

5. Panel on Political Science

Stipulation for provision of additional staff by the UGC is necessary if the M.Phil programme is to be taken seriously

6. Panel on History:

1. Competence in the language of the course material should be made a compulsory requirement for M.Phil student in history.

2. The minimum seminars prescribed for the M.Phil course should include one seminar on the subject of dissertation.

3. At least one external examiner should be appointed for evaluating the M.Phil dissertation.

4. The general question of introducing inter-disciplinary studies at the M.Phil level should be explored by the Commission

A NOTE ON THE INTRODUCTION OF M.PHIL COURSES IN SOCIOLOGY

11

The "Guidelines for the Introduction of M.Phil courses" prepared by the UGC and discussed at the Panel on Sociology and Social Anthropology (on 26.7.76) led to wide-ranging thinking and discussion among the members, and it was considered necessary to prepare a short note highlighting these for a follow up discussion. The important points raised in this connection were as under :-

(1) Objectives of the Course : The implication in the UGC note on M.Phil programme, that it should be seen as "first research degree", was analysed. It was felt that M.Phil course may not always be brought as a homogeneous and uniform programme. There may be internal variations in the emphasis of objectives and accordingly the programme may differ from Centre to Centre depending upon faculty specialisation and academic requirement of the course. For instance, in addition to thinking of it as a "first research degree" it could also be thought of as the highest pedagogic degree in the subject concerned. Here the emphasis on the research part of the course or the methodology part would be secondary and latent in the substantive-pedagogic content of the courses which would be primary. There could be yet another type of M.Phil programme oriented especially to inculcate research capacity among the scholars. In this type of programme emphasis would be on the operationalisation of concepts and methods for enabling students to prepare especially for research. Such a programme should have a set of courses offering specializations in research methods and theory construction with suitable training in mathematical-statistical and historiographic skills. The M.Phil programme with these varying emphases would go well with the specialisations of the Department/Centres and for students with varying job requirements such as that of teaching-cum-research and research only. The third type of M.Phil programme could be of an inter-disciplinary nature, where around a core discipline many interdisciplinary courses could be offered. While introducing M.Phil programme these variations within it may be kept in mind.

The relationship between M.Phil programme and Ph.D. programme would vary depending upon the type of M.Phil stream from which a student comes to join Ph.D. A M.Phil programme which is primarily substantive-pedagogic may not be treated as a pre-Ph.D. Course, but a separate degree. For such students registration to Ph.D. should be possible with some additional course creditings or with publications. The other two types of M.Phil programmes could be treated also as pre-Ph.D. courses.

The important point to note is that both substantively and methodologically it may not be very useful to treat M.Phil

(12)

programme as a homogenous type of course structure. There should be flexibility in formulation of this programme and in linking it with research activity and cognitive activity in the disciplines concerned.

2. Content of Courses: The content of M.Phil courses can be of two types : (a) a course structure where content of courses are primarily substantive and theory and methodology contents are built into these courses instead of being taught separately, (b) courses where the contents are distinguished into three separate areas, substantive courses, theory courses, and methodology courses and (c) the courses which are inter-disciplinary in content and are differentiated into substantive, methodological and theory oriented courses.

The dissertation as a part of the course work would be an essential ingredient in all the three types of courses, but its nature would vary from one type to another. It may be essentially reflective and critical in the first type of course structure and be based on empirical data, historical and archival records in the second and the third type of course contents.

Dissertation or long analytical term papers should comprise an essential part of M.Phil programme as laid down in the UGC M.Phil guidelines.

M.Phil students should offer at the most 50% of the credits through dissertation and the rest through the course work.

Teaching Procedure: It would be desirable at M.Phil level of teaching that the method of straight lecturing is replaced by seminars and tutorials. Student participation through presentation of papers and discussions on them should replace lecturing by teachers so that ability to critically assess ideas and analyse them in a logico-empirical setting is guaranteed among students.

Evaluation and Credit Distribution in Courses:

The evaluation of the performance of students in M.Phil courses should be done by the course-in-charge and the credit value of a course, distribution of credits in each course to different components of performance, such as through term paper, review essays, oral presentation or viva-voce etc. should be spelled out in each course at the beginning of the Semester by the teacher (also approved by the Departmental/Centre Committees of M.Phil courses).

Those obtaining B+ and above should be allowed to go in for Ph.D work and others should be given M.Phil degree as a terminal degree.

It should also be possible for M.Phil students to go directly for Ph.D. work through completion of course work only if their grade-point-average is minus A or above (1st class to outstanding). In such a case they will not submit dissertation for M.Phil degree but only for Ph.D.

Similarly it should be possible for a student promoted to register directly for Ph.D. through good course work performance to opt out of the scheme and submit a dissertation for M.Phil only if the Supervisor/M.Phil Ph.D. Committee recommends such a case.

Evaluation of M.Phil dissertation like other courses should be done internally by the Committee of M.Phil, Ph.D. programme in the Centre or Department. Instead of this Committee being called "M.Phil Committee" as the U.G.C. note envisages it should be called M.Phil/Ph.D Committee because there may be much overlap of work between the two levels of the programme.

Administration of the Programme As the UGC note rightly points out the institution of the M.Phil programme should be done very carefully and in stages. Only Departments/Centres with strong faculty based should be encouraged to start M.Phil programme. It should not be started as a correspondence programme or as part time programme.

Mode of work , the type of M.Phil programme that a Centre starts should be related to the kind of specialisation in research and teaching work that its faculty has been able to achieve.

Before a Centre/Department is allowed to start M.Phil programme a Visiting Committee of experts should assess the potential of the Centre/Department to start this programme and recommend the type of programme that it should undertake.

Dissertation : As observed by the UGC note M.Phil programme should be of one year's duration (two semesters). In special cases the M.Phil/Ph.D Committee may allow a student if he/she has completed the course work to submit the dissertation later as ex-student or regular student. A time-limit for it should be fixed.

Admission Requirement/procedure: Eligibility to apply for M.Phil courses should be open to students with a B Plus or 55% in the M.A. degree. They should be required to appear for oral and written tests and on the basis of merit admission should be made. A certain percentage of seats (upto 20%) should be reserved for Scheduled Castes/Tribes if they qualify on merit at the minimum level (with B Plus or 55%) in over-all performance (composite of test, and examination performance).

The recommendation of a Centre/Department for M.Phil



M.Phil admission may be placed before the Committee for Advanced Studies/Research Committee/Board of a School or Faculty for approval.

Note : These comments should be read together with the UGC guidelines on M.Phil courses. Those items on which no comments have been offered would be incorporated as guidelines from the UGC note.

COMMENTS OF THE HUMANITIES AND SOCIAL SCIENCES PANELS ON M.PHIL GUIDELINES

ENGLISH AND FOREIGN LANGUAGES

The panel considered in detail the guidelines for introduction of M.Phil courses and made the following observations and recommendations:

Objectives:

1. The M.Phil degree should be looked upon as the first research degree comprising of course work and research dissertations ordinarily, candidates who desire to work for the second (and higher) research degree, viz. Ph.D. may first be admitted to the M.Phil course. Only those should be permitted to proceed for Ph.D. who have either obtained an M.Phil. degree, or have given satisfactory evidence of having completed course work and research of an equivalent level. The M.Phil. degree will be a terminal degree for those who do not have the ability of aptitude for advanced research for the Ph.D. degree.
2. Part of the research work done for the M.Phil degree could be incorporated in the research work for the Ph.D. degree, it being understood that research for the Ph.D. degree would be much wider in scope, and would require a fresh approach towards the subject, originality of ideas and interpretation, and an in-depth study. It may, however be better to discourage the practice of using the research dissertation for the M.Phil. in the thesis for Ph.D, for many reasons.

Content

1. The M.Phil students should ordinarily be required to undertake (i) advanced course work in a given discipline; (ii) inter-disciplinary studies related to the main interest of the scholar; (iii) courses in research methodology and (iv) a dissertation or project. The students may also be encouraged to take courses in allied subjects including languages wherever possible.
2. The programme for M.Phil in English and Foreign Languages should provide for advanced courses in the following areas of specialisation:
 - a.) Literature including stylistics.
 - b.) Applied Linguistics and Phonetics specifically related to the respective language
 - c.) Methodology of teaching of Foreign Languages.

It was noted that candidates admitted to the M.Litt/Ph.D. courses in English at CIEFL were required to pursue the Postgraduate Diploma Courses before proceeding to M.Litt and Ph.D.

(16)

Duration :

The minimum duration for M.Phil. courses in English and Foreign Languages should be three semesters. It will not be possible to complete the course work and the dissertation for M.Phil in one academic year or two semesters, because a number of courses which will be required for the M.Phil programme will be such as will not have been covered in the M.A. programme, and it will not be possible to complete all of them in less than one academic year. The duration of the M.Phil course may, therefore, be one academic year of course work followed by one or two semesters which could be given exclusively to dissertation or project work.

The M.Phil degree should not be a necessary condition for admission to Ph.D. although in most cases, doctoral candidates will have passed the M.Phil degree.

There is no need for a separate Committee for M.Phil courses. All universities have a committee which looks after research and advanced studies. The same committee may oversee the M.Phil. course.

PSYCHOLOGY

While the panel was in general agreement with the guidelines proposed for institution of the M.Phil courses in the universities, the Panel nevertheless felt that the M.Phil degree need not be a prerequisite course for Ph.D. programme in Psychology. Wherever M.Phil is introduced it should be primarily a content course which would help the teachers of the affiliating colleges in teaching the subjects better. It would also include some course in methodology of research to initiate them into research. The course should also emphasize practical skills of communication which are essential for any good teaching in any subject for some Ph.D. candidates. There is a need for tailor made courses to suit the individual requirements of the candidates. This course has to be prescribed by the guide for some candidates if he feels that a particular candidate is deficient in certain areas which are absolutely necessary for Ph.D. research. But for every Ph.D candidate M.Phil course need not be insisted on.

POLITICAL SCIENCE.

The panel noted the guidelines approved by the Commission for institution of the M.Phil courses in the various universities. It would, however, like to make the following observations in their regard

i) There should be no necessary linkage between M.Phil/Ph.d. and t

new grades; otherwise the quality of both these degrees would get diluted in the rush of teachers wishing to join M.Phil/Ph.D. courses with which the various universities are obviously not in a position to cope.

- ii) It should be made explicit that M.Phil can serve as a terminal degree also and it should not be treated only as the preparatory course for the Ph.D. degree.
- iii) The M.Phil. course should remain a whole time course and the teachers wishing to join it should avail themselves of the Fellowships which the UGC has made available for the purpose.
- iv) Direct registration for Ph.D. should be possible.
- v) Stipulation for provision of additional staff by the UGC is necessary if the M.Phil programme is taken seriously.

COMMERCE:

The guidelines received from the UGC about M.Phil courses were discussed and it was resolved that.

- a) M.Phil be treated as an intermediate degree between postgraduate degree and a Ph.D. degree. It need not necessarily be qualifying degree for Ph.D. programme.
- b) Its objective should be.
 - (i) to expose a candidate to the frontiers of his own subjects fully and to acquaint him with allied subjects.
 - (ii) to expose a candidate to teaching technology relevant to his subject, which in case of Commerce students should include meaningful association with industrial commercial and agricultural enterprises.
 - (iii) to expose a candidate to research methodology relevant to his subject.
- c) It should be a wholetime course and should not be run on a part-time basis or through correspondence.
- d) The UGC should get a book compiled on "Research Methodology" relevant to disciplines of different nature. after getting suitable methodologies evolved through various panels.

(18)

Law:

The Panel discussed the question of institution of M.Phil courses in the Faculty of Law after the LL.M. and before the Ph.D. degree. The Panel was of the opinion that for the Faculty of Law the objective of the M.Phil course should be woven into the LL.M. course, which follows the three-year LL.B. course. The new courses being suggested by the workshops for LL.M. amply serve this purpose and, therefore, the Panel feels that the LL.M. should be equated to M.Phil and that there should be no intermediate degree between the LL.M. and the Ph.D. degrees.

PHILOSOPHY

While the Panel was in general agreement with the guidelines proposed for institution of the M.Phil course in the universities, it nevertheless felt that there is a possibility of conceiving other types of M.Phil courses oriented more towards teaching at the collegiate level.

SOCIAL WORK

The Panel generally agreed with the guidelines proposed for institution of M.Phil course in the universities.

TEACHER EDUCATION:

The Panel made the following observations on the guidelines for institution of M.Phil courses in the universities.

A Academic Courses

- (1) The M.Phil course is meant for a very large number of teachers in the affiliated colleges; as such it should have the following ingredients:
 - i) An advanced course in the special area of specialisation of a teacher.
 - ii) elements of research including research methodology.
 - iii) elements of communication and evaluation skills.
 - iv) role of higher education and of University and College teachers in contemporary society.
- (2) The M.Phil degree should not be made a necessary condition for admission to the Ph-D. programme.
- (3) It would be an advantage to institute correspondence-cum-contact programmes and regular part-time programme for teachers who wish to enrol themselves for the M.Phil. course.

(B) Education and Teacher Education Courses

A view was expressed that it may not be necessary to insist on the M.Phil. programme in the case of teachers in teacher colleges and University Department of Education in view of the fact that, normally, they have two postgraduate degrees, one in a basis discipline and the other in Education, whereas the requirements for a new teacher in a university or a college would be only a postgraduate degree and M.Phil. course of one year. In any case the Panel wished to await the final recommendation of the joint UGC NCERT Conference scheduled for December, 1976 which will consider the reorientation and modernisation of B. d. and M.Ed. courses.

ECONOMICS :

The guidelines approved by the Commission for institution of M.Phil. course in the Universities were considered. It was decided to draw attention of the Commission to the following needs:

- a) that whereas full time M.Phil. courses were greatly desirable, to enable university teachers to attend them, their salaries during the period of study will have to be protected. If for one reason or another this condition cannot be fulfilled, three summer vacation course should be organised for them and they should be given T.A. and D.A. for attending them. University teachers giving instructions for three courses during vacations should be given special monetary compensation or equivalent leave should be credited to their account.
- b) only teachers with research degrees and research guidance experience or published research work or recognised merit should be allowed to handle M.Phil. Course.
- c) A minimum of three such teachers would be essential for a department or institution to be recognised for running these courses.
- d) Because of the needs of dissertation and the detailed guidance that would be needed for M.Phil. there should minimum senior teacher-student ratio of 1:6.
- e) Dissertation should be considered as equivalent of one paper.
- f) The course work in Economics should comprise Research Methodology, Advanced Economic Analysis, and Mathematical and Statistical Techniques and Scientific methods.
- g) Regarding admission of student, etc., the department or research institute allowed to run the course should be in a position to decide; the choice of the topic of dissertation should be done in consultation with the guiding teacher.

20

: 6 :

HISTORY

The Panel was in general agreement with the guidelines for the institution of M.Phil. course in the universities. The following suggestions were, however, made:

1. Adequate competence in the language of source materials should be made a compulsory requirement for M.Phil students in History.
2. The minimum seminars prescribed for the M.Phil course should include one seminar on the subject of the dissertation of scholars.
3. At least one external examiner should be appointed for evaluating the M.Phil dissertation.
4. The general question of introducing of inter-disciplinary studies at the M.Phil level should be explored by the Commission.
5. The word 'successful' may be deleted in the following sentence appearing under 'duration' on page 2 of the guidelines: "The semester should include one successful seminar pertaining to the scholar's dissertation."

LINGUISTICS:

The Panel considered in detail the guidelines for introduction of M.Phil Courses and made the following observations and recommendations:

1. Objectives:

The M.Phil degree should be looked upon as the first research degree comprising of Course work and research dissertation. Ordinarily, candidates who desire to work for the second (and higher) research degree, viz. Ph.D. may first be admitted to the M.Phil course. Only those should be permitted to proceed for Ph.D., who have either obtained an M.Phil degree, or have given satisfactory evidence of having completed course work and research of an equivalent level. The M.Phil degree will be a terminal degree for those who do not have the ability or aptitude for advanced research for the Ph.D. degree.

2. Content:

The M.Phil students should ordinarily be required to undertake-

- i) Advanced Course work in a given discipline;
- ii) Interdisciplinary studies related to the main interest of the scholar;
- iii) Courses in research methodology and
- iv) A dissertation or project.

3. Duration :

The minimum duration for M.Phil Courses in Linguistics should be three semesters. It will not be possible to complete the course work and the dissertation for M.Phil in one academic year or two semesters. Because a number of courses which will be required for the M.Phil programme will be such as will not have been covered in the M.A. programme, and it will not be possible to complete all of them in less than one academic year. The duration of the M.Phil course may therefore be one academic year of course work followed by one or two semesters which could be given exclusively to dissertation or project work.

The M.Phil degree should not be a necessary condition for admission to Ph.D. although in most cases, doctoral candidates will have passed the M.Phil degree.

MODERN INDIAN LANGUAGES:

The Panel made the following observations:

The Panel accepted, in principle, the need for instituting the M.Phil, de-gree after the postgraduate course. It was, however, felt that the following considerations should be taken into account in implementing this programme:

- (1) It should be recognised that all teachers may not have competence or aptitude for research but all teachers are required to be good teachers and to increase their competence. Therefore, the M.Phil. degree should take care of two categories of teachers, namely, those who will proceed to the Ph.D. and those who will not,
- (2) The M.Phil. degree should not be a obligatory requirements for admission to the Ph.D. programme.
- (3) Teachers who wish eventually to register themselves for Ph.D. degree may have the M.Phil. programme recommended by the guideline prepared by the Commission.
- (4) For teachers who will not or cannot proceed to the Ph.D. programme, the M.Phil. degree should have the following components:-
 - (a) courses in advanced knowledge in the special field of a teacher;
 - (b) a course on research methodology appropriate to the special interest of the teacher;

22

- (c) a course on communication and evaluation skills (elements of pedagogy appropriate for college classes).
 - (d) the project work.
- (5) The universities should have the freedom to devise courses under the four categories mentioned above to suit the requirements of individual teachers.

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CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

23

Meeting :

Dated : January 31, 1977

Item No. 6 : To consider the recommendations of the Working Group on Student Welfare Programmes.

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A meeting of the Working Group on Student Welfare Programmes was held in the UGC office on 22nd December, 1976.

A copy of the minutes of the meeting of the Working Group is enclosed as Annexure*. The important recommendations of the Working Group are as follows :-

1. Establishment/improvement of Canteens :

(a) The facility of establishment/improvement of canteens may also be extended to the colleges having enrolments less than 1000 (in the case of colleges providing three year degree course) and 650 (in the case of colleges providing two year degree course) but in such cases, the assistance to be provided by the Commission will be within the ceiling of Rs.5 lakhs. In the case of "Lead Colleges", which may be selected by the Commission, the assistance be outside Rs.5 lakh scheme.

(b) The universities and colleges be advised that the canteens to be provided should neither be constructed nor furnished as restaurants but on an austere basis. While designing the construction, the institutions, wherever possible, should take advantage of the open space that may be available for out-door sitting for students.

It may be mentioned that the Commission at its meeting held on 3-4th June, 1976 had decided that assistance may be provided to the universities and colleges having an enrolment of 1000 students and above for setting up canteens and cafeteria including furniture and equipment.

2. Improvement of hostel facilities :

The Working Group further noted that a Committee had been set up to undertake a survey of the living conditions of students in university and college hostels. However, pending this survey, the Group was of the view that immediate assistance may be provided to universities and colleges for the improvement of living conditions in hostels, e.g. sanitary facilities, proper dining halls etc. The quantum of assistance to be provided for this purpose (which should be outside the V Plan allocation) and the sharing basis may be decided by the Commission.

contd.....

(24)

It may be mentioned that during the Fourth Five Year plan, the Commission provided assistance on 100% basis for improvement of existing hostel facilities upto Rs.20,000/- for a University and Rs.10,000/- for a deemed to be university for provision/improvement of common room facilities, dining halls, W.C's, urinals, electric lights etc. In the case of colleges, assistance was provided under the Students Welfare Programme ranging from Rs.5,000/- to Rs.12,000/- based on enrolment.

3. Students Aid Fund :

The Group noted the review of the Students Aid Fund Scheme and was of the view that it is a useful scheme and be continued during the V Plan period. It was further noted that the guidelines laid down for the working of the Scheme were quite comprehensive and the universities/ colleges could frame rules for the Students Aid Fund within the framework of these guidelines. However, the expression 'deserving students' used in the guidelines prescribed by the Commission be substituted by 'needy students'. The assistance to be provided by the Commission under this scheme should be double the amount collected by an institution instead of equal as at present and the limit of assistance be accordingly revised. The assistance to be provided to the students out of Students Aid Fund should be in the form of reimbursement of the expenditure on different items and the payment in cash should be restricted to the minimum.

The Group further suggested that the institutions should so implement the scheme that the students are aware of the assistance that may be available at the beginning of the academic year. The institutions would be informed that this be done in anticipation of the grant from the Commission according to the rules. The scheme should also be notified in the Prospectus of the institutions.

The Group did not favour laying down a different criteria for assistance under this Scheme to professional colleges e.g. agricultural, engineering, medical.

The assistance being provided at present to universities and colleges under the Students Aid Fund Scheme is as follows :-

(a) COLLEGES :

<u>Enrolment</u>	<u>Amount</u>
250 or below	Rs. 750/-
Between 251-500	Rs.1,000/-
Between 501-750	Rs.1,750/-
Between 751-1000	Rs.2,250/-

contd.....

Between 1001-1250	Rs.2,750/-
Between 1251-1500	Rs.3,250/-
Between 1501-2000	Rs.3,750/-
Between 2001-2500	Rs.4,250/-
2501 and above	Rs.5,000/-

(b) UNIVERSITIES :

Grant equivalent to the amount collected by a university subject to a ceiling of Rs.25,000 in a year.

4. Study Centres :

The Group noted the survey conducted by the members on the working of Study Centres and decided as follows :-

- (a) The Study Centre should be established in a centrally located place keeping in view the number of students and colleges in that area. The Centre should preferably be in a place provided by the Municipal Corporation or local body of the city or in a college/school located in the heart of the town.
- (b) There should be no Study Centre in the campus of a university. Wherever a Study Centre has been established within a university campus, the university should be asked to merge it with the main university library and the Commission should not provide any further assistance for the Centre, unless it is shifted to a place as envisaged at (a) above.
- (c) The staff of the Study Centres should be on the strength of the main library of the university. The Commission may provide the following assistance for the existing/new Study Centres during the remaining period of the V Five Year Plan :

	<u>Existing Study Centres</u>	<u>New Study Centres</u>
(i) <u>Non-Recurring</u>		
Books	Rs.20,000	Rs.30,000
Stacks and furniture	-	Rs.15,000

26

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(ii) Recurring

(per annum till the end of V Plan)	Rs.5,000	Rs.15,000
(i) Staff	(additional)	
(ii) Contingencies (including electricity charges etc.)	Rs.1,500 (additional)	Rs. 4,500

The Group further recommended that the proposals may be invited from the universities.

5. Facilities for encouraging Sports and Games in universities and colleges :

The Group recommended that the Commission should provide assistance for encouraging sports and games in universities and colleges. It was, however, felt that in doing so, it must be ensured that the assistance is provided to enable as large a number of students as possible to participate in the games and not only for providing facilities for a few students who form part of the college teams. The Group further recommended that assistance be provided to the institutions for construction of gymnasium and improvement of play grounds and the funds may be provided from the funds of the UGC, even if additional earmarked funds are not available from the Government of India.

The assistance being provided by the Commission at present ~~for Gymnasium and Play Fields out of earmarked funds~~ provided by the Government of India is as follows :-

	<u>Cost</u> (Rupees in lakhs)	<u>UGC Share</u>
(a) <u>Gymnasium</u>		
(i) For a University (120'x90')	2.5	75%
(ii) For a college with enrolment of 1500 or more (100'x90')	1.5	75%
(iii) For small colleges	0.75	75%
(b) <u>Play Field</u>		
(i) Universities	Rs.15,000/-	75% or Rs.11,500/- which ever is less
(ii) Colleges	Rs.10,000/-	75% or Rs.7,500/- which- ever is less

Decisions of the Commission are solicited on the following points :-

1. Extension of the scheme for establishment/improvement of canteens to colleges having enrolments less than

1000 in the case of colleges providing three year degree course and 650 in the case of colleges providing two year degree course.

2. The quantum of assistance to be provided to universities and colleges for the improvement of hostel facilities on sharing basis on which such assistance may be provided.
3. Approval for the continuance of the Students Aid Fund scheme till the end of the fifth five year plan, the grants to be double the amount collected by an institution instead of equal as at present and the enhanced ceilings of assistance that may be laid down for universities and colleges under this scheme.
4. Approval of the recommendations of the Working Group and the assistance that may be provided for the existing/new study centres and the date from which such assistance may be provided on the revised basis.
5. Provision of assistance to universities and colleges for Gymnasium and improvement of Play Fields out of the funds of the UGC

The matter is placed before the Commission for consideration.

A.S.(S.A.)

Proceedings of the meeting of the Working Group on Student Welfare Programmes held in the UGC office on December 22, 1976.

28

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A meeting of the Working Group on Student Welfare Programmes was held in the office of the UGC at 2.30 P.M. on Wednesday, December 22, 1976. The following were present :

1. Prof. Satish Chandra
Chairman, UGC
2. Mrs. Anita Banerjee
Jadavpur University
Calcutta
3. Dr. T. Barnabas
Principal
Ahmednagar College
Ahmednagar
4. Shri B.S. Behl
Principal
D.A.V. College
Jullundur
5. Shri Anil Bordia
Joint Secretary
Ministry of Education & S.W.
New Delhi
6. Prof. E.I. George
Department of Psychology
Kerala University
Trivandrum
7. Prof. D.N. Misra
Head of the Department of
Maths. and Statistics
Saugar University
Sagar
8. Shri D.P. Nayak
Principal
Trust Fund College
Sambalpur
9. Dr. Umesh Prasad
Dean, Students Welfare
Banaras Hindu University
Varanasi

21

10. Dr. V.B. Singh
Department of Economics
Lucknow University
Lucknow
11. Sri R.K. Chhabra
Secretary, UGC
12. Shri B.R. Kwatra
Assistant Secretary, UGC

Prof. P.J. Madan, Dr. H. Narsimhaiah, Prof. Moonis Raza, Prof. A.S. Yadav, Shri G.A. Dharmarajan and Dr. (Mrs.) Gouri Nag could not attend.

Item No. 1 : The Committee took note of the action taken on the recommendations made by the Group at its last meeting. Arising out of this, the Group made the following recommendations :

(a) The facility of establishment/improvement of canteens may also be extended to the colleges having enrolments less than 1000 (in the case of colleges providing three year degree course) and 650 (in the case of colleges providing two year degree course) but in such cases, the assistance to be provided by the Commission will be within the ceiling of Rs.5 lakhs. In the case of "Lead Colleges", which may be selected by the Commission, the assistance be outside Rs.5 lakhs scheme.

(b) The universities and colleges be advised that the canteens to be provided should neither be constructed nor furnished as restaurants but on an austere basis. While designing the construction, the institutions, wherever possible, should take advantage of the open space that may be available for out-door sitting for the students.

The Working Group further noted that a Committee had been set up to undertake a survey of the living conditions of students in university and college hostels. However, pending this survey, the Group was of the view that immediate assistance may be provided to universities and colleges for the improvement of living conditions in hostels, e.g. sanitary facilities, proper dining halls, etc. The quantum of assistance to be provided for this purpose (which should be outside the V Plan allocation) and the sharing basis may be decided by the Commission.

Item No. 2 : To consider the report of the Committee appointed to evaluate the working of University Employment Information and

Guidance Bureaux and Career Advising Units.

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The Group considered the report of the Committee. It was felt that a major part of the work of the units could be handled by the libraries so as to disseminate the information regarding jobs etc. to the students. It was agreed that a Sub Committee may be set up to review the recommendations made by the Committee appointed to evaluate the working of University Employment Information and Guidance Bureaux and Career Advising Units.

Item No. 3 : To receive a report on the review of working of Students Aid Fund in universities and colleges.

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The Group noted the review of the Students Aid Fund Scheme and was of the view that it is a useful scheme and be continued during the V Plan period. It was further noted that the guidelines laid down for the working of the Scheme were quite comprehensive and the universities/ colleges could frame rules for the Students Aid Fund within the framework of these guidelines. However, the expression 'deserving students' used in the guidelines prescribed by the Commission be substituted by 'needy students'. The assistance to be provided by the Commission under this scheme should be double the amount collected by an institution instead of equal as at present and the limit of assistance be accordingly revised. The assistance to be provided to the students out of Students Aid Fund should be in the form of reimbursement of the expenditure on different items and the payment in cash should be restricted to the minimum.

The Group further suggested that the institutions should so implement the scheme that the students are aware of the assistance that may be available at the beginning of the academic year. The institutions would be informed that this be done in anticipation of the grant from the Commission according to the rules. The Scheme should also be notified in the prospectus of the institutions.

The Group did not favour laying down a different criteria for assistance under this Scheme to professional colleges e.g. agricultural, engineering, medical.

Item No. 4 : To receive a report on the review of working of Study Centres.

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The Group noted the survey conducted by the members on the working of Study Centres and decided

as follows :

- (a) The Study Centre should be established in a centrally located place keeping in view the number of students and colleges in that area. The Centre should preferably be in a place provided by the Municipal Corporation or local body of the city or in a college/school located in the heart of the town.
- (b) There should be no Study Centre in the campus of a university. Wherever a Study Centre has been established within a university campus, the university should be asked to merge it with the main university library and the Commission should not provide any further assistance for the Centre, unless it is shifted to a place as envisaged at (a) above.
- (c) The staff of the Study Centres should be on the strength of the main library of the university. The Commission may provide the following assistance for the existing/new Study Centres during the remaining period of the V Five Year Plan :

	<u>Existing Study Centres</u>	<u>New Study Centres</u>
1. <u>Non-Recurring</u>		
Books	Rs. 10,000	Rs. 30,000
Stools and furniture	-	Rs. 15,000
2. <u>Recurring</u>		
(per annum till the end of V Plan)		
(i) Staff	Rs. 5,000 (additional)	Rs. 15,000
(ii) Contingencies (including electricity charges, etc.)	Rs. 1,500 (additional)	Rs. 4,500

The Group further recommended that the proposals may be invited from the universities.

Item No. 5 : To consider a proposal for providing assistance to universities and colleges to enable the students to participate in trekking teams.

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The Group welcomed the proposal in principle and desired that a detailed scheme to assist the institutions may be worked-out.

Item No. 6 : To discuss the concept of Student Homes in universities, 32

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Consideration of this was postponed.

Item No. 7 : To consider (a) report of the Committee on norms for hostel furniture and mess equipment, (b) question of providing fans in hostels and (c) a proposal for providing light cooking facilities in hostels to reduce the cost of living.

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Consideration of this was postponed.

Item No. 8 : To consider a proposal from the Ministry of Education and Social Welfare for drawing up a scheme to encourage student cultural groups in Colleges and Universities through the services of a local professional expert.

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The Group welcomed the scheme and desired that the details of the same be worked out and placed before the Group.

Item No. 9 : To discuss the question of providing facilities for encouraging sports and games in universities and colleges.

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The Group recommended that the Commission should provide assistance for encouraging sports and games in universities and colleges. It was however felt that in doing so, it must be ensured that the assistance is provided to enable as large a number of students as possible to participate in the games and not only for providing facilities for a few students who form part of the college teams. The Group further recommended that assistance be provided to the institutions for construction of gymnasium and improvement of play grounds and the funds may be provided from the funds of the UGC, even if additional earmarked funds are not available from the Government of India.

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UNIVERSITY GRANTS COMMISSION

33

Meeting:

Date : 31st January, 1977

Item No. 7 : To consider the report of the Committee appointed by the UGC to review the working of Correspondence Courses at Himachal Pradesh University, Simla.

53

The Commission appointed a Visiting Committee to review the working of Correspondence Courses offered by the Himachal Pradesh University, Simla and to assess the development requirements in respect of these courses during the fifth five year plan period. The Committee visited the Himachal Pradesh University on 30th and 31st October, 1976. The report of the Committee is enclosed as ~~Annexure~~*. The Himachal Pradesh University is offering facilities for Correspondence Courses at the undergraduate level for PUC and B.A. and at postgraduate level for English, Hindi, Sanskrit, Economics, History, Political Science, M.Ed. and M.Com. The main observations and recommendations of the Committee are as follows:-

1. Majority of the staff of the Directorate of Correspondence Courses consists of Jr. Lecturers in the scale of Rs.300-500 and most of them did not face any properly constituted Selection Committee of the University.

Since the State Government has agreed to implement the revised UGC scales and the new scale will be the same for Lecturers and Jr. Lecturers, the Committee has recommended that the cadre of Jr. Lecturers may be wasted out.

2. Keeping in view the present enrolment and the sanctioned strength of staff (para 6 of the report) there is no justification for additional staff at the lower level. However, there is urgent need for having atleast one Reader in each department as it is neither possible nor desirable to run Correspondence Courses at postgraduate level with the help of Junior Lecturers and Lecturers only.

34

- 2 -

3. Out of the income from Correspondence Courses, the University has spent about Rs.20 lakhs on the construction of a new building for the Directorate of Correspondence Courses and about Rs. 3 lakhs towards the construction of University Guest House. The University should be asked to plough back the surpluses, if any, for the development of correspondence courses.
4. Lessons being sent to the Correspondence Courses students do not appear to lead students to reading text books. The University should constitute a Standing Committee to formulate guidelines regarding drafting/review of lessons.
5. Interaction between the University departments and corresponding departments in the Directorate of Correspondence Courses needs to be strengthened.
6. The Committee has not recommended starting of any new courses. The Committee feels that there is a far greater need for strengthening and consolidating the existing courses rather than starting new courses.
7. In view of the very low enrolment in the Sanskrit department of Correspondence Courses Directorate, the Committee has suggested that the University may consider taking over the Sanskrit students and the only teacher, to the main department of the University.
8. The Committee has recommended the following assistance to the Himachal Pradesh University for strengthening of the Correspondence Courses at the postgraduate level:-
 1. Library books and Journals Rs.3,00,000/-
 2. 9 Study Centres @ Rs.30,000/- per Centre Rs.2,70,000/-
 3. Contact Programmes (@ Rs.1.5 lakhs per annum.) Rs.4,50,000/-
 4. Improvement of Instructional material Rs.1,75,000/-
 5. Equipment (for Linguistics and Audio-Visual aids). Rs. 50,000/-

p.t.o.

6. Staff:- 8 Readers - 1 each in History, Economics, Political Science, English, Hindi and Commerce and 2 in Education and 2 Lecturers in Commerce department.

The Committee has also recommended that the above assistance may be given to the Himachal Pradesh University provided the University gives an undertaking to the effect that (i) it would follow the UGC guidelines laid down for Postgraduate Courses through Correspondence (ii) additional staff would be appointed on the strength of main University departments (except Commerce for which there is no University Department; (iii) Selections will be made through properly constituted Selection Committees and (iv) no part of the income from Correspondence Courses would be utilised for anything not connected with Correspondence Courses.

The matter is placed before the Commission for consideration.

AS(SA)/DB(ER)

Report of the Visiting Committee appointed to review the working of Correspondence Courses at Himachal Pradesh University, Simla.

36

The University Grants Commission appointed a Visiting Committee consisting of the following members to review the working of Correspondence Courses being conducted at Himachal Pradesh University, Simla and to assess the development requirements of these courses during the 5th Five Year Plan period:-

1. Prof. U.N. Singh,
Pro-Vice-Chancellor,
University of Delhi,
Delhi.
2. Prof. K.V. Sivayya,
Head of the Department
of Commerce and Director,
School of Correspondence Courses,
Andhra University,
Waltair.
3. Sri E.R. Kwatra,
Assistant Secretary,
UGC, New Delhi.

2. The Committee visited the Himachal Pradesh University, Simla on 30th and 31st October, 1976. Professor U.N. Singh, could not join the Committee as he suddenly fell ill. The Committee held discussions with the Vice-Chancellor, Himachal Pradesh University Dr. V.S. Mathur, Director of Correspondence Courses, Himachal Pradesh University, other staff members of the Directorate of Correspondence Courses and University Heads of Department of the subjects in which Correspondence Courses are being offered. The Committee also met a few students of Correspondence Courses. The Committee also visited the Ava Lodge where the Directorate of Correspondence courses is located at present and the new building constructed for the Directorate.

3. The Himachal Pradesh University came into being on July 22, 1970. To meet the growing demand of higher education and keeping in view the physical features of Himachal Pradesh as also the limited financial resources, the University started Correspondence Courses from 1971-72. The other objective of starting Correspondence

37

- 2 -

Courses was also to enable a large number of educated employed persons to meet their professional competence and to acquire higher educational qualifications. In the inaugural year, the University started B.Ed. courses also but this had to be discontinued because of a decision taken by the State Government. At present, the University is providing facilities in Correspondence Courses as follows:-

- (a) Undergraduate Level - PUC, B.A.
- (b) Postgraduate Level - English, Hindi, Sanskrit, Economics, History, Political Science, M.Ed. and M.Com.

(c) Eligibility:-

Any candidate who has passed the Matriculation or equivalent examination from any recognised University/Board is eligible for admission to the Pre-University Course. Any candidate who has passed the pre-University or Higher Secondary Part II examination from any recognised University/Board is eligible to seek admission to B.A. Part I through Correspondence Courses.

Any candidate who has obtained the B.A./B.Sc. degree from any recognised University with 40 per cent marks in the subject concerned or has secured First Class or Second Class in the B.A./B.Sc. Examination or Honours in the subject concerned is eligible to seek admission to M.A. Part I course in the subjects indicated earlier.

B.Ed. course was open to J.B.Ts. holding 1st or 2nd degree in any faculty provided they were working in recognised schools/colleges. In their case, there was no restriction of percentage of marks in the B.A. Examination. M.Ed. through Correspondence Course is open to candidate who have already passed their B.Ed. examination from a recognised Indian University and have put in three years service as trained graduates in recognised schools, colleges and are continuing as such.

(d) Duration of the Courses:

The duration of the Correspondence Courses is the same as for regular college students:

Pre-University	One Year	'
B.A.(T.D.C.)	Three Years	' Each year is
M.A./M.Com.	Two Years	' divided into 4
M.Ed.	One Year	' Semesters.

First Semester

- (i) Teaching from 1st August to 10th December.
- (ii) Examination from 11th December.
- (iii) Winter Break from 21st December to 31st January.

Second Semester

- (i) Teaching from 1st February to 10th June.
- (ii) Examination from 11th June
- (iii) Summer Break from 21st June to 31st July

In case of M.Ed. and M.Com. candidates, contact courses are compulsory during the vacation periods (January & July).

(e) Medium of instruction and Examinations:

Medium of instruction is English, except in case of Hindi and Sanskrit. Medium of Examination for M.A. English, Political Science, History and Economics is English and for M.A. in Hindi, it is Hindi. For M.A. in Sanskrit, the medium of examination is Sanskrit or Hindi. In pre-University and TDC Part I, the medium of examination is either English or Hindi.

(f) Enrolment:

The following tables give the enrolment and examination results of the Correspondence Courses students in the various courses offered by the University:

Postgraduate level

Year	1st Semester	IIInd Semester	IIIrd Semester		IV Semester	
			1	2	3	4
					No. of	Pass
					students	Per-
					Passed	cen-
					-	tage
1971	368	-	-	-	-	-
1972-73	353	141	75	-	-	-
1973-74	280	133	91	73	36	50%
1975-76	282	157	84	88	31	35%

39

- 4 -

1	2	3	4	5	6	
1975-76	290	143	119	71	42	59%
1976-77	209	-	-	-	-	-
<u>Economics</u>						
1971-72	1771	-	-	-	-	-
1972-73	473	127	75	-	-	-
1973-74	685	129	157	62	18	29%
1974-75	932	288	159	115	35	30%
1975-76	1000	385	314	148	63	43%
1976-77	527	-	-	-	-	-
<u>Political Science:</u>						
1971-72	1451	-	-	-	-	-
1972-73	468	154	64	273	32	46%
1973-74	781	368	139	80	29	23%
1974-75	1366	298	178	165	82	50%
1975-76	684	304	276	173	-	-
1976-77	431	-	-	-	-	-
<u>English</u>						
1972-73	487	173	76	81	81	37%
1973-74	645	367	133	120	23	18%
1974-75	809	424	176	154	61	40%
1975-76	700	310	248	-	-	-
1976-77	437	-	-	-	-	-
<u>Hindi</u>						
1972-73	326	128	115	104	54	49%
1973-74	137	114	87	87	45	52%
1974-75	230	115	102	100	57	57%
1975-76	192	130	130	-	-	-
1976-77	182	-	-	-	-	-
<u>Sanskrit</u>						
1972-73	57	17	13	12	2	16%
1973-74	33	17	13	13	6	46%
1974-75	54	31	14	14	9	64%
1975-76	46	23	23	-	-	-
1976-77	38	-	-	-	-	-
<u>M.Com.</u>						
1975-76	1024	611	174	-	-	-
1976-77	817	-	-	-	-	-

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1.....2.....3.....4.....5.....

M.Ed.

1972-73	611	312	-	-	226	72%
1973-74	481	305	-	-	151	50%
1974-75	565	455	-	-	222	49%
1975-76	770	595	-	-	363	56%
1976-77	1087	-	-	-	-	-

Undergraduate Level:

Class	1971-72	1972-73	1973-74	1974-75	1975-76	1976-77
P.U.C.	588	239	246	487	487	438
B.A. I	345	248	179	357	345	317
B.A. II	-	101	196	265	309	290
B.A. III	-	-	112	170	165	211

Figures of enrolment of students for 1976-77 for the country, state-wise and district-wise for Himachal Pradesh are given in Annexure I and II*

Subjects provided in the Undergraduate Classes.

1. English (Compulsory) |
2. Economics |
3. History |
4. Hindi |
5. Sanskrit | Elective papers any
6. Mathematics | three in P.U.C. and any
7. Sociology | two at the degree
8. Logic. | level.
9. Political Science |
10. Himachal Past, Present | Options
- and Future. |
11. Religion and Culture |

Proposals, Observations and Recommendations of the Committee

4. Before the establishment of the Himachal Pradesh University, all higher education in the State was under the jurisdiction of Panjab University, Chandigarh. The Panjab University was having a Postgraduate Centre at Simla where instruction was being imparted in the following subjects:-

1. Physics
2. Chemistry

(41)

- 6 -

3. English
4. Hindi
5. Economics.
6. Political Science
7. Mathematics

5. With the establishment of the Himachal Pradesh University, some new departments were added and simultaneously Correspondence Courses at Postgraduate level were started by the University in the following subjects:

1. English
2. Economics
3. Hindi
4. Sanskrit
5. History
6. Political Science
7. Education

The University also started M.Com. Course through Correspondence from July, 1975. Except M.Com. Correspondence Courses all the other subjects were started without the prior approval of the UGC. While it is an admitted fact that the University started Correspondence Courses without adequate preparation and planning it goes to the credit of the University that it was able to solve most of the problems within a period of two to three years. This was due to the fact that the University took a proper decision and discontinued Correspondence Course for B.Ed. students. Another problem which has arisen now is the declining number of students seeking admission to Postgraduate Courses through Correspondence. When asked for the reasons for this decline, the University authorities stated that it was due to Correspondence Courses at Postgraduate level having been started by the Panjab University, Chandigarh and Panjabi University, Patiala.

6. The sanctioned strength of staff of the Directorate of Correspondence Courses, the staff in position as on 1.4.1975 and the additional staff asked for are as follows:

Class/ Subjects	Sanctioned Strength			Existing Strength			Additional asked for	
	A.P.	Asst.P.	Jr.Lect.	A.P.	Asstt. P	Jr.Lect.	A.P.	Asstt
	1	2	3	1	2	3	1	2
1. M.A. Economics	-	1	7	-	-	5	1	7

v.t.o.

M.A. Political Science	-	1	6	-	-	4	1	7
M.A. History	-	-	3	-	-	1	1	4
M.A. Hindi	-	3	-	-	-	2	1	4
M.A. English	-	1	6	-	-	6	1	7
M.A. Sanskrit	-	-	1	-	-	1	1	2
M.Ed.	-	2	16	-	-	12	2	9
M.Com.	-	-	-	-	-	-	1	5

A.P. = Associate Professor or Reader
Asstt. Professor = Lecturer

7. While about 50% of the staff members of the Department of Education and English have research qualifications i.e. Ph.D. or M.Phil., the percentage is less than 20 for all the other departments.

8. With the declining enrolment, the staff position of the Directorate of Correspondence Courses has remained almost the same as in the beginning. Another disturbing feature of the staffing pattern is the appointment of a number of persons as Junior Lecturers in the scale of Rs.300-600. Some of them were also appointed in the scale of Rs.350-650. It was explained that the Junior Lecturers were appointed in the scale of Rs.300-600 as this was equivalent to Lecturers in affiliated colleges. A majority of them also did not face any properly constituted Selection Committee of the University as they were appointed in a scale lower than that of a Lecturer. It is understood that the State Government has decided to give the UGC scale of pay i.e. Rs.700-1600 to Assistant Professors as well as Junior Lecturers. The Committee feels that it would not be fair to upgrade all the Junior Lecturers to full-fledged Lecturers without requiring them to face a Selection Committee constituted for Lecturers' post according to the normal rules of the University. While it is a fact that the lecturers in affiliated colleges who were in the scale of Rs.300-600 have been given the revised scale of Rs.700-1600, the Committee feels that Junior Lecturers working in the Directorate of Correspondence Courses and who would like to be treated as University Teachers should face properly constituted Selection Committees of the University for the post of Lecturer before they are

143

given the revised grade. Moreover, since the scale is now the same, the University may consider the possibility of wasting out the cadre of Junior lecturers who have not face or are not selected by properly constituted Selection Committees. For future recruitments also, the Committee recommends that all appointments in the Correspondence Course Directorate should be made through properly constituted Selection Committees as for the main departments of the University.

9. It was also observed by the Committee that most of the work relating to evaluation of Response Sheets of Postgraduate students is done by Junior Lecturers. The lessons for PUC and Undergraduate Courses are written by Junior Lecturers/Lecturers but for Postgraduate Courses the lessons are mostly written by outside experts and the teachers of the University departments. The examination results of Correspondence Courses students do not compare favourably with the examination results of regular students in the University departments. During discussions with the heads of University department, it was revealed that the interaction between the University departments and corresponding departments in Correspondence Courses leaves much to be desired. While teachers of the University departments get extra payment to evaluate the Response Sheets and other work of the Correspondence Courses Directorate, the staff of the Directorate are not paid anything if ever they are required to do some work in the University departments. The Vice-Chancellor, however, informed the Committee that the University statutes have a provision under which the teachers of the University can be asked to do any work in Correspondence Courses and vice-versa.

10. Lessons written are got printed once a year and two sets are sent to the students twice in each semester. It is understood that a decision has been taken not to revise a syllabus before a period of three years. This will have some effect on the lessons being written by the Directorate of Correspondence Courses and save a lot of money which is required for printing the lessons every year. Some of the lessons sent to students and shown to the Committee gave an impression that the students may or may not read any text books as students would tend to sit in an examination with the help of these lessons only. This also points to the majority of the students getting third class in the final examination. It was pointed out to the University that the lessons should be written in such a way that they lead students to read text books and should not become substitute for text books. The University, however, has no policy as to how many lessons are to be got written by outside experts and which experts should be invited to write or review the lessons. The Committee feels that the University should set up a Standing Committee to lay down norms and guidelines for writing and reviewing of lessons and the percentage of

lessons to be written by the University staff and outside experts both at undergraduate and postgraduate levels. The University may obtain from the U.G.C., the lists of various subject panels which would be helpful in the selection of outside experts on all India basis.

At present the University is paying Rs.75/- to Rs.100/- per lesson for writing the lessons and proposed to enhance this to Rs.150/- per lesson. The Committee feels that the rates could be raised upto Rs.125/- per lesson for writing, revising or reviewing the lessons at the postgraduate level, as suggested in the UGC guidelines.

11. In a meeting with some of the students of Correspondence Courses, it was understood that during the last semester, lessons were sent only a month before the commencement of the examination. However, after checking up, it was found out that this was due to some administrative lapse as usually the lessons are sent within a month after the close of admissions. The University has also mechanised the system of despatch of lessons and the lessons can now be despatched to all the students within a period of a few days. Another gratifying point about the working of Correspondence Courses at Himachal Pradesh University is that the University is quite rigid about receipt of Response Sheets and many students who did not take their lessons seriously and send the Response Sheets or failed to attend contact programmes where such programmes are compulsory, were not allowed to take their examination. The Committee wanted to see some response sheets to check whether the U.G.C. guidelines regarding evaluation of response sheets and sending them back to the students were being followed. The Committee was informed that no response sheets were readily available. However, the Committee feels that the University should take steps to ensure that the U.G.C. guidelines in this regard are followed.

12. The contact programmes of the University are also organised at various places with the help of local teachers. The Committee was given to understand that the contact programmes are arranged only at such places where a minimum of 100 students can participate. The University is paying Rs.25 per lecture to outside lecturers who take part in contact programmes. The Director, explained that the University was finding it difficult to get suitable persons because the amount paid per lecture was considered to be low. It was suggested that at the beginning of each year the Directorate of Correspondence Courses should get in touch with the Principals of colleges or Registrars of Universities where contact programmes are to be organised and with their help a list of teachers who would like to participate in the contact programmes could be prepared in advance.

13. During the past few years, the University had a large surplus with the help of which it has been able to

construct a separate building for the Directorate of Correspondence Courses costing about Rs.20 lakhs. The Directorate of Correspondence Courses is likely to shift to the new building very soon as the old building i.e. Ava Lodge has to be handed back to the State Government. With the help of remaining surplus, the University incurred an expenditure of about Rs.6 lakhs on the construction of Guest House. A provision is understood to have been made in the rules for the use of Guest house that preference would be given to the students/teachers coming from outside for taking part in the contact programmes or other work of the Correspondence Courses. To ensure proper growth/development of Correspondence Courses, the University should be asked to give an undertaking that the entire income from Correspondence Courses would be used for the Directorate of Correspondence Courses only.

Staff Requirements

14. The University has asked for 9 posts of Associate Professors (Reader's scale) and 45 posts of Assistant Professors in the Lecturer's scale. Keeping in view the existing staff and the present work load, there is no justification for additional staff, for the existing courses at junior level. There is, however, urgent need for restructuring the staff so as to strengthen it at the senior level. It is neither possible nor desirable to run Correspondence Courses at Postgraduate level with the help of Junior Lecturers/only. For this, the Committee recommends a post of Reader each for History, Economics, Political Science, English, Hindi, Commerce and two for Education. The Committee also recommends two posts of Lecturers for the Postgraduate Correspondence Course in Commerce. Due to very low enrolment in Sanskrit, the Committee feels that the University may consider the possibility of discontinuing the Correspondence Course in Sanskrit at the postgraduate level. These posts of Readers/Lecturers recommended for various Postgraduate Courses should be on the strength of the main departments of the University and appointments made only through properly constituted Selection Committees. The posts should be filled in only after the University has been able to reduce the staff strength at Junior Lecturer Level in the subject concerned.

15. New Courses:

Regarding University's proposal to start new courses like B.Com., Diploma in Library Science, Diploma in Business Management, Diploma in Educational Technology, Diploma in Educational Administration and Diploma in Education and Vocational Guidance, the Committee feels that there is more need for strengthening and consolidating the existing Courses rather than starting new courses e.g. the Education Department

of the Directorate of the Correspondence Courses has come up to a level where it would be able to attract good students from all parts of the country. For other Departments, there is need to introduce new innovations so as to make the Courses more attractive as this is the only way by which the departments could survive when faced with competition from neighbouring Universities.

16. The Education Department of the Correspondence Courses Directorate is comparatively better developed than other Departments. This is perhaps due to the fact that so far it had the privilege of the Chief of the Directorate being also the Professor of Education in the University. However, the Correspondence Courses at Himachal Pradesh University have come to a level where there is urgent need of having a whole time Director for the Directorate of Correspondence Courses.

17. Library Services:

The Library services being offered to the students of Correspondence Courses at Himachal Pradesh University is the weakest limb of the Directorate. During the last five years, the Correspondence Courses Directorate has acquired about 4500 books only and only 3 or 4 books are issued every day. Even though the local students are taking advantage of the Study Centre already set up by the Himachal Pradesh University in Simla (near the Mall Road) but the Library services being rendered at the headquarters where quite a good number of students come every day are not satisfactory. The Committee feels that the University should give first priority to strengthen the Library facilities for students of Correspondence Courses. For this purpose the Committee recommends a grant of Rs.3 lakhs for the Central Library and Rs.2,70,000/- for 9 study centres @ Rs.30,000/- per Study Centre.

18. Contact Programmes:

As stated above, the University is arranging contact programmes for its students at various places where atleast 100 students can take part. The duration of the contact programmes is one month in the case of M.Ed. and M.Com. students and 15 to 20 days in the case of M.A., B.A. and Pre-University students. In these programmes, in addition to regular lecturers, seminars, discussions and practical training in specific areas of the disciplines concerned are arranged. The programmes are announced in the beginning of each academic session. The Committee feels that quite a lot of work for making arrangements for the contact programmes which is at present being done by the teaching staff of the Directorate of Correspondence Courses could easily be done by the Administrative Staff. This would relieve the academic staff from administrative work and

and thus enable them to take active interest in their own academic improvements. For language departments and for the Department of Education there is need for equipment like Linguaphone, Tape Recorder and audio-Visual Aids. For improvement of instructional material, contact programmes and for equipment the Committee recommends the following grants:-

1. Contact Programmes Rs.4,50,000/- Rs.1,50,000/- per annum for three years ending 1978-79.
2. Improvement of Instructional Material Rs.1,75,000/- @ Rs.25,000/- for each postgraduate course.
3. Equipment Rs. 50,000/-

The assistance recommended above may be given to the Himachal Pradesh University, provided it gives an undertaking to the effect that (i) it would follow the UGC guidelines laid down for Postgraduate Courses through Correspondence (ii) additional staff would be appointed on the strength of main University departments (except Commerce for which there is no University department; (iii) selections made through properly constituted Selection Committees and (iv) no part of income from Correspondence Courses would be utilised for anything not connected with Correspondence Courses.

19. The Committee does not support the proposal of the University for constructing a hostel to accommodate contact programmes candidates at Simla as the contact programmes would be more useful if organised at various places rather than at Simla.

20. For Undergraduate Courses (degree only), the Commission had earlier agreed to provide assistance upto Rs.5 lakhs. Out of this, an amount of Rs.2 lakhs was released to the University. The University has yet to claim the balance of Rs.3 lakhs.

The Committee is grateful to the Vice-Chancellor, the Director, Correspondence Course and other staff of Himachal Pradesh University for their help in its deliberations.

Sd/- B.R. Kwatra
Sd/- K.V. Sivgna

Statement showing the total enrolment and State-wise distribution
for the session 1976-77, Semester I/III

	English		Pol. Sc.		History		M.A.		Sanskrit		PUC	BA I	BA II	BA III	Hon
	I	III	I	III	I	III	I	III	I	III					
1 H.P.	93	54	119	72	56	66	61	34	22	11	394	292	253	189	7
2 Punjab	145	83	204	120	39	73	24	22	3	3	14	8	7	7	-
3 Haryana	39	30	38	27	11	10	13	10	1	4	2	3	4	4	-
4 Delhi	110	78	72	61	20	30	74	67	5	7	7	6	8	7	-
5 U.P.	8	2	10	-	-	2	2	2	3	-	5	4	4	1	-
6 Chandigarh	24	20	30	20	7	16	7	4	3	2	5	3	6	2	-
7 J&K	1	3	-	-	-	-	-	-	-	-	1	-	-	1	-
8 Bihar	4	-	-	-	-	-	-	-	-	-	-	-	1	-	-
9 Gujarat	1	2	-	-	-	1	-	-	-	-	-	-	-	-	-
10 M.P.	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
11 Rajasthan	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-
12 West Bengal	2	1	-	-	-	1	-	-	-	-	-	-	2	-	-
13 A.P.	6	-	3	-	1	-	-	-	-	-	-	-	1	-	-
14 56 A.P.O.	3	4	5	-	1	-	1	1	-	-	2	1	2	-	-
15 Tamil Nadu	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
16 Manipur	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
17 Karnataka	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-
Grand Total:	437	281	481	300	135	202	181	131	38	27	430	317	288	211	7
Boys	322	190	363	231	87	144	110	91	23	14	405	299	275	198	1
Girls	115	91	118	69	48	58	72	50	15	13	25	18	13	13	6

(109)

<u>State-wise position</u>	<u>M.Ed.</u>	<u>M.Com.</u>		<u>M.A. (Economics)</u>	
		<u>I Sem.</u>	<u>III Sem.</u>	<u>I Sem.</u>	<u>III Sem.</u>
Himachal Pradesh	69	92	31	178	82
Panjab	256	250	196	187	106
Haryana	116	98	60	39	41
Chandigarh (U.T.)	5	75	41	8	9
Delhi (U.T.)	64	256	134	90	83
Jammu & Kashmir	9	4	1	-	3
Rajasthan	11	1	-	-	-
Uttar Pradesh	270	10	5	8	7
Bihar	28	-	1	-	4
West Bengal	12	-	1	4	1
Madhya Pradesh	23	-	-	-	-
Gujarat	10	2	1	-	-
Karnataka	26	10	-	-	3
Kerala	7	2	-	7	-
Tamilnadu	116	14	-	3	4
Orissa	9	1	-	-	-
Andhra Pradesh	39	1	1	1	-
Assam	4	-	-	-	-
Meghalya	2	-	-	-	-
Pondicherry	6	-	-	-	-
Maharashtra	-	-	2	-	1
C/o 56 APO	2	-	-	1	1
Fizzi (Island)	-	1	-	-	-
Nepal	-	-	-	1	-
Nagaland	1	-	-	-	-
Manipur	1	-	-	-	-

Statement showing the total enrolment district-wise (For the students of Himachal Pradesh I and III Semester Session 1976-77)

M.A. Classes

S. No.	Name of District	English		Pol. Sc.		History		Hindi		Sanskrit		PUC	B.A. I	B.A. II	B.A. III
		I	III	I	III	I	III	I	III	I	III				
1	Bilaspur	-	2	4	4	2	2	5	-	1	1	15	6	6	6
2	Chamba	3	-	6	3	-	-	-	-	-	-	7	6	3	1
3	Hamirpur	3	4	1	1	3	4	2	4	1	1	14	16	10	11
4	Kangra	20	5	12	4	7	8	14	7	5	1	32	46	32	28
5	Kulu	3	3	2	6	3	6	-	1	2	1	16	9	5	13
6	Kinnaur	1	-	4	3	1	-	-	-	-	-	6	2	3	1
7	Mandi	6	2	10	7	12	7	7	8	6	1	44	38	31	22
8	Simla	48	31	57	27	31	20	23	12	2	5	211	132	129	85
9	Solan	8	5	9	9	4	5	3	-	2	1	28	23	16	16
10	Sirmaur	-	1	3	2	2	1	4	-	2	-	14	6	11	4
11	L. Spiti	-	-	-	-	-	-	-	-	-	-	-	1	1	-
12	Una	1	1	11	6	1	3	3	2	1	-	7	7	6	2
		93	54	119	72	66	56	61	34	22	11	394	292	253	189

(51)

The Students position District-wise of Himachal Pradesh

Sl. No.	District	M.A. Econ.		M. Com.		M.Ed.
		I Sem	III Sem	I Sem	III Sem	
1	Bilaspur	11	5	5	1	2
2	Chamba	4	-	1	-	1
3	Hamirpur	15	3	2	1	4
4	Kangra	28	5	13	3	20
5	Kulu	7	-	1	-	1
6	Kinnaur	-	1	-	-	-
7	Mandi	22	9	13	4	6
8	Simla	62	44	40	22	23
9	Solan	11	7	10	-	4
10	Sirmaur	8	3	2	-	4
11	Una	10	5	-	-	4
Total:		178	82	92	31	69

(52)

Statistical information in respect of Correspondence Courses and Post-Graduate Centre, Session 1974-76

Sl. No.	Subject	No. of students admitted in Ist Semester (1974)	No. of students promoted to IV Semester (1976)	No. of students appeared in the examination		No. of students passed in the examination		Pass percentage		Position in the Univ.	
				C.C.	P.G. Centre	C.C.	P.G.C.	C.C.	P.G.C.	C.C.	P.G.C.
1	History	282	73	71	17	42	14	59%	80%	II, III	I
2	Sanskrit	54	14	14	13	9	7	64%	54%	III	II, II
3	Hindi	230	112	100	9	57	9	57%	100%	III	II
4	Pol. Sc.	786	173	167	19	82	14	50%	73%	I & III	II
5	English	809	166	154	13	61	14	40%	77%	III	I, II
6	Economics	932	159	148	37	63	15	42%	40%	I & III	II

Note: C.C. for Correspondence Courses
P.G. for Post-graduate Centre, Himachal Pradesh University.

Examination results of Under Graduate classes of H.P.
University, Session (1972 to 75)

Year	Semester	No. appeared			No. Passed			No. of Boys getting			No. of Girls getting		
		Boys	Girls	Total	Boys	Girls	Total	Ist Div.	2nd Div.	3rd Div.	Ist Div.	2nd Div.	3rd Div.
1972	PUC	293	8	301	78	6	84	nil	12	66	nil	1	5
1973	PUC	186	8	194	61	3	64	nil	18	52	nil	nil	3
	B.A. I	170	9	179	47	4	51	nil	7	40	nil	nil	3
	B.A. II	130	4	134	39	2	41	nil	6	33	nil	nil	2
1974	PUC	282	15	297	58	4	62	1	15	42	nil	1	3
	B.A. I	180	8	188	21	2	24	nil	3	19	nil	nil	2
	B.A. II	68	3	71	14	1	15	nil	3	11	nil	nil	1
	B.A. III	98	6	104	42	2	44	nil	10	32	nil	nil	2
1975	PUC	341	18	359	60	4	64	nil	10	50	nil	1	3
	B.A. I	269	10	279	26	4	30	nil	5	21	nil	1	3
	B.A. II	204	8	212	44	5	49	nil	3	41	nil	nil	5
	B.A. III	147	4	151	57	2	59	nil	9	48	nil	nil	1

55

very rare. During their Army service, those who do not possess educational qualifications are, however, put through course of study and allowed to take examination of which the Army Special Certificate of Education is considered equivalent to Matriculation standard. It is necessary that those ex-servicemen who possess necessary level of education should be encouraged to continue their studies in universities and prepare themselves career opportunities in civil life which are denied to them for lack of a university degree diploma. The numbers availing of this facility may not be very large but it would go a long way to boosting the morale of servicemen who can look forward to the possibilities of a University Education after their service.

What is required to achieve this is firstly for the universities and colleges to give some priority for admission of qualified ex-servicemen for courses of their choice and secondly acceptance by the universities of the Army Special Certificate of Education Examination as equivalent to matriculation for the purpose of such admission. I shall be grateful if you would have this suggestion examined by your Ministry and advise me about what could be done to encourage ex-servicemen to qualify themselves in various fields either in universities or other educational institutions."

2. From the Education Minister to the Defence Minister

"Kindly refer to the correspondence resting with my letter dated 23 August, 1976 which was in reply to yours dated 20th August, 1976 regarding recognition of Army Special Certificate of Education as equivalent to Matriculation purposes of admission by Universities and admission of released personnel of Armed Forces in universities and colleges.

I have had the matter examined and understand that the Association of Indian Universities had considered in 194 the question of recognition of the Indian Army Special Certificate of Education (Revised Course) and decided to recognise it as equivalent to the Matriculation examination. Hence ex-servicemen should not find difficulty in admission to courses in universities and colleges where the admission requirement is Matriculation. However, as you know, in most universities the admission requirement is Higher Secondary certificate of 11 years, which is now being upgraded to 12 years. Defence authorities may, therefore consider the possibility of similarly upgrading the level of Indian Army Certificate of Education. We shall be happy to assist in the further examination of this matter should you so desire.

I am personally in favour of the suggestion for according preference to the released Army personnel. In fact the present of students with Army background in universities and colleges could enrich life in many ways. This, however, is a matter which will need consultation with the University Grants Commission before a decision is taken. I am separately asking the Commission to look into the matter.

Perhaps I should also mention that several Universities now offer a variety of course- those leading to Bachelor's or Master's degree as well as specific course which would increase the employability of students. Some of the ex-servicemen might be interested in enrolling themselves for these new courses. In fact some of the Defence Personnel facing discharge from active service might even prefer to enrol themselves for some of the correspondence course offered by several universities.

You might further wish to know that the Adult and Continuing Education Departments in some of the Universities will also be in a position to offer special courses for ex-servicemen.

Before concluding, may I say that I fully share your concern for the problems of resettlement of ex-servicemen. My Ministry and I will do everything possible to respond to this challenge."

The matter is placed before the Commission for consideration.

A.S(CP)/DS(CP)

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57

UNIVERSITY GRANTS COMMISSION

Meeting:

Dated : 31st January, 1976.

Item No. 9 : To consider certain matters regarding reservations of Teaching posts in the Universities of Kerala.

....

The Commission at its meeting held on 14th and 15th July, 1975 considered the recommendations made by the Committee of Vice Chancellors of Central Universities at its meeting held on 23rd May, 1975 regarding reservation of posts of various categories in the Central Universities, to persons belonging to Scheduled Castes and Scheduled Tribes Communities (Item No. 36). The Commission accepted in principle, that reservation may be provided for Scheduled Castes and Scheduled Tribes for recruitment to the posts of Lecturers in the Universities and Colleges and that the mechanics of such reservations may be worked out. The Commission was of the view that in order that the teaching posts may not remain vacant for long periods, such reservations may not be operated on a roster system nor should the reserved posts be carried forward from year to year. With regard to the reference from the Ministry of Education regarding reservations provided in the Kerala University Act, the Commission was of the view that as far as the teaching posts are concerned, reservations may be provided only for Scheduled castes and Scheduled Tribes and not for other backward communities.

59 The above decision of the Commission was communicated to all the Secretaries in the Departments of Education of the State Governments. A copy of the letter sent to the State Governments is attached (Appendix)*

The University of Kerala advertised in March, 1976 some posts approved by the University Grants Commission for the 5th Plan period. It was mentioned in the advertisement that "Appointments to the posts notified will be made strictly in accordance with Section 6, sub-Section(ii) of Chapter II of the Kerala University Act of 1974, which enjoins that in making appointments by direct recruitment to the posts in any class or category in each Department under the University or to the posts of non-teaching staff in the University, the University shall mutatis mutandis observe the provisions in clause A, B and C of rule 14 and Rules 15, 16 and 17 of the Kerala State Subordinate Services Rules of 1958, as amended from time to time." The University was accordingly going ahead to fill the posts by which the selection was likely to be confined to candidates from particular castes and communities of the State. It was felt that this may lead to a situation wherein the state universities would be required to implement various schemes of development according to the directives of the State Governments.

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(58)

In view of the above, it was decided that the matter may be brought to the notice of the Ministry of Education and Social Welfare and they may be requested to take up the matter with the State Government. The Ministry of Education has informed that it had taken up the matter with the State Government who have informed that having regard to conditions in that State they are obliged to follow the provisions as provided for in the University Act.

The matter is placed before the Commission.

E.O.(D.1)/DS(D.I)

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Copy of letter No. F.1-46/75(OP) dated 26/29th August, 1975 addressed to Secretary, Education Department, Government of Kerala from Shri R.K. Ghosh Secretary, U.G.C., New Delhi.

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The University Grants Commission at its meeting held on July 14-15, 1975 considered again the question of reservation for Scheduled Castes and Scheduled Tribes in the matter of appointment for teaching posts in the Universities. The Commission agreed in principle that reservations may be provided for Scheduled Castes and Scheduled Tribes for recruitment to the posts of Lecturers in the universities and colleges and the mechanics for such reservations may be worked out by the universities concerned. The Commission is further of the view that in order that the teaching posts may not remain vacant for long periods, such reservations may not be operated on a roster system nor should be reserved posts be carried forward from year to year. The above decisions of the Commission are brought to the notice of the State Government.

With regards.

-.-.-.-.-.-

UNIVERSITY GRANTS COMMISSION

60

Meeting:

Dt: 29th January, '77

Item No.10 : To consider matter relating to payment of honorarium etc., to distinguished scholars/Scientists for delivering lectures at Universities under various programmes.

The University Grants Commission has allocated grants to Universities on the recommendations of the Fifth Plan Visiting Committee for various Schemes/Projects which inter-alia includes the programmes of extension lectures by Scholars/Scientists. The Commission has not indicated the guidelines for the implementation of the programme as part of the development schemes. The Commission is, however, implementing certain programmes regarding delivering lectures by scholars/scientists at the Centre of Advanced Study/Department of Special Assistance and participation in seminars/conferences. The details of the schemes/assistance provided to the Scholars/Visiting Fellows are indicated below:-

i) Visiting Fellows: (CAS/DSA)

In the case of services of scientists and scholars obtained for the centre through any regular programmes of foreign aid or collaboration, the honorarium and other expenditure is to be incurred in accordance with the terms agreed upon in case of each such programme.

In the case of the persons to be invited direct by the centre, it would be desirable to refer each case well in advance to the University Grants Commission giving necessary details of the persons proposed to be invited, payment to be made, duration etc., and other terms to be offered. In case of persons from foreign countries, a clearance from the Government of India is to be obtained before extending an invitation. The terms of appointment of visiting fellows should not generally be less than three months and exceed one academic year of 12 months at the most. Generally an honorarium/salary ranging from Rs.1500 to Rs.2500 (fixed) may be paid depending upon the academic standing of the person to be invited as a visiting fellow. In addition, the visiting fellow may be paid the necessary expenses for round trip travel by first class rail or economy class air travel (as detailed vide Seminars etc.). No other allowances are to be paid to such visiting fellows.

(61)

In the case of distinguished scholars or scientists invited by the centre for purposes of delivering a course or series of lectures on a specialised topic, the centre may provide necessary expenditure for travel by first class rail or air, necessary hospitality for board and lodging (not to exceed Rs.50 per day) and local transportation or Rs.10 per day as out of pocket allowance. In addition, such persons may be paid an honorarium at Rs.50 per lecture delivered subject to a maximum of Rs.200 to be paid for any single or four or more lectures delivered by each such scholar or scientist. It is expected that the number of persons to be so invited by a centre during the course of an academic year may not exceed two or three. A prior approval of the Commission is essential.

ii) 'Unassigned grant'

The Commission annually allocate grants to Universities for various schemes, which inter-alia includes extension work by University Teachers. The participants are given TA/DA in accordance with the University Rules.

iii) Faculty Improvement Programmes.

The Commission also provides assistance to Universities/Colleges for the organisation of Seminars, Refresher Courses/conferences and summer school etc. The participants are given TA/DA in accordance with the University Rules.

It would be observed that the Commission provides honorarium to the scholars/scientists for delivering lectures at the CAS/DSA in addition to the payment of TA/DA as admissible under the rules. In the case of other programmes, guest-speaker is only given the TA/DA for participation in Seminars/conferences organised by the Universities. The Commission has been receiving representation that similar facilities may also be extended to the guest-speakers as being done in the case of CAS/DSA.

The matter is placed before the Commission for consideration.

A. S. (C. P.) / D. S. (C. P.)

UNIVERSITY GRANTS COMMISSION

(62)

Meeting:

Dt: ~~31st~~ January, 1977

Item No. 11 : To consider further the Guidelines laid down for Visiting Professors/Visiting appointments in universities.

The University Grants Commission at its meeting held on 29th April, 1976 while considering the amendment proposed by the University of Delhi to its ordinance relating to Visiting Professors or Lecturers agreed that the guidelines earlier prescribed by it for appointments of Visiting Professors may be revised as indicated below.

1. 1. A Visiting Professor should be an eminent scholar in his subject.
2. The maximum tenure of a Visiting Professor be one year and minimum three months.
3. The Visiting Professor be paid honorarium up to Rs.3,000/- per month.
4. A suitable provision be made to enable the Visiting Professor to travel within the country for approved academic programme and also for reimbursement of medical expenses, if any.

Visiting Appointments

1. The duration of visit should not be less than two weeks and should not exceed four months in a year.
2. The travel expenses would be met by the host institution.
3. In case of a person receiving his salary from the "parent institution", for the period of the visit, the host institution would provide hospitality and pay an honorarium not exceeding Rs.1000 per month.
4. In the case of a person not receiving his salary from his "parent institution" for a period of his visit, the "host institution" would pay an honorarium not exceeding Rs.2,500/- per month."

These guidelines would apply to the Visiting Professors invited from within the country as well as from other countries

(63)

except that in the case of persons from other countries a provision may be made for payment of economy class air fare by direct route.

These guidelines were circulated to the Universities for their guidance. It may, however, be mentioned that no specific assistance to be provided to the State Universities in this regard was indicated.

The Commission, has, however, allocated grants to the Universities for various schemes/projects in the 5th Plan period on the recommendations of Visiting Committees. In certain cases the Visiting Committees have recommended allocation for the Visiting Professors etc. A statement indicating the grants allocated to the Universities for Visiting Professors is attached (Annexure).* It may be mentioned that the Commission has not laid down the procedure for appointment of Visiting Professors etc., by the Universities.

54-66

The matter is placed before the Commission for consideration of the following:

- (i) Whether a lump sum amount may be placed at the disposal of all the Universities to enable them to invite Visiting Professors etc., in accordance with the guidelines already communicated to them.
- (ii) The procedure to be followed by them for appointment of Visiting Professors etc.
- (iii) Whether the assistance provided for the purpose may be within the plan allocation or outside the Plan.

A. S. (C.P.)/D. S. (C.P.)

Information regarding Allocation to the Universities for Visiting Professorships on the recommendations of Fifth Plan Visiting Committees.

(64)

S.No.	Name of the State	Name of the University	Allocation
			Rs.
1.	Andhra Pradesh	1. Andhra University	2,00,000
		2. Osmania University	1,50,000
		3. Sri Venkateshwara	1,00,000
		Total:	4,50,000
2.	Bihar	1. Bhagalpur University	2,00,000
		2. Bihar University	2,00,000
		3. Patna University	2,00,000
		4. K.S. Darbhanga	20,000
		Total:	6,20,000
3.	Gujarat	1. Gujarat University	1,00,000
		2. M.S. University of Baroda	1,00,000
		3. Sardar Patel University	50,000
		4. South Gujarat University	50,000
		5. Saurashtra University	1,00,000
		Total:	4,00,000
4.	Karnataka	1. Bangalore University	1,00,000
		2. Karnatak University	1,00,000
		3. (Postgraduate Central College)	35,000
		3. Mysore University	1,00,000
		P.G. Centre Mangalore	50,000
		Total:	3,85,000

65

<u>S.No.</u>	<u>Name of the State</u>	<u>Name of University</u>	<u>Allocation</u> <u>Rs.</u>
5.	Kerala	1. Calicut University	1,00,000
		2. Kerala University	2,00,000
		3. Cochin University	1,00,000
		Total:	<u>4,00,000</u>
6.	Madhya Pradesh	1. A.P. Singh University	50,000
		2. Bhopal University	30,000
		3. Indore University	1,00,000
		4. Indira Kala Sangit Vishwavidyalaya	50,000
		5. Jabalpur University	1,00,000
		6. Jiwaji University	30,000
		7. Ravishankar University	1,00,000
		8. Saugar University	1,00,000
		9. Vikram University	50,000
		Total.	<u>6,10,000</u>
7.	Maharashtra	1. (a) Bombay University	1,50,000
		(b) P.G. Centre Goa	50,000
		2. Marathwada University	50,000
		3. Nagpur University	50,000
		4. Poona University	50,000
		5. S.N.D.T. Women's University	50,000
		6. Shivaji University	50,000
		7. Tata Institute of Social Sciences.	<u>50,000</u>
		Total:	<u>5,00,000</u>

66

<u>S.No.</u>	<u>Name of the State.</u>	<u>Name of University.</u>	<u>Allocation</u>
8.	Rajasthan	1. Jodhpur University	Rs. 50,000
		2. Udaipur University	50,000
		3. Rajasthan University	50,000
			<hr/>
			1,50,000
9.	Tamil Nadu	1. Madras University	1,00,000
		2. Annamalai University	50,000
		3. Madras University	nil
			<hr/>
			1,50,000
10.	Uttar Pradesh	1. Kashi Vidyapeeth	20,000
		2. Sampurnanand Sanskrit	60,000
			<hr/>
			Total: 80,000
11.	West Bengal	1. Burdwan University	1,50,000
		2. Calcutta University	1,00,000
		3. Jadavpur University	1,50,000
		4. North Bengal	1,50,000
			<hr/>
			5,50,000
12.	Delhi	1. Delhi University	1,00,000
		2. Jawaharlal Nehru University.	3,00,000
			<hr/>
			Total 4,00,000

UNIVERSITY GRANTS COMMISSION

(67)

Meeting:

Dated : ~~20th~~ January, 1977.

Item No. 12 : To receive a note on the programme of academic collaboration between the Department of Biological Sciences, Madurai University and Frankfurt University (Professor Neuweiler's Group) FRG.

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Under the Indo-FRG Cultural Exchange Programme there is the provision for developing bilateral academic links between selected Indian and FRG Universities and Institutions. The Commission had inter alia selected the department of Biological Sciences, Madurai University for developing such an academic link with the selected Departments of FRG Universities in the field of Biological Sciences. The Madurai University has sent a programme of academic collaboration between the Department of Biological Sciences, Madurai University and the Frankfurt University (Professor Neuweiler's Group) FRG for acceptance of the University Grants Commission. This programme was considered by the University Grants Commission at its meeting held on 7th January, 1976. The Commission desired that clearance of the Research project entitled "Neurophysiological basis of the behaviour of bats" may be obtained from the Government of India before further action is taken. The Commission had also constituted an expert committee to examine the academic merit of the programme and their recommendations were forwarded to the Government of India.

The Government of India have conveyed their approval to the joint research project subject to the following conditions:

1. The entire project would be directed and controlled by an Indian team.
2. most of the data will be collected in laboratory. A few studies however, can be carried out in the caves near the Madurai University; and
3. all the data collected on the project will be submitted for security clearance before publishing or reporting.
4. Germans visiting India under the project would be separately cleared from the security angle.

The Commission's acceptance to the joint research programme has been communicated to the FRG side. The Madurai University have also been informed of the Commission's approval to the programme subject to the conditions indicated above.

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UNIVERSITY GRANTS COMMISSION

63

Meeting:

Dated : 3rd January, 1977.

Item No. 13 : To consider the recommendations of the Committee appointed by the U.G.C. for undertaking translation of Russian Scientific and Technical journals into English.

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The Commission at its meeting held on 16th February, 1976 (Item No. 11) considered a proposal received from the Government of India for assistance to the Jawaharlal Nehru University for undertaking translation of Russian Scientific & Technical journals into English and desired that the matter may be got examined by a Committee. Accordingly a Committee consisting of the following was constituted :-

1. Prof. Ramesh Mohan,
Director,
Central Institute of English and Foreign Languages,
Hyderabad.
2. Dr. R.M. Bakaya,
Head,
Centre of Russian Studies,
Jawaharlal Nehru University,
New Delhi.
3. S. i C.V.N. Swamy,
Scientist,
Indian National Scientific Documentation Centre,
New Delhi.
4. Shri D.R. Kalia,
Director,
Central Secretariat Library,
New Delhi.

72 The Committee has since submitted its report and a copy of the same is attached (Annexure)*. The Committee has made the following recommendations.

(a) The work of translating scientific and technical journals from Russian into English and making them available to Indian Educationists and scientists is an important activity which is extremely useful for advancement of knowledge in the fields of scientific and technical education and research. This activity also acquaints

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(69)

the Indian scientists with the latest developments in their own fields.

(b) The universities have their own priorities regarding the academic activities to be undertaken by them, the first priority being given to teaching and research work. Therefore, while stressing the importance of the above mentioned work, the universities would not prove to a proper organisation for the execution of this work and that such work could usefully be undertaken by a national agency.

(c) It may be possible for this national agency to associate certain universities and other organisations having foreign language departments in executing the translation work besides INSDOC.

(d) It would not be necessary to translate all the journals and a careful and proper selection of the journals would need to be made before the actual translation work is undertaken.

(e) The translation work may not be limited to the journals in Russian languages but journals in other languages such as German, French, Japanese would also need to be translated in course of time.

(f) The translated journals be acquired by all the regional libraries being set up by the UGC and provision be made for the micro-filming/zeroxing of such translated journals/ articles in these libraries.

(g) While translation be undertaken from page to page of the journal. it would also be useful to translate certain select articles and to bring out special issues of the translated materials.

(h) It is necessary to have a group of professional translators in all these languages in our country and for this necessary steps may be taken.

(i) There is urgent need for the training of translators and interpreters in foreign languages and that the UGC should encourage and support the strengthening and development of such programmes in institutions such as the Jawaharlal Nehru University and the Central Institute of English & Foreign Languages which have already initiated such training programmes as a part of their academic courses. Necessary support may be given to other universities who are in a position to take up such training programmes.

The matter is placed before the Commission for consideration.

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Report of the Committee on the proposal received from the Department of Culture, Govt. of India for assistance to the JNU for undertaking translation of Russian Scientific and Technical Journals into English.

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The Department of Culture, Government of India made a proposal to the UGC for assistance to the JNU for undertaking the translation of Russian Scientific Technical Journals into English instead of importing them from abroad at a very high cost. The proposal was formulated by the Department of Culture in consultation with Centre of Russian Studies of the JNU. The matter was considered by the Commission and it desired that the proposal may be got examined by an expert committee. Accordingly a committee consisting of the following was constituted.

- (1) Prof. Ramesh Mohan Director, C.I.E. & F.L. Hyderabad
- (2) Dr. M.M. Bakaya, Head, Centre of Russian Studies, JNU.
- (3) Shri CVN Swamy, Scientist, Indian National Scientific Documentation Centre, New Delhi.
- (4) Shri D.R. Kalia, Director, Central Secretariat Library New Delhi.

2. The Committee met on 23rd July, and 11th November, 1976 in the office of the U.G.C. The meeting held on 11th-November, 76 was also attended by the Vice-Chairman and the Secretary U.G.C., besides Dr. M.L. Mehta and Shri V.M. Seth of the U.G.C. office

3. The question of undertaking the translation of Russian Scientific and Technical journals into English by Jawaharlal Nehru University was examined by the Committee. In this connection, it was pointed out that I.N.S.D.O.C. had been engaged in such work on an adhoc basis to fulfil the following needs:-

- (a) To meet the indigenous demand for translation of scientific and technical literature from Russian to English.
- (b) To undertake translation work as per the requirements of the National Science Foundation of America.
- (c) To execute orders of scientific and technical translation received from various Government and private academic and industrial establishments as well as individuals. This work was done on a subsidised rate.

INSDOC undertakes this translation work through its regular employees as well as by assigning the job to part-time translators. The National Sciences Foundation work is done purely on a commercial basis according to an agreement signed by Government of India with the U.S. Government for the utilisation of a part of the U.S. PL-480 rupee balance in India. Only a limited number of copies are printed under this scheme.

The translation work being undertaken by the INSDOC had not proved to be financially profitable. The main reason for this was that while in countries like U.S.A., all the translated journals were readily sold out, the Indian translation of scientific and technical journals did not find a sufficient market, resulting in financial loss.

5. The Committee finally concluded as under :

(a) The work of translating scientific and technical journals from Russian into English and making them available to Indian educationists and scientists is important activity which is extremely useful for advancement of knowledge in the fields of scientific and technical education and research. This activity also acquaints the Indian scientists with the latest developments in their own fields.

(b) The universities have their own priorities regarding the academic activities to be undertaken by them, the first priority being given to teaching and research work. Therefore, while stressing the importance of the above mentioned work, the Committee feels that universities would not prove to be a proper organisation for the execution of this work and that such work could usefully be undertaken by a national agency.

(c) It may be possible for this national agency to associate certain universities and other organisations having foreign language departments in executing the translation work besides INSDOC.

(d) It would not be necessary to translate all the journals and a careful and proper selection of the journals would need to be made before the actual translation work is undertaken.

(e) The translation work may not be limited to the journals in Russian language but journals in other languages such as German, French, Japanese would also need to be translated in

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course of time.

(f) The translated journals be acquired by all the regional libraries being set up by the UGC and provision be made for the micro-filming/xeroxing of such translated journals/articles in these libraries.

(g) While translation be undertaken from page to page of the journals, it would also be useful to translate certain select articles and to bring out special issues of the translated materials.

(n) It is necessary to have a group of professional translators in all these languages in our country and for this the necessary steps may be taken.

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University Grants Commission

73

Meeting :

Dated : 31st January, 1977

Item No. 14 : To further consider the report of the Vth Plan Visiting Committee to Birla Institute of Tech. & Sc. Pilani.

The University Grants Commission at its meeting held on 16th February, 1976 considered the report of Vth Plan Visiting Committee for the Birla Institute of Technology and Science, Pilani and desired that the general observations made by the Committee may be referred to the Institute for its views in the first instance (Item 12).

Pointwise comments of the Institute on the general observations made by the Visiting Committee are given in Annexure-I attached. The report of the Visiting Committee for Birla Institute of Technology and Science, Pilani is attached Annexure-II.

*p 76-83

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The financial implications involved in the recommendations made by the Visiting Committee are as under:-

A. Spill over	-	Rs. 7.71 lakhs
B. New allocations	-	Rs. 92.59 lakhs
i) Schemes already accepted	-	3.28 "
ii) Books & Journals	-	16.00 "
iii) Equipment	-	30.70 "
iv) Buildings	-	22.74 "
v) Scholarships	-	3.09 "
vi) Junior Fellowships	-	3.00 "
vii) Visiting Professors	-	0.50 "
viii) Staff	-	13.28 "

(Estimated for 4P, 10R, 2L and 13 other)

Of the above staff 4P, 2R, 2L and 3 others are in the first priority 4R and 7 others in second priority and 4R and 3 others in third priority. The share of the Institute in all the three priorities for recurring expenditure is estimated to Rs. 20,000/- during the V Plan and for non-recurring expenditure Rs. 22.74 lakhs (approximately).

74

The V Plan ceiling for BITS, Pilani, is Rs. 100.00 lakhs. The distribution of this amount in three priorities including spill over is as follows:-

<u>I Priority</u>	<u>II Priority</u>	<u>III Priority</u>
Rs. 64.69 lakhs	Rs. 18.69 lakhs	Rs. 16.92 lakhs

The Birla Institute of Technology and Science, Pilani informed the Visiting Committee which assessed the V Plan development proposals, that the Institute does not receive maintenance grant either from the Central Govt. or the State Government. While the Institute is an all India Institution where students and faculty are drawn from all over the country, the State Government does not feel any obligations towards its share in meeting part of the expenditure. The Committee was informed that as yet the Government of India has not given its sanction for the recent revision of salary scales (effective from 1973). Looking at the all India Character of the Institute and educational programmes undertaken by it, the Committee was of the opinion that denial of maintenance grant and the Government of India share in the revision of the salary scales of teachers may put the Institute to a great hardship and impair the maintenance of educational efforts at the present level. While these are not matters directly connected with the Fifth Five Year Plan of the Institute, the Committee wished to recommend sympathetic consideration by concerned authorities on these items.

The Commission at its meeting held on 16.2.1976 considered the report of V Plan Visiting Committee for Birla Institute of Technology and Science, Pilani and desired that the question of payment of maintenance grant to the BITS Pilani may be taken up separately after obtaining necessary information from the Institute with regard to its existing financial resources.

The financial position of the Institute during the last ten years as furnished by the Institute is as under:-

<u>Year</u>	<u>Expenditure</u>	<u>Income</u>	<u>Deficit</u>
1964-65	15,77,076	7,99,456	7,77,620
1965-66	22,23,504	8,47,118	13,76,386
1966-67	31,75,530	8,54,421	23,21,109
1967-68	37,92,292	8,70,649	29,21,643
1968-69	45,44,046	9,56,996	35,87,130
1969-70	54,68,549	16,26,116	38,42,433
1970-71	54,94,242	21,54,039	33,40,203
1971-72	58,04,689	26,18,302	31,86,387
1972-73	60,78,669	36,14,026	24,64,643
1973-74	71,92,194	39,81,427	32,10,767
1974-75	77,39,222	37,68,720	39,70,502

75

The main heads of expenditure are, establishment, Education and Research (Workshops and Laboratories, Research Expenses, Games, Examination, Books and Journals, other expenses, and scholarships and fellowships) Hostel and Miscellaneous. While the different sources of income constitute Fees, Interest, Quarter rent, Hostel Income, dividends and miscellaneous.

The Non-recurring expenditure from 1964-65 to 1974-75 is as under:-

<u>Year</u>	<u>Expenditure</u>
1964-65	1,38,664
1965-66	31,66,546
1966-67	24,99,119
1967-68	26,25,085
1968-69	15,59,404
1969-70	20,19,971
1970-71	9,87,750
1971-72	4,92,819
1972-73	5,48,100
1973-74	5,12,400
1974-75	14,27,116

A statement showing provision of budget income and expenditure for the year 1975-76 and 1976-77 is given as (Annexure-III)*

* p 119

The Birla Institute of Technology and Science, Pilani has intimated that the Endowments Funds and investment of the Institute as on 31.3.1976 were Rs. 81.67 lakhs and Rs. 131.40 lakhs respectively. The Institute has been requested to certify that the investments made by the Institute are in the name of the BITS, Pilani, and also the nature of investment. This information is still awaited. The Institute has also informed that it has been meeting the deficit from donations received from Birla Education Trust and other companies.

The question of payment of maintenance grant to the BITS, Pilani has been under correspondence with Ministry of Education and Social Welfare, since November, 1972. The Ministry has not yet intimated its decision in the matter.

The matter is placed before the Commission for consideration.

EO(D-4a)/DS(D-4)

Annexure to Item No. 14

Enclosure to letter
No. FFP/154/4782 dt.
25.10.76

76

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE
PILANI (RAJ.)

VIEWS OF INSTITUTE ON THE GENERAL OBSERVATIONS
OF FIFTH PLAN VISITING COMMITTEE

PREAMBLE

Before giving our views on the observations made by the Visiting Committee, it is necessary to recall the genesis and the background of the visit of the Visiting Committee to the Institute. Considerable correspondence with the University Grants Commission had taken place in this matter. The schemes which the Institute had already implemented and proposes to implement during the Fifth Plan on the basis of the recommendations of the UGC expert committees, as a first charge to the Fifth Plan allocation, alone totalled to a little more than Rs. 1.00 crore. As such the Institute did not make any new proposals. We were only asking for the release of funds recommended by the subject committees as the ceiling was already fixed for our Fifth Plan allocation. The UGC has given us the understanding that this should be alright. There have been letters to the committee and the UGC afterwards in this connection saying that we cannot accept any new item within the ceiling. As such the comments of the committee come as a surprise to us since they do not seem to take into account the fact that the task is only to release the Fifth Plan funds for distribution within the schemes already vetted by the UGC expert committees. In this connection the following letters to the Chairman, UGC, from the Director of the Institute may please be referred to:

No. 3645 of September 18, 1974
No. 6514 of December 17, 1974
No. 224 of April 9, 1975
No. 11630 of December 3, 1975

The pointwise comments on the observations of the committee now follow :

OBSERVATION

- 1 The innovative experiments of BITS in introducing examination reforms, 5 year integrated courses in Science and Humanities & Social Sciences, multidegree system and practice school experience are admirable.

VIEWS

The Institute is thankful to the committee for its observations. However, it needs to be emphasised that in Engineering & Technology too the Institute is running 5 year Integrated programmes. The integration in Education is across all the disciplines.

OBSERVATION

The BITS provides for a number of specialised post-graduate courses. However, the Committee is of the opinion that only well-selected courses should be offered taking into consideration the laboratory facilities and advanced interest of the faculty. It would be uneconomical to run a course with less than five students.

VIEWS

The general observation made by the Committee is well taken. The specialised M.Sc. (Tech.) courses have been introduced by the Institute after they had been examined and approved for implementation by the expert subject committees of UGC. For these new and unusual courses which require special type of faculty with professional experience and expertise in addition to academic qualifications, the mode of appointment as visiting, associate and adjunct faculties have been utilised.

3. OBSERVATION

The students in their discussions with the Committee pointed to the shortage of staff at the senior level. 26 positions of Professors and Readers out of 113 are vacant at present. Efforts should be made to fill in the posts as early as possible.

VIEWS

Since the visit of the Committee the position of senior staff has changed and presently (as of 1.7.1976) it is as follows:

Professors	25
Associate Professors	28
Assistant Professors	53
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	106
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4 OBSERVATION

It was learnt that a large number of the faculty is temporary even though some of them have worked for ten years or so. This has a demoralizing effect on the faculty. Similarly there are many Assistant Lecturers on the faculty. The Institute may perhaps examine the question of a continuance of this category of posts considering that this category no more exists in the University system. It is also suggested that the category of Assistant Professor may be designated as Reader in tune with the University system.

VIEWS

There is a periodic review of faculty for giving them contractual appointments. Since the visit of the Committee the situation with respect to number of temporary faculty has changed. Presently (as of 1.7.1976) the number is 10 only. We have the post of Assistant Lecturers which serve a very special function—training both in Ph.D. work and teaching through intensive teaching workshops and it carries the same starting salary as the Lecturer. One cannot compare the Assistant Lecturers of BITS with similar posts prevalent elsewhere. The terminology of Assistant Professor is similar to that in many other institutions.

5 OBSERVATION

There is little cohesion of the various fields of interests of the faculty. The Committee suggests that the thrust of every department should be identified and faculty recruited accordingly. At present research does not appear to be intense commensurate with the number of teacher.

VIEWS

- a) We do not understand the observation and certainly do not accept the statement made therein. The Institute has pioneered educational and research activities in a manner unusual in the normal university context to bring about an integration both in education and research of national relevance, thus realising a meaningful cohesion. We would have been happy if the observations were more specific.

71

- b) Regarding research output some statistics may be relevant. During the period 1966-75 the Institute produced 100 Ph.D. and its faculty published nearly 1200 papers. At present 88 candidates are working for the Ph.D. degree of the Institute.

6 OBSERVATION

The laboratories of Physics, Chemistry and Biological Sciences are not well equipped for research and even for teaching the M.Sc. (Hons.) courses, they are not upto mark. The situation calls for perhaps immediate attention of the authorities. It is learnt that the research activities of the Department of Physics are being supported by outside agencies like PL-480 scheme in Plasma and MIT support for Laser Spectroscopy. This may perhaps enable the Institute to augment the facilities in Physics at an early date.

VIEWS

We totally refute the allegation that the laboratories of Physics, Chemistry and Biological Sciences are not suitable for the M.Sc. classes and research. Our experience shows that our students have competed creditably along with others in the outside world. It may, however, be recalled that in 1964 the Institute was created out of the then three existing colleges; from which stage we have built the present laboratories mostly from our own resources. It is not as if we have reached journey's end. May be that we are not so well equipped as some very prestigious institutions but any advice in this matter has to go along with support of funds.

The observation that research activities of the Department of Physics are being supported by outside agencies is not correct. Perhaps the committee is referring to the scheme "Narrow Beam Scannable Antenna" sanctioned to one faculty member in the department of Physics under PL-480 scheme which had a small provision for purchase of equipment. This scheme terminates in December, 1976. The other reference seems to be to the financial assistance which has been provided by the Ford Foundation. Under this project the Institute has acquired equipment for various laboratories including Laser-Maser Laboratory. But primarily it is the budget of the Institute which is supporting these as well as other research activities of the Institute.

80

OBSERVATION

The proposed V Plan of the Institute has no proposal for improvement of facilities in Physics, Chemistry, Mathematics, Languages and Social Studies. The Committee has however thought it necessary to recommend some grants for these subjects.

VIEWS

The Institute had submitted comprehensive and detailed proposals to the UGC Committee for the various departments as early as 1970. This however was not acted upon by the UGC and instead various subject committees visited and made certain recommendations to the UGC. Since decision on these recommendations of the Visiting Committees was delayed no final releases were made except of minor nature. The Institute therefore, as per advice of the UGC, included these schemes under 'first charge' to the Fifth Plan and as already mentioned in the Preamble this incidentally consumes the entire amount allocated for the Fifth Plan. Legitimately the suggestion for additional facilities should be directed to the UGC so that there will be a provision for additional funds.

8 OBSERVATION

It is understood that at present there is no formal Board of Studies for any course. This deprives the teachers of participation in this important academic process. The teachers should also be given the opportunity of participation in Plan development lest there be a feeling of things being imposed upon them from outside. The Committee was however impressed to note the participation of students in the programmes of the Institute who seemed to be all praise for the practice school and other new programmes of the Institute.

VIEWS

It is not true to say that the teachers are deprived of participation in the academic programme of course development, syllabus making etc.

81

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The operation in regard to educational innovation is through a process which is more than a conventional Board of Studies wherein external members may or may not turn up for such meetings. The Senate of the Institute is the highest academic body which has the authority for all academic matters. The educational agenda for the Senate is prepared after intense interaction over a long period of time, of teachers, of students, committees and even outside educational experts. The active and intimate involvement of external experts in the curriculum development is ensured through associate/visiting/adjunct faculty from various organizations like Ministry of Defence, NCERT, CSIR, Universities, National Institute of Bank Management etc. etc.

OBSERVATION

At present there does not appear to be any collaboration between the institute and the Central Electronics Engineering Research Institute (CEERI) which is situated in an adjacent campus. The Committee feels that a collaboration in research and participation of the scientists at CEERI in the teaching programmes in Electronics at the Institute will be of immense benefit to both the institutions. However, the Committee is happy to note that the institute has about 13 Associate Faculty, Visiting Faculty and Adjunct Faculty from various organisations like Ministry of Defence, NCERT, CSIR, Delhi University and Khetri Copper Project.

VIEWS

From the attached list of the practice school stations it would be obvious that the Institute has extensive collaboration spread over the country with national laboratories of the CSIR and other agencies, not restricted to CEERI alone. The Institute's request to CEERI for associating their members as adjunct faculty has been pending for several years for them to respond. Being a governmental agency perhaps

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42

they find it difficult in lending facilities in an open-shop-manner in which we could do. In spite of that we are in the business of collaboration with the CEERI to the extent that has been possible for them to agree as we certainly appreciate their difficulties. However, we continue to endeavour to get additional collaboration from them.

LIST OF ORGANIZATIONS WHERE PRACTICE STATIONS
HAVE BEEN IMPLEMENTED

(i) Production, Manufacturing & Public Works units:

Hindustan Copper Project (Khetri), Textile Institute of Technology (Bhiwani), Irrigation Department (Bhiwani), Building & Road Department (Bhiwani), Public Health Department (Bhiwani), Century Spinning Manufacturing & Weaving Co. Ltd. (Bombay), Indian Plastics (Bombay), Chittaranjan Loco Works (Chittaranjan), Fertilizer Corporation of India Ltd. (Durgapur), Hindustan Steel Plant (Durgapur), Hindustan Aluminium Corporation (Renukoot), Ahuja Radios (Delhi), Gwalior Rayon (Nagda), Century Rayon (Kalyan), Hindmotors (Calcutta), Texmaco (Calcutta).

ii) Design, Development and Consultating Organisations:

National Institute of Bank Management (Bombay), Engineers India Ltd. (Delhi), Engineering Projects India Ltd. (Delhi), M.M. Suri & Associate (Delhi), Indian Oil Corporation (Delhi), Industrial Consulting Bureau (Delhi), M.N. Dastoor & Co. (Calcutta), General electric Company (Calcutta), Energy Systems & New Products Divisions of Bharat Heavy Electricals Limited (Delhi), Administrative Staff College of India (Hyderabad), Development Consultants (Calcutta), Bridge & Roof Co. (Calcutta).

iii) National Research Laboratories & Museum:

Solid State Physics Laboratory (Delhi), Central Electronics Engineering Research Institute (Pilani), Regional Research Laboratory (Jammu), Central Scientific Instruments Organization (Chandigarh), Birla Industrial & Technological Museum (Calcutta), All India Institute of Medical Sciences (Delhi), National Institute of Oceanography (Goa), National Physical Laboratory (Delhi), National Council of Applied Economic Research (Delhi), Regional Research Laboratory (Hyderabad), Central Drug Research Institute (Lucknow), Central Food Technology Research Institute (Mysore), Research & Development Unit of BHEL (Hyderabad), National Geophysical Research Institute (Hyderabad).

iv) Banks:

Central Bank of India (Bombay), State Bank of India (Bombay), Union Bank of India (Bombay), Agricultural Finance Corporation (Bombay).

v) Dhandhar Village about 5 kms. from Pilani.

UNIVERSITY GRANTS COMMISSION

Report of the Visiting Committee to Birla Institute of Technology & Science for assessment of the Fifth Plan requirements for development.

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The University Grants Commission appointed a Visiting Committee to examine the Fifth Plan development proposals of the Birla Institute of Technology & Science, Pilani. The Committee consisted of the following :

1. Professor M. Santappa .. Convener
Director
Central Leather Research Institute
Madras
2. Professor K.L. Chopra
Department of Physics
Indian Institute of Technology
Delhi
3. Dr. P.S. Ramkrishna
Department of Botany
North Eastern Hill University
Shillong
4. Professor J.S. Chatterjee
Department of Electronics Engineering
Jadavpur University
Calcutta
5. Professor B.S. Khanna
Department of Political Science
Panjab University
Chandigarh
6. Professor V.Y. Katak
Central Institute of English
& Foreign Languages
Hyderabad
7. Shri S.P. Gupta .. Secretary
Deputy Secretary
University Grants Commission

The Committee visited the B.I.T.S. on November 22-23, 1975 and held discussions with the Director and members of the staff.

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84

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The Committee also had separate meeting with the student representatives and the faculty and discussed with the matters concerning their welfare and corporate life on the campus. The Committee went round the departments, laboratories and workshop and facilities like library, computer centre, museum etc.

BASIC FACTS AND FIGURES

The Birla Institute of Technology and Science, Pilani is an all India institution for higher education. It was initially registered as a Society under the Rajasthan Societies Registration Act of 1958 on the 13th May 1964. Subsequently, by notification published in the Gazette of India dated the 27th June 1964 the Ministry of Education, Government of India, declared that the Institute being an institution for higher education shall be "deemed to be a University". The Institute started functioning with effect from 1st July 1964.

The primary objects of the Institute are "to provide for and otherwise promote education and research in the fields of Technology, Science, Humanities Industry, Business and Public Administration and to collate and disseminate in such fields effective ideas, methods, techniques and information as are likely to promote the material and industrial welfare of India", and "to train young men and women able and eager to create and put into action such ideas, methods, techniques and information". Its aim is preparation for leadership.

The Institute is managed by Board of Governors which consists of 15 members and among others, includes nominees from the All India Council of Technical Education, Government of India and Vice-Chancellor of Rajasthan University. While the General Body is normally concerned with the approval of the budget and adoption of accounts, the Senate looks after all academic matters of the Institute. The Senate is composed of Professors and Associate Professors, Heads of Department some Assistant Professors, invited lecturers and students, educationists of repute as nominated by the Chairman of the Board of Governors.

FUND SUPPORT

The Institute's recurring budget has been continuous increasing since its inception in 1964. It was Rs.33.75 lakhs in 1964 and rose to Rs.95.33 lakhs in 1974-75. During the period the fund support received from the UGC/Central Government amounts to about Rs.114.74 lakhs and from the State Government to Rs.12.90 lakhs.

The Institute, with the assistance from the Ford

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Foundation, is involved in a collaborative programme with Massachusetts Institute of Technology, since 1964. The programme has resulted in augmentation to a large measure of the supporting facilities in terms of Library, Computer Centre & equipment. It envisages (i) visits of long and short term American professors to assist in course development and in such other areas in the broad specturum of priority tasks as may require expertise from outside; (ii) foreign exchange for import of multi-purpose equipment back volumes of journals and reference materials; (iii) training for BITS faculty at MIT or elsewhere; and (iv) recruitment abroad of faculty for the Institute.

Educational Programmes

The programmes of the Institute have been restructured and redesigned so as to introduce 5 year/4 year integrated programmes leading to Bachelor's degree in Engineering and Pharmacy and Master's degree in Science and Arts. The details are given below :

- | | | |
|------|---|---|
| I. | Five Year Integrated Programmes, with or without practice school, leading to: | (a) B.E.(Hons.) in Chemical, Civil Electrical, Electronics and Mechanical Engineering |
| | | (b) M.A. (Hons.) in Economics, English and Hindi |
| | | (c) M.M.S. (Master of Management Studies) |
| | | (d) M.Sc.(Hons.) in Biological Sciences, Chemistry Mathematics and Physics |
| | | (e) B.Pharm.(Hons.) (Four-year Programme) |
| II. | Two-year Master's programmes, with or without practice school, leading to: | (a) M.E. in Chemical, Civil Electrical, Electronics and Mechanical Engineering |
| | | (b) M.Pharm. |
| III. | Two-year M.Sc.(Tech.) programmes with or without practice school, leading to: | (a) M.Sc.(Tech.) in Computer Sc. |
| | | (b) M.Sc.(Tech.) in Electronics |
| | | (c) M.Sc.(Tech.) in Instrumentation |
| | | (d) M.Sc.(Tech.) in Museum Studies |

87

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- IV. Doctoral programmes leading to: Ph.D. in any of the above discipline as well as in inter-disciplinary areas

The statement at Appendix I shows that in the five year integrated course, only those students obtaining more than 70% marks are admitted.

Student Enrolment and Staff

The enrolment during 1975-76 is as under :

i) Five-year Integrated programmes	-	1838	students
ii) Post M.Sc./E.E. programmes	-	129	students
iii) Doctoral Programmes	-	88	students
Total :-			2055 students

The break-up of enrolment subjectwise and classwise is given in the Appendix-II. The number of Ph.D. students has grown from 21 in 1966 to 87 in 1974. The total number of sanctioned posts of teachers at the Institute is 267 comprising of 39 Professors, 74 Readers and 154 Lecturers of which 32 Professors, 55 Readers and 135 Lecturers were in position in November 1975. The subjectwise break-up of the staff may be seen in the Appendix-III.

CENTRAL FACILITIES

- (a) Library Well equipped, subscribes 1100 journal periodicals; books nearly 1,50,000; reading seats 360; library remains open for 91 hours per week; recurring expenditure nearly Rs.6.50 lakhs; reprography facilities include (i) Magna Print Reader, (ii) Document Viewer, (iii) Photocopier, (iv) Multilith Offset Press & Robertson Vertical Camera.
- (b) IBM 1130 Computing System General purpose Digital Computer being used for research, postgraduate & undergraduate instructions and maintenance of student records etc. The Computer Centre has been rendering services to the neighbouring organization like Khetri Copper project for which: prepared a catalogue of 2000 items C.E.E.R.I., Malaviya Regional Engineering College. It has also been approached the R.S.E.B. for computerising the billing for a small section of consumers in Chirawa and Pilani area. It is

currently engaged in collaboration with the Indian Railways on certain problems of common interest.

- (c) **Laser-Maser Lab.** Equipped with equipment worth \$50,000 and Rs.4,00,000 including Ruby Laser, He-Ne Gas Laser etc., 3 Prism Spectrograph, 2 Meter grating Spectrograph, Monochrometer, Vacuum Coating Unit, Tectronix Oscilloscope, Main objective is to apply Laser & Maser techniques in optics, electronics & communications.
- (d) Language Lab. 16 Booth language lab. equipped with electronic mechanism specially designed for laboratory teaching.
- (e) Industrial & Science Museum
- (f) Workshop Discharges the following functions:
 - (i) training to students in accordance with the demands of various courses
 - (ii) maintenance and repair job of various laboratories, (iii) fabrication support to the research and development projects.

SPONSORED RESEARCH

Since 1964 the UGC, CSIR, ICAR, etc. have sponsored at the Institute more than 70 Research Projects. The UGC have also approved 7 book-writing projects which are in progress. The number of Research Publications during the decade 1964-74 have been nearly 1100 as per details given below :

<u>Year</u>	<u>No. of publications</u>
Before 1970	539
1970-71	131
1971-72	182
1972-73	120
1973-74	107

The Institute has so far awarded/accepted 100 candidates for the Ph.D. Degree. The details are

89

given below :

<u>Year</u>	<u>No. awarded/accepted</u>	<u>Year</u>	<u>No. awarded/accepted</u>
1966	2	1971	15
1967	6	1972	10
1968	15	1973	16
1969	18	1974	20
1970	12		

Examination Reform

1. Replacing end-of-year external examination & percentage marks by modern method of continuous internal evaluation and qualitative letter grading by the teacher who is in contact with his students. All answer papers including final are made available to students for discussion. The promotion is coupled by course and not year by year.
2. Continuous class room pumping of information from morning till evening discarded & replaced by optimal class room hours for students thus releasing his time for self-learning.

Flexibility

1. Admissions to the five-year Integrated programmes are unassigned. Science Talent students are given direct admission to M.Sc.(Hons.). Every student entering the Institute is required to have a background in Physics, Chemistry and Mathematics even when they desire to pursue humanities programmes ultimately.
2. Special structural flexibilities include -
 - (i) Admission in 2nd semester, i.e. in January, to help students from Boards that did not declare their results in time for July admission.
 - (ii) Admission with advanced standing for students who have cleared part of a programme in other universities.
 - (iii) Admission for students with marginal deficiency in pre-requisites.
3. Education during foundation years is broad based to an extent that the entire first year is common to all students entering the Institute; strong in fundamentals and rich in analytical tools. Thus every student, irrespective of his future degree, is exposed to a broad spectrum of basic knowledge through courses as concepts in science, general English, workshop practice, mathematics, engineering graphic report writing and comprehension, computation techniques, principles of management etc.

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4. A student can move at his own pace; he can register for a lesser or greater load to suit his abilities. A student can transfer from the middle of one degree to another without having to go back to the starting point. Thus students studying in III year Econ. may opt to go for B.E. (Hons.) if he competes, without losing much time while at the same time claiming credits for courses he has done during the first three years.

5. The programme provides new horizons for late starters. For example - a boy studying M.A.(Hons.) English can do B.E. (Chemical) with three years' additional effort, if he so desires. M.Sc.(Hons.) Chemistry can do M.E.(Chemical) within two years without losing time.

6. An intelligent and hard-working student can finish his programme in shorter duration. By exploiting facilities like free electives, departmental electives etc. with a well chalked out plan, he can do both B.E. and M.E. for example, in less than the normal time of seven years.

7. The theme of integration in education has enabled the Institute to introduce the concept of a dual de-gree whereby an outstanding student can simultaneously work for two degrees. Thus a student can be working at a given point of time towards Master of Management Studies as well as say B.E. Mechanical.

Practice School

1. Practice School is part of the total programme and takes the class room for more than six months to a professional location where students and faculty get involved in real life problems.

2. The 'Practice School' institutionalises efforts to build the long needed bridge between the real world and the educational world.

3. The Practice School acts as an effective catalyst to train the students and grade them in faculties of leadership, decision making, participation in cooperative efforts etc. This is achieved through student involvement in multidisciplinary, time-bound mission-oriented problem solving efforts.

4. Practice stations, some of which run round the year, have been established at various production and manufacturing units, design, development and consulting agencies, national research laboratories, centres of mass as well as science communication such as: Hindustan Copper Ltd., Khetri, Hindalco, Renukoot; Institute of Oceanography, Goa, Engineers India Ltd., Delhi; Department of Electronics, Delhi; Solid State Physics Laboratory, Delhi; Gwalior Rayon, Nagda; CSIO, Chandigarh; R.R.L., Jamnagar; B.I.T.M., Calcutta.

(91)

- 13 -

5. B.I.T.S. should also act as Practice Station for the immediate rural environment with a view to ensure student-teacher participation in the problem solving activity of direct interest to its surroundings. This theme will be implemented through 'Mini-Practice School' which is an attempt to link the project requirements of the B.E., programme with the needs of 50 miles radius around B.I.T.S. defined in terms of Textile Institute of Technology at Bhiwani, offices of lift irrigation scheme of Haryana State at Dadri, Bhiwani, etc.

6. It is also visualized that NSS and NCC activities could be given long needed purpose and direction by reorganising them in terms of Practice School activity.

Interdisciplinary Programmes

1. Superstructure of two-year M.E. & M.Sc.(Tech.) programmes in interdisciplinary areas like Computer Science, Instrumentation, Electronics, Museum Studies etc., provides a second technological opening for Master's in science & humanities.

2. Departmental isolation is avoided by emphasising course programmes & research in interdisciplinary areas.

3. Project-oriented undergraduate labs., undergraduate final year projects, Master's thesis, etc. form sub-projects of research efforts across the Institute. Practice School activity forms a source of these research problems. For best utilisation of men, material and finances the choice of research areas are made in terms of relevance priorities to be tackled by multi-disciplinary group of workers. Solar energy, management consultancy, ecology, educational research etc. provide the current fertile areas. Research projects on Solar Pump and Solar Cell have been sponsored by the Department of Science & Technology, Government of India at the Institution.

Other facilities at the Institute

The campus has an area of 400 hectares with neatly laid out roads, lawns and gardens, Halls of residence, faculty homes, community buildings and the Institute buildings. The Institute provides hostel accommodation for nearly 2008 students and 431 staff quarters for faculty and other staff. There is a medical centre with Resident Medical Officer to attend to the students and staff. The Institute has Central Museum of Science & Technology. There is a dairy farm on the campus and a Gliding Club.

IMPLEMENTATION OF THE IV PLAN PROPOSALS

The proposals submitted by the Institute for its

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development during the IV plan were examined by the Visiting Committee of the UGC on November 9-10, 1967. This Committee had desired that the Commission recommend to the Ministry of Education, Government of India, for annual disbursement of a grant of Rs.8.00 lakhs to the Institute in order to enable it to meet the committed maintenance expenditure in respect of schemes implemented during the III Plan and in respect of which the assistance from the UGC was to cease during the IV Plan.

However, this question of maintenance grant and the development grant got linked together resulting in delay in finalisation of the IV Plan allocation of the Institute. In May 1974 the final allocation for the IV Plan for the Institute was accepted as Rs.74.35 lakhs. This amount besides taking care of spill-over from the III Plan to IV Plan and the schemes sanctioned prior to the visit of the Visiting Committee, also included grants for the following :

1. Development of Biological Sciences
2. M.Sc.(Tech.) Instrumentation
3. M.S.(Tech.) Computer Science
4. Practice School Programme
5. Equipment for science department
6. Postgraduate course in Chemical Engineering - Equipment
7. Students Home - Building

The Committee noted that the following proposals had already been examined by expert committees :

1. Development of Biological Sciences
2. Setting up of Central Instrumentation Service Facilities
3. Strengthening of Information Processing Centre

The proposal for M.Sc.(Tech.) Museum Studies was also examined by an expert committee.

However, it was suggested to the Institute that it should be included in the V Plan proposals.

SPILL-OVER AND BASIC GRANT

There is a spill over from the IV Plan to the V Plan amounting to Rs.7.71 lakhs (Appendix-IV)

Besides the UGC has already sanctioned a basic grant of Rs.5 lakhs for purchase of equipment for science departments and an amount of Rs.3 lakhs for purchase of books and journals.

(93)

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V. Proposals already sanctioned by the UGC prior to the visit of the Visiting Committee

The Institute's proposal for a Master's programme in Science & Society, Science Policy, Planning & Management or Science & Technology was examined by an expert committee (consisting of Professor J.N. Kapur and Shri A. Rahman) and the financial sanction was accorded by the UGC in June, 1975.

This includes a provision of Rs.1.45 lakhs non-recurring and a provision for 1 Professor, 2 Readers, 2 Research fellows on Rs.600/- p.m. and scholarships for intake of 10 students.

VI. The Proposal

For the V Plan period the B.I.T.S. was informed that it should draw proposals within a ceiling of Rs.100 lakhs,

The Committee went into the details of the V Plan proposals of the Institute. Most of the schemes for which development funds were requested had already been launched by the Institute with the approval of the UGC in the Fourth Plan and the Institute had admitted students to these courses. However, the Institute was handicapped in the implementation of these programmes for want of funds.

The Committee was also informed that the Institute does not receive any maintenance grant either from the Central Government or the State Government. While the Institute is an all India Institute where students and faculty are drawn from all over the country, the State Government presumably does not feel any obligation towards its share in part of its expenditure. Similarly the Committee was informed that as yet the Government of India has not given its sanction for the recent revision of salary scales (effective from 1973) which has already been implemented in the IITs, Central Universities and a number of other institutions. Looking at the all India character of the Institute and educational programmes undertaken by it the Committee is of the opinion that denial of maintenance grant and the Government of India share in the revision of the salary scales of teachers may put the Institute to a great hardship and impair the maintenance of educational efforts at the present level. While these are not matters for the Fifth Five Year Plan of the Institute the Committee wishes to recommend sympathetic consideration by concerned authorities on these items.

Biological Sciences

There are 3 Professors, 5 Readers and 8 Lecturers/Asstt. Lecturers in the department. 26 Ph.Ds have been awarded and 186 research papers published from the department from 1966 onwards.

Not much though by the staff seems to have gone into the areas that are to be developed in the department. During discussions with the staff, it was indicated that they would like to develop Ecology, Bio-Chemistry, Physiology, Bio-Physics etc. covering the whole spectrum of biological sciences. However, Desert Ecology has received some attention during the past many years, by the then department of Botany and recently by the new department. Another area where some active work has been going on relates to developmental biology of plants and animals. With the joining of one Professor in microbiology there seems to be some interest developing in the biology of waste management. In view of these it seems appropriate that research efforts are concentrated in desert biology, developmental biology and microbiology.

The Committee observed that the existing laboratory facilities are very poor not only for research efforts but even to run the M.Sc.(Hons.) programme in an effective way. The Committee therefore, recommends an equipment grant of Rs.10 lakhs. In addition 1 Professor (Desert Biology) with emphasis on management of natural resources and 2 Readers (Microbiology/Desert Ecology) are recommended.

A building grant of Rs.6.00 lakhs is recommended for the construction of a green house complex, animal house complex, field station for environmental and ecology studies.

Department of Physics

The department offers a five-year integrated programme leading to the degree of M.Sc.(Hons.). Among the departmental electives the courses are plasma physics, particle physics and nuclear spectroscopy. The practice school option is also available, and every student is expected to work on a thesis project on a chosen topic. During 1975-76 there are 12 students in the IV year and 8 students in the V year, M.Sc. (Hons.) course.

The staff strength of the department is 5 Professors, 3 Associate Professors, 6 Assistant Professors (Readers), 9 Lecturers and 2 Assistant Lecturers. There are three research laboratories viz. in the field of (1) Lasers (2) Plasma Physics and (3) Cell concentrators. Both the teaching and research laboratories are poorly equipped. It may be difficult to run a 5-year integrated course in Physics on the basis of existing labs.

12 Ph.Ds have been produced since 1970 and 148 research papers have been published from 1970-71 to 1973-74. In view of the unsatisfactory position of equipment in the department, the Committee suggests that only a selected number of specialised courses should be run by the department. The Committee recommends an amount of Rs.3 lakhs for equipment (including the Basic grant of Rs.1.50 lakhs).

45

Department of Chemistry

The department offers a 5 year integrated programme for the M.Sc.(Hons.) degree. At the senior level of the programme courses are offered in chemical thermo-dynamics, chemical kinetics, quantum chemistry, spectroscopy etc. The practice school option is available and every student has to offer thesis/project on problems drawn from research areas currently in progress in the department.

The faculty consists of 3 Professors, 5 Assistant Professors and 9 Lecturers. The number of students in the M.Sc.(Hons.) IV year is 12 and 8 in the V year. 25 Ph.D.s have been produced since 1970 and 113 research papers have been published from 1970-71 to 1973-74. The department has got some research projects assisted by the UGC. The laboratories are ill-equipped. Augmentation of facilities by way of equipment is considered urgent. The Committee recommends Rs.3 lakhs for equipment including the basic grant of Rs.1.5 lakhs.

Department of Mathematics

The faculty consists of 1 Professor (acting as Deputy Director of the Institute), 11 Assistant Professors, 6 Lecturers and 4 Assistant Lecturers. The department offers a five year integrated programme for M.Sc.(Hons.) degree with electives like probability theory, distributions, combinational mathematics and continuum mechanics. Practice School option is available and a thesis/project is to be done by every student.

The number of students in the M.Sc.(Hons.) IV year is 10 and in the V year 7. Since 1970, seven students have got Ph.D. and 56 research papers have been published from the department from 1970-71 to 1973-74.

Department of Languages

The Institute offers M.A.(Hons.) courses in English and Hindi and also provides for teaching of German, French and Russian. The 5-year programme includes study of linguistics, semantics, phonetics and language teaching. Research facilities are available in modern poetry, drama, novel, literary criticism, Rajasthan folk lore, ancient Indian Culture and philosophy. There are 1 Professor, 1 Associate Professor, 4 Assistant Professors and 13 Lecturers. 8 Ph.Ds have been produced since 1970 and 4 research papers have been published from 1970-71 to 1973-74. The faculty is trained in English language teaching. There is a good language laboratory.

The number of students in the M.A.(Hons.) course IV year is 1 and nil in the V year.

The Committee recommends a sum of Rs.0.20 lakhs for language lab. equipment.

Humanities

Humanities figure mainly as a small though significant part of the 5 year integrated course offerings. These are specially designed courses touching a number of allied disciplines - Historical background, Interpretation of literature, Logic, Comparative religion, Comparative literature, Indian literatures in English translation, Appreciation of music, dramaturgy and so on. The main thrust of the curriculum being technological with a welcome bias towards practical problem-solving and relevance to real-life situation, whatever humanistic studies can be adjusted within it will naturally be limited in scope. The courses occur more at the earlier stages and the level of intellectual engagement in them cannot be very high. What is aimed at is to give the student a grasp of the basics and the nature of the skills involved which in itself is an important provision that a technological Institute should make.

What is needed is a realistic and imaginative restructuring of the traditional courses in the humanities. And though in such a re-structuring some amount of simplification and stress on the elements is unavoidable it is only teachers who are advanced scholars and researchers in their own fields that can effectively realize this kind of programme. To be able to keep up the general level of the training imparted and particularly of the teachers' involvement in the subject it is essential that a vigorous interest in research is encouraged.

Some effort is made in this direction in the languages, chiefly in English and to a lesser degree in Hindi. Because of its obvious importance as a medium - a "tool" subject - and also to some extent at least, as a means of access to various literatures in translation, apart from the rich literature of the language itself, English occupies a central position in the Institute's academic programme. An important feature is the provision of special ELT (English Language Teaching) courses designed for students who have to make up their deficiency in English during the first year in order to join the "main stream" at the end of it. This has some innovatory character related to the use of a language laboratory which needs to be encouraged.

(1) The Institute's ELT programme is well-conceived and needs to be strengthened by extending the usefulness of the language laboratory and by continually renewing teaching materials, tapes etc. Adequate financial provision should be made for this.

(2) Research in two broad fields should be encouraged as far as English is concerned, namely, (a) that which is concerned with ELT and Language studies and (b) that which

(97)

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takes the form of papers and dissertations embodying literary research. Financial provision for books and periodicals as well as for a research oriented Reference section either in the Department or the Library should be made.

Department of Social Studies

The faculty consists of 1 Professor, 1 Associate Professor, 3 Assistant Professors, 10 Lecturers and 2 Assistant Lecturers. At present a 5 year integrated M.A. (Hons.) program in Economics is offered which has during the current year 9 students in the IV year and 5 students in the V year. 2 Ph.Ds have been produced since 1970 (1 each during 1971 and 1972 and none thereafter) and 21 research papers have been published from 1970-71 to 1973-74.

There are 4 teachers in Political Science, but only 2 courses are offered. Sociology has one course and so has psychology. The Committee recommends a grant of Rs.0.30 lakhs for equipment for Psychology lab.

Instrumentation

The proposal of the Institute for supporting M.Sc. (Tech) programme in instrumentation and setting up a nucleus of central instrumentation facility had been examined by an expert committee in the IV Plan. However grants could not be released except the scholarships due to non-availability of funds. The Committee now recommends the following facilities under the V Plan :

(i) Equipment	Rs.5.50 lakhs
(ii) Building	Rs.0.50 lakhs

	Rs.6.00 lakhs

Recurring Rs.2.83 lakhs

(a) Professor	1
(b) Reader	1
(c) Engineer	1
(d) Technician	4

The instrumentation centre also provides central instrumentation service, maintenance and developmental facilities to all departments in the Institute. About 250 instruments are serviced in a year. The intake of students was 7 in 1973, 10 in 1974 and 2 in 1975. The low intake in 1975 was explained as non-availability of good students. Attempt should be made to run the course for minimum intake of 5 students. Instead of making it a full department it

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may work as a Centre where the course may be offered as and when necessary.

Information Processing Centre (IPC)

The proposal of the Institute for strengthening of the IPC and for M.Sc.(Tech.) course in Computer Science had been examined by an expert committee in the IV Plan. The Committee was informed that the request of the Institute for a new computer costing about Rs.95 lakhs was referred by the UGC to the Electronic Commission. The Computer Centre serves the need of all undergraduate students, PG students and research scholars. Several projects like railway traffic patterns, problems in oceanography etc. also require time of the computer which is run two shifts. The Committee recommends the following facilities :

Recurring

Professor	..	1	} Rs.3.25 lakhs
Reader	..	2	
Lecturer	..	1	
Technical Staff	..	2	
For Computer stationery and consumables	..	Rs.0.60 lakhs	

Non-recurring

Furniture	..	Rs.0.20 lakhs
Equipment	..	Rs.6.50 lakhs

		Rs.6.70 lakhs

Practice School Programme

The Committee highly appreciates the efforts made by the Institute to build up a bridge between class room education and the real life situation in the environment. The Committee was informed that the programme which was initially started only for engineering students has now been extended to other faculties i.e. science and humanities & social sciences. The Committee recommends the following funds for the practice school programme :

Reader	..	3 (coordinators)
Library	..	Rs.0.60 lakhs
Technical Staff		

99

Centre for Museum Studies

The department of museum studies offers a Master's programme in museology preparing students for careers in museums of science and technology. The Committee suggests that the department should be better named as Centre. The Committee also considered the question of the M.Tech. Degree in Museum Studies. The idea is to combine the traditional training in "Museology" with the highly specialized training needed for designing and maintaining scientific, technological and industrial museums. The extension of the subject to contemporary technological interest vastly increases its pedagogic importance. The Institute's museum which combines the humanistic and the scientific aspects illustrates the usefulness of such a course. (It is in the main a vivid presentation of the work of modern man's ingenuity in development.) For obvious reasons the student enrolment is meagre and potentialities of advanced study and research are still to be developed. It will be some time before there is a proper appreciation of the training and better job prospects for the trainees are assured.

The present course should be offered whenever adequate enrolment is forthcoming. Side by side, a cell must be created to keep a look out for possible developments in the training programme and for undertaking research projects in the **subject**. Necessary financial provision should be made available. The Committee, therefore, recommends that the M.Sc.(Tech.) programme in museum studies the following may be provided :

Recurring

Professor	1	}	Rs.2.13 lakhs
Reader	2		
Lecturer	1		

Fellowship for 8 students @ 400 p.m. Rs.1.15 lakhs

Non-recurring : Building Rs.2.00 lakhs

Student environment and amenities :

The proposals put forward by the Institute in its V Plan proposals for improvement of students environment are comprehensive and total to more than Rs.45 lakhs. It was therefore necessary that the requirements should be phased so that the most crucial requirements could be met in the first phase. According to the Institute its minimum needs are the construction of a kitchen-cum-dining block, a warden's quarter and addition of about 100 rooms to the existing hostels to take care of the larger number of students,

(102)

The Committee, therefore, agrees that within the overall allocation a sum of Rs. 5.00 lakhs may earmarked for this purpose to be utilised in accordance with the priority needs of the Institute. The Committee noted that in the earlier plan proposals the need of the Institute for establishment of a students home has already been accepted. The funds for this purpose are to be provided outside the plan allocation.

Staff quarters and teachers hostel :

Professor	39
Assistant, Professor (Reader)	74
Lecturer/ Asstt. Lecturer	154

As against this the accommodation available is :

Professor	34
Reader	39
Lecturer	115

Since the Institute is fully residential, the Institute urgently needs addition of more residential quarters.

In order to economise on the cost of construction of the buildings the Institute proposes to take up the construction of the teachers hostel for 40 teachers. The accommodation in the teachers hostel would meet the needs of bachelor teachers or teachers with a small family. It is estimated that the cost of constructing the teachers hostel for 40 teachers would be about Rs. 10 Lakhs and the UGC's share according to the present norms would be Rs. 5 Lakhs. In case of staff quarters the cost is estimated as follows :-

Professor	4 Quarters	Rs. 3.84 lakhs
Readers	8 Quarters	Rs. 4.64 lakhs

Rs. 8.48 lakhs

UGC share @ 50%

Rs. 4.24 lakhs

Miscellaneous

The Institute has requested for grants in respect of following .

101

proposals on selective basis.

1. Educational studies innovation and development:

This would be a centre of interdisciplinary activity and would essentially be involved in the following:

Modernisation of teaching and learning process- development of new materials for courses by:

- (a) Experimentation with course structure
- (b) Curriculum structure
- (c) Applications of technology to teaching
- (d) Human effects of curricula
- (e) Process of creating viable curriculum innovations.

The Committee recommends the following for the scheme:

Recurring

Research Associate - 1	0	
Documentation Officer- 1	1	Rs. 0.95 lakh
Technical Staff- 2	2	

2. Teaching Methodology:

The Institute proposes to organise during summer vacations workshop-cum-seminar on teaching methods for the benefit of its teachers. The idea is that in the ultimate it should have multiplier effect and the person who undergo this training could include teachers from other universities.

3. Research & Development work.

The Committee was informed that the Institute has already two research projects one on Solar Pump and the other on Solar Cell sanctioned to it by the Department of Science & Technology. The Committee also visited and saw the solar pump operation.

The Institute has formulated a long-term research policy and has identified solar energy, material science, ecology and environmental science, management and information centre instrumentation, communication and control system, educational technology as the priority areas of research. The Committee was informed that the Institute has also modified its admission policy for the P.D. programmes accordingly.

102

A summary of the distribution of V Plan allocation is enclosed given as annexure which also makes suitable adjustment for the spill-over.

General Observations and Recommendations.

1. The innovative experiments of BITS in introducing examination reforms, 5 year integrated courses in Science and Humanities & Social Sciences, multidegree system and practice school experience are admirable.
2. The BITS provides for a number of specialised postgraduate courses. However, the Committee is of the opinion that only well-selected courses should be offered taking into consideration the laboratory facilities and advanced interest of the faculty. It would be uneconomical to run a course with less than five students.
3. The students in their discussions with the Committee to the shortage of staff at the senior level. 26 positions of Professors and Readers out of 113 are vacant at present. Efforts should be made to fill in the posts as early as possible.
4. It was learnt that a large number of the faculty is temporary even though some of them have worked for ten years or so. This has a demoralizing effect on the faculty. Similarly there are many Assistant Lecturers on the faculty. The Institute may perhaps examine the question of continuance of this category of posts considering that this category no more exists in the university system. It is also suggested that the category of Assistant Professor may be designated as Reader in tune with the university system.
5. There is little cohesion of the various fields of interests of the faculty. The Committee suggests that the thrust of every department should be identified and faculty recruited accordingly. At present research does not appear to be intense commensurate with the number of teachers.
6. The laboratories of Physics, Chemistry and Biological Sciences are not well equipped for research, and even for teaching the M.Sc. (Hons) Courses, they are not up to mark. The situation calls for perhaps immediate attention of the authorities. It is learnt that the research activities of the Department of Physics are being supported by outside agencies like PL-480 scheme in Plasma and MIT support for laser spectroscopy. This may perhaps enable the Institute to augment the facilities in Physics at an early date.

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(103)

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7. The proposed V Plan of the Institute has no proposal for improvement of facilities in Physics, Chemistry, Mathematics, Languages and Social Studies. The Committee has however thought it necessary to recommend some grants for these subjects.

8. It is understood that at present there is no formal Board of Studies for any course. This deprives the teachers of participation in this important academic process. The teachers should also be given the opportunity of participation in Plan development lest there be a feeling of things being imposed upon them from outside. The Committee was however impressed to note the participation of students in the programmes of the Institute who seemed to be all praise for the practice school and other new programmes of the Institute.

9. At present there does not appear to be any collaboration between the Institute and the Central Electronics Engineering Research Institute (CEERI) which is situated in an adjacent campus. The Committee feels that a collaboration in research and participation of the scientists at CEERI in the teaching programmes in Electronics at the Institute will be of immense benefit to both the institutions. However, the Committee is happy to note that the Institute has about 13 Associate Faculty, Visiting Faculty and Adjunct Faculty from various organisations like Ministry of Defence, NCERT, CSIR, Delhi University and Khetri Copper Project.

Appendix I

104

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILLANI

Admission-Five Year Integrated Programme

Year	No. of applications registered.	Out of (2) No. of those with complete mark-sheets.	Out of (3) No. of those with I Div.	Out of (4) No. of those admitted	Minimum normalised Agg. % admitted.	No. of Rankholders admitted to assigned programme	No. of Science Talent scholars admitted to M.Sc. (Hons.)
1	2	3	4	5	6	7	8
1972-73 I Sem.	2950	1450	1040	402	65.22%	9	10
II Sem.	223	166	80	50			
1973-74 I Sem.	3300	1793	1311	484	70.97%	16	21
II Sem.	328	253	144	558			
1974-75 I Sem.	3636	2010	1514	487	73.30%	8	24
II Sem.	522	444	303	42			

105

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI (RAJASTHAN)

(Students on Roll 1975-76)

(as on 1.9.1975)

Class	Subject	Intake	No. of students on Roll		
			Boys	Girls	Tot.
1	2	3	4	5	6
(A)	<u>5-Yr. Integrated Programmes:</u>				
I Yr.	(a) Unassigned (Common for all programmes)	400*	355	6	361
	(b) <u>Assigned</u>				
	i) Engg. Stream		9	-	9
	ii) Hum. Stream		4	4	8
	iii) Science Stream		22	1	23
	Total I Yr.		390	11	401
II Yr.	(a) <u>Unassigned</u>				
	Engg./Science Stream		334	5	339
	(b) <u>Assigned</u>				
	<u>B.E. (Hons.)</u>				
	i) Chemical Engg.		1	-	1
	ii) Elect. Engg.		1	-	1
	iii) Electro. Engg.		3	-	3
	iv) Mechl. Engg.		1	-	1
			6	-	6

	2	3	4	5	6
V Yr. (a) <u>B.E. (Hons.)</u>					
i) Chem. Engg.			38	-	38
ii) Civil Engg.			25	1	26
iii) Elect. Engg.			30	1	31
iv) Electro. Engg.			31	-	31
v) Elect. and Electro Engg.			23	1	24
vi) Mechl. Engg.			46	-	46
			<u>193</u>	<u>3</u>	<u>196</u>
(b) <u>B. Pharm (Hons.)</u>			<u>29</u>	<u>2</u>	<u>31</u>
(c) <u>M.A. (Hons.)</u>					
i) Economics			9	-	9
ii) English			1	-	1
(d) <u>M.M.S.</u>			<u>35</u>	<u>1</u>	<u>36</u>
(e) <u>M.Sc. (Hons.)</u>					
i) Bio-Science			9	1	9
ii) Chemistry			12	-	12
iii) Mathematics			8	2	10
iv) Physics			11	1	12
			<u>40</u>	<u>3</u>	<u>43</u>
Yr. (a) <u>B.E. (Hons.)</u>					
i) Chem. Engg.			44	-	44
ii) Civil Engg.			31	-	31
iii) Elect. Engg.			36	-	36
iv) Electro. Engg.			39	-	39
v) Elect. & Electro. Engg.			20	-	20
vi) Mechl. Engg.			56	-	56
			<u>226</u>	<u>-</u>	<u>226</u>

108

1	2	3	4	5	6
(b)	<u>M.A. (Hons.)</u>				
	Economics		<u>5</u>	-	<u>5</u>
(c)	<u>M.M.S.</u>		<u>26</u>	-	<u>26</u>
(d)	<u>M.Sc. (Hons.)</u>				
	i) Bio. Sciences		4	-	4
	ii) Chemistry		8	-	8
	iii) Mathematics		7	-	7
	iv) Physics		8	-	8
			<u>27</u>	-	<u>27</u>

(B) 2 Yr. Masters Programme

(a)	<u>M.E.</u>				
	i) Chem. Engg.	<u>15</u>	13	-	3
	ii) Civil Engg.	15	-	-	-
	iii) Elect. Engg.	15	2	-	2
	iv) Electro. Engg.	15	1	-	1
	v) Mechl. Engg.	15	-	-	-
		<u>75</u>	<u>6</u>	-	<u>6</u>

(b)	<u>M.Sc. (Tech.)</u>				
	i) Computer Sc.	10	7	-	7
	ii) Electronics	15	2	-	2
	iii) Instrumentation	10	2	-	2
	iv) Museum Studies	10	3	1	4
		<u>45</u>	<u>14</u>	<u>1</u>	<u>15</u>

(c)	<u>M. PharmJ</u>	<u>10</u>	<u>2</u>	-	<u>2</u>
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	2	3	4	5
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I Yr. (a) M.E.

i) Chem. Engg.	14	-	14
ii) Civil Engg.	1	-	1
iii) Elect. Engg.	12	1	13
iv) Electro. Engg.	14	-	14
v) Mechl. Engg.	10	-	10
	<u>51</u>	<u>1</u>	<u>52</u>

(b) M.Sc. (Tech.)

i) Computer Sc.	8	2	10
ii) Electronics	17	-	17
iii) Instrumentation	10	-	10
iv) Museum Studies	5	2	7
	<u>40</u>	<u>4</u>	<u>44</u>

(c) M. Pharm.

	<u>10</u>	-	<u>10</u>
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(C) Doctoral Programmes (Ph.D.)

Engg-	29	1	30
Humanities	14	6	20
Science	34	4	<u>38</u>
	<u>77</u>	<u>11</u>	<u>88</u>

110

I	2	3	4	5	6
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ABSTRACT

(A) i)	5-Yr./4-Yr. Integrated Programmes I Yr.	<u>390</u>	<u>11</u>	<u>401</u>
ii)	II Yr. to V Yr.	<u>1399</u>	<u>38</u>	<u>1437</u>
(B)	2-Yr. Masters Programmes	<u>123</u>	<u>6</u>	<u>129</u>
(C)	Doctoral Programmes.	<u>77</u>	<u>11</u>	<u>88</u>
		<u>1989</u>	<u>66</u>	<u>2055</u>

* K Intake capacity in I Yr. of the 5-Yr. /4-Yr. Integrated Programmes is roughly distributed as : 50% for B.E. (Hons), 7% for B. Pharm. (Hons.), 10% for M.A. (Hons.), 7% for M.M.S. and 25% for M.Sc. (Hons.)

Appendix- III

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE: PILANI

(111)

TEACHING STAFF IN POSITION

As on 1.11.1975

<u>Department</u>	<u>Prof.</u>	<u>Assoc. Prof. (Readers)</u>	<u>Lect./Asstt. Lect.</u>	<u>Total</u>
<u>Engineering</u>				
Chemical	2	4	7	13
Civil	1	2	7	10
Electrical & Electronics	5	5	18	28
Mechanical	2	7	9	18
Information Processing Centre	1	-	7	8
Instrumentation Centre	-	-	4	4
Museum Studies	-	-	4	4
<u>Science</u>				
Bio-Sciences	4	5	5	14
Chemistry	3	5	11	19
Mathematics	-	12	11	23
Pharmacy	1	3	5	9
Physics	5	6	13	24
<u>Humanities</u>				
Language	4	3	16	23
Management	1	2	5	8
Social Studies	2	1	12	15
Museum & Fine Arts.	1	-	1	2
Total Staff in position	32	55	135	222
Sanctioned position:	39	74	154	267
Vacant positions:	7	19	19	45

(117)

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANIState-wise Admissions- 5 Year Integrated Programme

	1972		1973		1974	
	I Sem.	II Sem.	I Sem.	II Sem.	I Sem.	II Sem.
Andhra Pradesh	5	2	20	5	14	2
Assam	10	-	-	1	-	-
Bihar	16	4	14	1	19	4
Gujarat	10	-	28	2	17	-
Himachal Pradesh	4	-	-	-	2	1
Haryana	9	-	3	-	6	-
Jammu & Kashmir	3	-	6	3	-	6
Karnatak	6	-	-	2	7	-
Kerala	2	2	7	2	6	-
Madhya Pradesh	34	2	25	4	38	1
Maharashtra	35	3	47	3	28	-
Meghalaya	-	-	11	-	7	2
Orissa	4	1	2	3	6	-
Punjab	8	3	10	2	10	-
Rajasthan	98	5	96	5	99	11
Tamil Nadu	23	4	54	6	71	8
Uttar Pradesh	28	6	31	13	30	1
Union Territory	83	-	93	2	82	1
West Bengal	22	17	32	4	43	5
Overseas	2	1	5	-	2	-
Total:	402	50	484	58	487	42

SPILL-OVER STATEMENT
BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE

S. No.	Name of the Scheme	Approved Cost.	UGC share	Grant paid upto 31.3.74	Spill-Over to the V Plan.	Remarks
1	Const. of Cold Room etc.	2,00,000/-	1,33,333/-	20,000/-	1,13,333/-	-
2	Publication of Research work including doctoral thesis	10,000/-	10,000/-	2,500/-	7,500/-	
3	Award of Fellowships to M.Sc. (Tech.) students.	250/-* p.m.	-	32,525/-	6,50,000/-	* Raised to Rs. 400/- w.c.f. academic session 1975-76.
					<u>7,70,833/-</u>	

BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI

(11)

Allocation for Equipment.

Department	PRIORITY			Total
	I	II	III	
	(Rs. in lakhs)			
Biological Sciences	5.00	2.50	2.50	10.00
Physics	1.00	0.25	0.25	1.50
Chemistry	1.00	0.25	0.25	1.50
Department of Languages (Language Lab. Equip.)	0.20	-	-	0.20
Social Studies (Psychology)	0.30	-	-	0.30
Instrumentation	3.00	1.25	1.25	5.50
Information Processing Centre	3.50	1.50	1.50	6.50
	0.20	-	-	0.20
	(Furniture)			
	14.20	5.75	5.75	25.70

2. Allocation for Buildings.

Biological Sciences	3.00	1.50	1.50	6.00
Instrumentations	0.50	-	-	0.50
Centre for Museum Studies	1.00	0.50	0.50	2.00
Students Hostel	3.00	1.00	1.00	5.00
Teachers Hostel	3.00	1.00	1.00	5.00
Staff Quarters	2.00	1.24	1.00	4.24
	12.50	5.24	5.00	22.74

3. Allocation for Staff

Biological Studies	1P	1R	1R
Instrumentation	1P 1R	1Engg. 2 Tech.	2 Technicians
Information	1P 1L Stationery (20,000)	1R 2 Technical (Rs. 20,000)	1R Stationery (Rs. 20,000) Staff Stationery (Rs. 20,000)
Practice School	1R Library Technical Staff-1	1R L.T.S.-1	1R
Centre for Museum Studies	1P 1L	1R	1R
Educational inno- vation and development	Res. Asstt.1 T.S.-1	DO-1	1 Tech. Staff.

115

4 Allocation for Books:

All Departments	7.00	3.00	3.00	13.00
Scholarships	1.15	-	-	1.15
Centre for Museum Studies 8 (Eight) @ Rs. 400/- p.m.	.			
Master's Programme in Science and Society, Science Policy, Planning and Management of Science & Technology				
Two Research Fellow @ Rs. 600/- p.m.	0.50	-		0.50
Scholarships (Ten) @ Rs. 400/- p.m.	1.44	Already accepted		1.44
	3.09	-	-	3.09

116

Spill-over
Basic Grant

Rs. 7.71 lakhs
Rs. 5.00 Equipment
Rs. 3.00 Books

Schemes Already approved.

Master's Programme
in Science and
Society

Equipment = 1.45 lakhs

Science Policy,
Planning & Management
of Science & Technology

Professor 1 = 69,000/-
Readers 2 = 1,14,000/-
Research = 50,000/-
Fellows-2
@ Rs. 400/- p.m.

Scholarship = 1,44,000/-
10,
@ Rs. 400/- p.m.

New Schemes

Biological Sciences

Equipment = Rs. 10.00 lakhs
Prof. 1 = Rs. 69,000
Readers 2 = Rs. 1.14 lakhs
Building = Rs. 6.00 lakhs

Physics

Equipment = Rs. 1.50 lakhs

Chemistry

Equipment = Rs. 1.50 lakhs

Department of Language

Language Lab
Equipment Rs. 20,000/-

Social Studies

Psychology = Rs. 30,000/-
Lab. Equip.

Instrumentation

Equipment = Rs. 5.50 lakhs
Building = Rs. 50,000/-
Prof. 1 = Rs. 69,000/-
Reader-1 = Rs. 57,000/-
Eng. 1 = Rs. 57,000/-
Tech. 4 = Rs. 1.00 lakhs

Information Processing
Centre

Prof. 1 = Rs. 69,000/-
Reader 2 = Rs. 1.14 lakhs
Technical = Rs. 52,000/-
Staff-2
Stationery = Rs. 60,000/-
& Consumable = Rs.
Lecturer 1 = Rs. 30,000/-

(117)

All	Equipment =	Rs. 6.50 lakhs	
	Furniture =	Rs. 0.20 lakhs	
Practice School	Reader 3 (Coordinators) =	Rs. 1.71 lakhs	
	Library =	Rs. 60,000/-	
	Tech. Staff		
Centre for Museum Studies	Professor 1 +	Rs. 69,000/-	
	Readers 2 =	Rs. 1,14,000/-	
	Lecturer 1 =	Rs. 30,000/-	
	Fellowships =	Rs. 1,15,000/-	
	8 (Eight)		
	@ Rs. 400/- p.m.		
	Building =	Rs. 2.00 lakhs	
Student Hostel-cum-Dining Block and Warden's Quarters	=	Rs. 5.00 lakhs	
Teachers Hostel	=	Rs. 5.00 lakhs	
Staff Quarters	=	Rs. 4.24 lakhs	
Educational Studies Innovation and Development	=	Research Associate-1	
		Documentation Officer-1	Rs. 0.95 lakhs
		Tech. Staff-2	

118

SUMMARY

Item	PRIORITY			Total
	I	II	III	
(Rs. in lakhs)				
i) Spill-over	7.71	-	-	7.71
ii) Basic grants				
a) Equipment	5.00	-	-	5.00
b) Books	3.00	-	-	3.00
iii) Schemes already accepted.	3.28	-	-	3.28
<u>New Allocations:</u>				
Equipment	14.20	5.75	5.75	25.70
Building	12.50	5.24	5.00	22.74
Staff	5.41	4.70	3.17	13.28
Books	7.00	3.00	3.00	13.00
Scholarship	3.09	-	-	3.09
Junior Fellowships	3.00	-	-	3.00
Visiting Professorship	0.50	-	-	0.50
	64.69	18.69	16.92	100.30

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI.

119

STATEMENT SHOWING PROVISION OF BUDGET INCOME AND EXPENDITURE FOR THE YEAR
1975-76 and 1976-77S. particulars

<u>No.</u>	<u>Expenditure</u>	<u>As per budget 1975-76</u>	<u>As per budget 1976-77</u>
1.	Establishment	<u>63,37,358</u>	<u>64,33,203</u>
2.	<u>Educational & Research Exp.</u>		
(a)	Workshop & Laboratories	11,34,405	11,92,300
(b)	Research Expenses	2,12,000	2,28,000
(c)	Games	42,518	43,829
(d)	Examination Expenses	85,000	95,000
(e)	Library Books & Journals	5,08,000	5,28,000
(f)	Other expenses	7,80,000	8,19,000
(g)	Scholarships & Fellowships	7,44,000	7,44,000
		<u>35,05,923</u>	<u>36,50,120</u>
3.	Hostel Expenses	<u>83,606</u>	<u>1,03,528</u>
4.	Miscellaneous Expenses	4,30,000	4,30,000
		<u>1,03,56,887</u>	<u>1,06,16,851</u>
	<u>Income</u>		
1.	Fees	10,14,652	10,35,100
2.	Interest	20,30,000	19,20,000
3.	Quarter Rent	85,000	85,000
4.	Hostel Income	1,94,662	1,95,104
5.	Dividends	5,73,629	6,38,232
6.	Miscellaneous	3,92,044	3,90,384
		<u>42,89,987</u>	<u>42,63,820</u>
	Net Deficit	60,66,900	63,53,031
	Non-Recurring Expenses	4,00,000	3,75,000

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

120

Meeting:

Dated : 31st January, 1977.

Item No. 15 : To consider the proposal of the Banaras Hindu University for additional assistance during the fifth plan period.

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The University Grants Commission at its meeting held on 19th July, 1976 (Item No. 6) considered the report of the fifth plan Visiting Committee which assessed the development proposals of the Banaras Hindu University and approved an allocation of about Rs. 187.50 lakhs which is about 75% of the ceiling of Rs. 250 lakhs fixed for Banaras Hindu University. The Vice Chancellor, Banaras Hindu University, has now requested that as half of the fifth plan period is already over, the Commission may agree to release 100% of the grant as by the time the remaining amount is released, there will not be sufficient time left at the disposal of the university for the implementation of the various schemes in full. He has further requested that a post of Director for Bharat Kala Bhavan, one post of professor each in History and political science Departments and the grant of Rs. 10 lakhs for purchase of the ESR Spectrometer be also approved. Recommendation of the Visiting Committee, the Commission's decision and the request being now made by the university on the above points are indicated below:-

A. Director, Bharat Kala Bhavan.

(i) Recommendations made by the Visiting Committee:

Bharat Kala Bhavan should be separated from the general administration of the university and be linked with the proposed department of history of art. There should be active coordination between the Bharat Kala Bhavan and the department of history of art and Bharat Kala Bhavan should be developed as a museum-cum-teaching centre.

(ii) Commission's decision:

The Professor of Indian Art, History in the department of art and architecture may function as ex-officio Director of the Bharat Kala Bhavan and he may be assisted by Deputy Director and Deputy Keeper.

(iii) Request now being made by the University.

Department of art and architecture will be a unit in the school of historical studies. It will not be administratively sound that head of department should function incharge of sister department. Bharat

p. t. o.

121

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Kala Bhavan is a Central facility to be utilised not only by the department of art and architecture but the school of historical studies as a whole and the faculty of fine arts. A whole time Director is therefore needed who should be responsible not only for the management of Bharat Kala Bhavan but also for the utilisation of its resources for educational purposes.

B. Post of Professor in History

i) Recommendation made by the Visiting Committee:

The visiting Committee recommended one post of Professor under first priority and two readers under second priority in the department of history. The department has at present got posts of two professors, 4 Readers and eight lecturers of which one post of professor and three posts of lecturers are vacant. The department has western history contemporary world history and historical writings, modern western political thought, Indian history covering ancient medieval and modern periods and constitutional development in India as broad fields of specialisation.

ii) Commission's decision:

The Commission could not agree to the post of professor recommended under first priority. Instead the Commission has provided one post of reader for teaching non-Indian history in the department.

iii) Request now being made by the University.

The university wants to strengthen the department so that all the specialisations are headed by senior persons. The post of Professor recommended under first priority may, therefore, be restored.

C. Post of Professor in Political Sciences.

i) Recommendations made by the Visiting Committee.

The Committee recommended post of one professor with specialisation in ancient Indian Political thought under second priority and post of one reader under first priority in the department of political science. The department has one Professor, five readers and eight lecturers of which posts of three lecturers are vacant.

ii) Commission's decision.

The post of professor for teaching Indian political thought recommended under second priority was not accepted. The Commission felt that such courses should be provided in collaboration with the department of ancient Indian History, culture & archaeology.

122

iii) Request now being made by the university

Department needs senior positions to raise its status without which improvement, inter-action at higher level and planned development of discipline is not possible. The university, therefore, strongly urges for sanction of post of one professor in the department.

D. Purchase of E.S. R. Spectrometer.

i) Recommendations made by the Visiting Committee:

The Visiting Committee recommended a grant of Rs. 10 lakhs for purchase of an E.S.R. Spectrometer as central facility to be located in the chemistry department.

ii) Commission's decision:

The allocation of Rs. 10 lakhs recommended by the Committee under first priority for purchase of E.S.R. Spectrometer as a central facility may be shifted to second priority to be considered in due course.

iii) Request now being made by the university:

The recommendation of the visiting committee for allocation of Rs. 10 lakhs for E.S.R. Spectrometer under first priority should remain intact, as this is sophisticated equipment urgently required for research purposes.

E. Allocation of 100% grants.

i) Recommendations made by the Visiting Committee:

The Visiting Committee recommended a total assistance of Rs. 250.72 lakhs - Rs. 175.16 lakhs under first priority and Rs. 75.56 lakhs under second priority for development programmes during the fifth plan period.

ii) Commission's decision

The Commission has approved a total allocation of about Rs. 187.50 lakhs - Rs. 137.50 lakhs for ~~Non-~~Items including spill-over basic grants and schemes already approved and about Rs. 50 lakhs for additional staff excluding 40 junior research fellowships to the Banaras Hindu University.

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123

iii) Request now being made by the university:

As half of the fifth plan is already over, the Commission may release 100% of the grant rather than 2/3rd of the same so that the university is in a position to fully implement the various schemes.

A copy of the letter received from the Vice-Chancellor, Banaras Hindu University, is attached Annexure-1.

The matter is placed before the Commission for consideration.

DS/(D-II)

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124-126

124

Annexure . . . to Item No. 15

A copy of letter No. VC-13-3/401 dated 10th/11th October, 1976 addressed to Professor Satish Chandra, Chairman U.G.C. from Dr K.L. Shrivastava, Secretary, Government of India, Ministry of Education.

Dear Professor Satish Chandra,

I am in receipt of Commission's letter No. F.3-4/75 (A-2(a)) dated the 8th September, 1976 conveying thereby sanction of grants for implementation of various development schemes under the Department of Art and Social Sciences during Fifth Five Year Plan. I am glad to have your observations to make, namely:-

1) Para 2.1.12

During the Fourth Five Year Plan, a post of Director, Bharat Kala Bhavan was sanctioned by the University Grants Commission. The university approached the Ministry of Education for deputing an expert for this post. By the time this could materialise the IV Plan ended and with it the post of Director lapsed. The University was advised by the Commission to place the question of revival of the post before the V Plan Visiting Committee. What we find now is that instead of reviving the post, the Commission has sanctioned a Deputy Director and a Deputy Keeper with the stipulation that the Head of the Department of Art and Architecture should look after the work of Bharat Kala Bhavan.

The university will be setting up a School of Historical Studies under which the Department of Art and Architecture will constitute a unit. It will, therefore not be administratively sound that the Head of a Department should function in-charge of a sister department i.e. Bharat Kala Bhavan. The Bharat Kala Bhavan is a central facility to be utilised not only by the Department of Art and Architecture but the School of Historical Studies as a whole and the Fine Arts Faculty.

I might further add that recently two of our Executive Councillors - Justice G.D. Khosla and Professor G.P. Talwar have been giving considerable time and thought for the reorganisation of the Museum and they are strongly of the opinion that this Museum which is a great national treasure will be wasted unless there is a whole-time Director.

The University, therefore, strongly urges upon the Commission that the post of Director, Bharat Kala Bhavan be restored and the Director should be responsible not only for the management of the Bharat Kala Bhavan but also for the utilisation of its resources for educational purposes. The Commission is therefore requested to reconsider this matter.

12-5

2) Para 2.1.13

The post of Professor in History has been recommended by the Visiting Committee but has not been approved by the Commission. The University wants to strengthen the Department of History so that all the specialisation in History are headed by senior persons. It is in this context that the university earnestly desires that the post of Professor is restored as recommended by the UGC Visiting Committee.

3) Para 2.1.14

Regarding the Department of Political Science, as you are aware, this is one of the oldest departments and at one stage was headed by Dr. Gurmukh Nihal Singh, Ex-Governor of Rajasthan. The Department needs senior positions to raise its status, without which improvement, interaction at higher level and planned development of the discipline is not possible. In this case also the university strongly urges upon the Commission to sanction the post of Professor in the Department as recommended by the Visiting Committee.

I should further like to stress that during the last few years humanities and social sciences have been neglected and with you as the Chairman I hope that the present imbalance in our university will be removed by accepting our request to accept the recommendations of the Visiting Committee with regard to the two posts of Professors in the Departments of History and Political Science.

4) Para 2.1.17

The recommendation of the Visiting Committee for allocation of Rs. 10.00 lacs for purchase of ESR Spectrometer under first priority should remain intact as this is a sophisticated equipment urgently required for research purposes. This is a central facility under Central Instrumentation Centre.

The University will be taking, in due course necessary action in implementing the various suggestions and recommendations made by the Committee/Commission. In the meantime, the various Departments are being advised to go ahead with the utilisation of the grants as sanctioned by the Commission and the difficulties, if any, will be communicated to you.

p. t. o.

Now that two and a half years of the Plan have already passed, I hope that Commission may agree to the release of 100 per cent of the grants rather than two third of same as, by the time the remaining amount is released, there will not be sufficient time left at the disposal of the university for the implementation of the various schemes in full resulting in heavy spill over to the next plan.

With kind regards.

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CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

127

Meeting :

Dated : January 21, 1976

Item No. 16: To consider the report of the Committee appointed by the University Grants Commission on the proposal of the Jawaharlal Nehru University for additional funds for equipment during 5th plan period.

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1. The University Grants Commission at its meeting held on 29th April, 1976 (item No.21) while considering the proposal from the Jawaharlal Nehru University for additional funds during the 5th plan period 'inter-alia' decided that the proposals relating to purchase of equipment for the School of Theoretical & Environmental Sciences, School of Life Sciences, central workshop and instrumentation, laboratory facilities, may be got examined by a Committee in the first instance. Accordingly, a Committee consisting of the following was constituted for the purpose:

- (1) Shri K.T. Chandy
Chairman
Kerala State Industrial Development
Corporation Limited
Trivandrum
- (2) Prof. R.P. Bambah
Department of Mathematics
Panjab University
Chandigarh
- (3) Prof. S. Krishnaswamy
Department of Biological Sciences
Madurai University
Madurai
- (4) Prof. A. Seshagiri Rao
Department of Botany
Andhra University
Waltair
- (5) Prof. K.D. Chaudhury
Department of Physics
Delhi University
Delhi

2. The Committee has since submitted its report. A copy of which p 131-140 is attached. (Annexure).*

3. The Committee, keeping in view of the facts that the school of Life Sciences, which made a beginning at the end of the IV plan and the School of Environmental Sciences which has made a beginning in the

contd.....22.

128

-: 2 :-

V plan and that both the Schools are in the initial stages of establishment has recommended that the Commission may, as a special case, consider providing additional funds to the Jawaharlal Nehru University over and above the funds already sanctioned for the purchase of equipment for the Schools and the Central workshop as under :

(a) School of Life Sciences :

A grant of Rs.10 lakhs may be made in addition to Rs.7.50 lakhs already sanctioned. The Visiting Committee had recommended Rs.5 lakhs under second priority and Rs.5 lakhs under third priority.

(b) School of Theoretical & Environmental Sciences :

A grant of Rs.10 lakhs may be made in addition to a sum of Rs.10 lakhs already sanctioned by the Commission. The Committee which had assessed the 5th plan needs of the university had recommended Rs.5 lakhs in the second priority and Rs.5 lakhs in third priority.

(c) Central Workshop :

The Commission had sanctioned Rs.10 lakhs for the central facilities in the Jawaharlal Nehru University of which Rs.6.50 lakhs will be utilised by the university for the animal house including the air-conditioning. The university will therefore be left with about Rs.3.50 lakhs for other central facilities. The university has already incurred about Rs.3 lakhs for the workshop equipment. The Committee recommends a further grant of Rs.3.50 lakhs for the central workshop. This will enable the university to provide for a mechanical workshop, electric workshop, glass blowing facility, refrigeration equipment servicing machinery and instrument repairing facilities. The university may utilise this amount as under :

Electronic workshop	Rs. 2.00 lakhs
Glass blowing	Rs. 0.20 "
Gas plant with piping and burners	Rs. 1.00 "
Refrigeration equipment Servicing machinery	Rs. 0.10 "
Instrumentation repairing facility	Rs. 0.10 "
	<hr/>
	Rs. 3.40 "
	<hr/>

(d) Central Instrumentation facilities :

The Committee has further recommended a grant of Rs.5.50 lakhs to be used in developing a central instrumentation facilities. The common equipment could include items such as spectrophotometers, gas analysers etc. This is in addition to the provision made for the purchase of equipment for the other Schools.

contd.....3..

4. The financial implications of the recommendations are as under :

	(Rupees in Lakhs)
Life Sciences	10.00
Theoretical & Environmental Sciences	10.00
Common instrumentation facilities	5.50
Workshop	3.50
	<u>29.00</u>

5. The observation made by the Committee on the proposals are given on pages 6-10 of the report.

6. In this connection it may be mentioned that the Commission in its meeting held on 18th October, 1976 while considering the proposal of Jawaharlal Nehru University for establishing the School of Physical Sciences in the university resolved as under :

"The Commission considered the proposal of the Jawaharlal Nehru University for establishing the School of Physical Sciences in the university. The Chairman mentioned that he had since received another letter from the Vice-Chancellor with regard to other requirements of the university during the current plan period. The Commission felt that, to have an integrated view of the additional requirements of the university, a Committee may be appointed to consider the proposals received from the university and, if necessary, to review also the existing proposals accepted within the allocation indicated to the university. The Committee may also while making recommendations keep in view the academic programmes of the Delhi University so as to bring an effective coordination between the two universities."

The Committee has since been constituted and will be meeting shortly.

7. The Commission in its meeting held on 20th December, 1976 while receiving a note on the present stage of implementation of the 5th plan programmes approved by it in respect of universities inter-alia agreed that universities may be informed that it should be possible for the Commission to provide additional assistance for books, journals and equipment as recommended by visiting committees under 2nd & 3rd priorities provided funds already sanctioned for the purpose have been utilised or firmly committed for these purposes. In this regard, it may be mentioned

130

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that the visiting committee to the university in its report had made the following recommendations for the purchase of equipment in the Schools of Life Sciences and Theoretical & Environmental Sciences under three priorities :

<u>School</u>	<u>P r i o r i t y</u>		
	(Rupees in lakhs)		
	<u>1st</u>	<u>2nd</u>	<u>3rd</u>
(i) Life Sciences	7.50	5.00	5.00
(ii) Theoretical & Environmental Sciences	10.00	5.00	5.00

According to the progress of expenditure submitted by the Jawaharlal Nehru University, the grants made under first priorities in both the Schools have been fully utilised/committed

The matter is placed before the Commission for consideration.

A.S.(D-5a)/D.S.(D-5)

Report of the Committee appointed by the UGC to consider proposals from Jawaharlal Nehru University for additional funds for equipment during the 5th five-year plan period.

:-

The Jawaharlal Nehru University submitted proposals to the UGC for additional funds for equipment for its Schools in Life Sciences and Theoretical & Environmental Sciences over and above the funds already sanctioned during the 5th five-year plan period, on the basis of the recommendations of the Visiting Committee. The matter was considered by the Commission and it desired that the proposals may be got examined by an Expert Committee. Accordingly, a Committee consisting of the following was constituted for the purpose :

1. Shri K.T. Chandy
Chairman
Kerala State Industrial Development
Corporation Ltd.
Trivandrum
2. Prof. R.P. Bambah
Department of Mathematics
Panjab University
Chandigarh
3. Prof. S Krishnaswamy
Department of Biological Sciences
Madurai University
Madurai
4. Prof. A. Seshagiri Rao
Department of Botany
Andhra University
Waltair
5. Prof. K.D. Chaudhury
Department of Physics
Delhi University
Delhi

2. The Committee met in the office of the UGC on 31st July and 12th October 1976. The Deans, Schools of Life Sciences and Theoretical & Environmental Sciences and the Registrar, Jawaharlal Nehru University were invited to meet the Committee. Dr. M.L. Mehta and Shri V.M. Seth of the UGC also attended the meetings.

3. The Jawaharlal Nehru University made proposals to the UGC involving a sum of about Rs.61.00 lakhs for the purchase of equipment for its Schools of Life Sciences, Theoretical & Environmental Sciences and the Central Workshop and Instrumentation Laboratory facilities. These proposals were later further revised by the University after first meeting of the Committee and the revised proposals involving a financial out

132

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lay of Rs.89.85 lakhs were considered by the Committee. The financial implications of the revised proposals school-wise and priority-wise are given below :

<u>S.No.</u>	<u>School</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>Total</u>
		(Rs. in lakhs)			
(1)	School of Environmental Sciences	26.19 (19.03)*	11.65 (5.40)*	-	
(2)	School of Life Sciences	19.42	6.24	4.84	
(3)	Common facilities	11.00	-	-	
(4)	Central workshop and instrumentation, laboratory facilities	10.31	-	-	

(*These figures indicate the foreign exchange component)
The lists of the equipment are attached as Annexures (1,2,3).

4. The following justification were given by the university in support of their proposals :

(a) School of Life Sciences

(1) The teaching and research programmes of the School of Life Sciences are based on the concept of integrated inter-disciplinary ~~approach~~ resolving biological problems. The absence of arbitrary conventional boundaries and divisions between different fields creates a milieu for better understanding of the concepts applicable to all living forms. The techniques of Physics, Chemistry and Mathematics will be utilised in the study of modern biology.

(2) The M. Phil programme was started in the School of Life Sciences in the year 1972 and the School embarked on the M.Sc. programmes from 1975. The inter-disciplinary M.Sc. programmes initiated in the School of Life Sciences require instructional/laboratory inputs in biophysics, biochemistry, molecular biology, microbiology, cell biology, radiation biology, physiology, genetic evolution and tissue culture. It is, therefore, imperative that the laboratories in the above fields are equipped as expeditiously as possible so that the instructional/research programmes do not suffer further.

(3) There are at present 43 students engaged in active research besides the first batch of 13 students admitted for M.Sc. course during the academic session 1975-76. The School plans to enrol 10 to 15 students for M.Phil/Ph.D. and 15 to 20 students for the M.Sc. course for the academic session 1976-77.

contd.....3..

(4) The faculty strength of the School has almost doubled during the last one year raising it to 20. With the addition of new faculty members more areas of research have been included. In order to meet the requirement of equipments for the new faculty members more funds will be needed. More instruments will have to be added to meet the needs of the research scholars. Some of the instruments purchased earlier have either been out of date due to introduction of new techniques and some of them needs replacement since they are worn out due to their wear and tear.

(5) The School requested the UGC from time to time from 1972-73 onwards for allotment of foreign exchange for purchase of delicate and sophisticated instruments. Applications of the School for import of various equipments to the tune of Rs.10.70 lakhs were considered very late and necessary foreign exchange could not be allotted during the fourth plan period. In view of this the purchases could not be affected during the 4th plan period. Since necessary import licences in most of the cases have already been received these purchases will have to be affected during the current fifth plan period.

(6) The allocation of Rs.7.50 lakhs sanctioned by the UGC on the recommendations of the Visiting Committee for the School for the entire 5th plan period has already been exhausted and the School is finding it extremely difficult to provide even functional laboratory facilities in some of the above mentioned fields of study.

(7) The School is in the process of establishment and not development. What the university needs is an establishment grant and not a development grant.

(b) School of Environmental Sciences

(1) The School of Theoretical & Environmental Sciences came into existence in the end of 1974 and started functioning in July 1975. The activities of the School are inter-disciplinary in nature. The School endeavours to integrate the physical sciences together with earth and bio-sciences, to understand the problems of environment for proper management of the natural resources for the health and welfare of human beings.

(2) The teaching and research programmes of the School started in the year 1975 with the intake of about 14 students for M.Phil. course. The major objectives of the M.Phil/Ph.D. programmes of the School are :

- (a) To provide opportunity and train students to acquire basic knowledge of modern

(134)

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physical, earth and bio-sciences with special orientation to Indian environment.

- (b) To train students to take up research projects independently keeping in view the requirement of the country.
- (c) To enable the students to develop a capacity for constructive criticism, originality and independent judgement.
- (d) To develop a spirit of team work which is an essential requirement for scientists and to provide an opportunity to get the training in various fields related to environmental problems.

(3) From this year the School is offering courses leading to M.Sc. degree in environmental sciences with specialization in three different aspects of the environment. The School is pioneer in introducing this new challenging programme in the environmental sciences as per needs of the country. Although the course is new the response for admission to this course has been highly encouraging. However, due to want of laboratory facilities, admission has been restricted to about 15 students in the course this year.

(4) The study and research programmes in the School encompass a large number of related scientific disciplines, prominent among these are physics, earth sciences, chemistry, botany, ecology, physiology, biophysics, meteorology, bio-chemistry along with environmental management and planning. All the courses designed by the School give special emphasis on :

- i) Effect of physical and biological environment on man, animals, plants and micro-organisms.
- ii) Atmospheric physics and related aspects of meteorology, modelling and systems analysis.
- iii) Geology of marine sediments, geochemistry and marine acology.
- iv) Environmental planning and management.
- v) Conservation and utilisation of natural resources without degrading the environment.

The School has very broad based activities both in teaching and research. In order to integrate these related branches of knowledge into the newly emerging discipline of environmental sciences, it is essential to provide appreciable teaching and research facilities in appropriate areas in the School.

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(5) The School has already made a headway in undertaking inter-disciplinary research projects in the field of Environment. Two research projects namely Ecological studies of Loktak Lake and Limnological studies of Chilka Lake sanctioned by the Department of Science and Technology, Government of India are being carried out in the School.

(6) The items of equipment required for research pertain to the special studies proposed to be undertaken in the applications of physics, chemistry, geology, ecology, biology and physiology to the problems related to the environment. It includes special equipment required for simulation of different environmental conditions as well as the equipment required in connection with field studies.

(c) Central Workshop

In the report of the Visiting Committee a sum of Rs.10 lakhs was earmarked for various items required for the central workshop facilities as also for an animal house. On reviewing the detailed requirements it is observed that a sum of Rs.10 lakhs would be required for the central workshop and instrumentation facilities only.

Observations of the Committee

(5) The Committee makes the following observations :

(1) The Committee understands that the Commission had allocated a sum of Rs.6 crores for the 5th plan development proposals of the university and that the proposals already accepted by the Commission if fully implemented by the university will exceed this allocation.

(2) The Jawaharlal Nehru University had included a sum of Rs.20 lakhs for equipment for the School of Life Sciences, Rs.20 lakhs for the School of Theoretical & Environmental Sciences and Rs.5 lakhs for the central instrumentation facilities including workshop in its 5th plan proposals made to the Commission. The Commission on the recommendation of the Visiting Committee approved an expenditure of Rs.17.50 lakhs for the School of Life Sciences, Rs.20 lakhs for the School of Theoretical & Environmental Sciences in 3 priorities as indicated below and Rs.10 lakhs for the Central workshop facilities under first priority.

School	5th plan proposal	Recommendations of Visiting Committee				Amount already sanctioned
		(Rs. in lakhs)				
		I	II	III	Total	
1. School of Life Sciences	20	7.50	5.00	5.00	17.50	7.50
2. School of Theoretical & Environmental	20	10.00	5.00	5.00	20.00	10.00
3. Central Instrumentation facilities	5	10.00	-	-	10.00	10.00

136

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(3) The provision of Rs.10 lakhs for central instrumentation facilities and workshop includes the central photographic laboratory, animal house, tissue culture centre and the central instrumentation facilities and workshop.

(4) The Jawaharlal Nehru University has already incurred/committed the following expenditure till August 1976 as intimated by the University to the Commission :

School	Grants already approved by the Commission	Equipment already purchased	Equipment on order	Total
(Rupees in lakhs)				
Life Sciences	7.50	13.18	15.83	29.01
Theoretical & Environmental Sciences	10.00	8.11	7.67	15.78

(5) Against the allocation of Rs.10 lakhs for central facilities as stated earlier the Commission has already accepted the plans and estimates of the animal house at an estimated cost of Rs.3.05 lakhs. The total cost of the animal house including air-conditioning is expected to be about Rs.6.5 lakhs. The university has already incurred about Rs.3 lakhs for the purchase of equipment for the central workshop facilities upto 31-7-1976. The commitment of the university for the animal house and the workshop equipment already purchased is about Rs.9.50 lakhs.

(6) The Committee took note of the following observations made by the Visiting Committee which had assessed the 5th plan development proposals of the university in its report.

(a) School of Life Sciences

"The basic concept on which the School is being developed is the unity of biology. Care has also been taken to provide the inputs of physics and chemistry though not of mathematics as yet. The research activities in the School are in the following broad areas of biology : (a) Development Biology, (b) Photobiology, (c) Ethiology- including neurophysiology, (d) Radiation Biology and (e) subcellular and molecular biology. A competent faculty has been assembled to deal with the above areas. However, the research activities are hampered due to lack of basic equipment."

(b) School of Theoretical Sciences

"It was stated by the Vice-Chancellor that this School will be one of the major tasks of the university during the 5th five-year plan period and the school will work in close collaboration with the environmental committee of the Govt. of India and the agency set up for this purpose by the Department of Science and Technology. The methodology of the study of the environment is not yet fully developed and the studies would require the inputs of biologists, physical and social scientists in particular anthropologists and mathematicians. The School will interact with the School of Life Sciences and the School of Social Sciences of the university."

"The proposals for School of Environmental Sciences are basically sound. It is essential to study the lithosphere, hydrosphere and atmosphere and their interactions within themselves and their input on men. The theoretical studies on environment and the experimentation studies, as outlined in the proposals need to be emphasised from the point of view of natural and man made hazards, pollution problems, vis-a-vis technological advances. The courses will broadly involve physicists, chemists, biologists, geologists, geophysicists, meteorologists, oceanographers and social scientists."

(c) Central Facilities

"The university has made a proposal for setting up a Central Instrumentation Unit including workshop. The Committee suggests that the university may be assisted for the setting up a Central Instrumentation Laboratory and a separate workshop under the first priority. While recommending this, the Committee has taken note of the fact that the university has already established the School of Life Sciences and its Schools of Theoretical and Environmental Sciences and School of Computer and Systems Sciences have already made a beginning. These central facilities will be helpful to the Schools of the university."

(7) The Committee was not aware of the quantum of additional funds that could be further given to the Jawaharlal Nehru University over and above the allocations already made by the UGC for the university for the purchase of equipment by its different Schools. Had there been an indication about this, it would have helped the Committee to assess the additional needs of the university and to make recommendations to the UGC.

138

(8) It has already been stated that the University had asked for Rs.20 lakhs for equipment for School of Life Sciences and another Rs.20 lakhs for equipment for the School of Theoretical and Environmental Sciences. The Committee which had assessed the 5th plan needs of the university had recommended a grant of Rs.17.50 lakhs for the School of Life Sciences and a sum of Rs.20 lakhs for the School of Theoretical and Environmental Sciences in the 1st, 2nd and 3rd priorities. This was done by the Committee keeping in view the allocation which the Commission had made for the 5th five-year plan development of the university.

(9) The UGC has already sanctioned the grants recommended by the Committee for the Schools for the purchase of equipment under first priority and that the grants have already been stated to be fully utilized by the University.

(10) Certain items of equipment have been asked by both the Schools and this duplication needs to be avoided. The University should endeavour to develop its central instrumentation facilities so as to make them available to all the related Schools, keeping in view the inter-disciplinary nature of the programmes of teaching and research pursued at every school. The University may have a planning group to achieve this.

(11) A large number of areas are being pursued for the purpose of research in both the Schools, all of which cannot be supported with elaborate equipment facilities at this stage on account of severe limitations of financial resources. It is essential to identify a few areas in each School in which there is to be a major thrust for the purposes of equipping the laboratories adequately with equipment and for achieving substantial results in a measurable period of time with the human and material resources available.

(12) The Jawaharlal Nehru University has introduced M.Sc. teaching in the School of Theoretical and Environment Sciences which is contrary to the recommendations made by the Visiting Committee and accepted by the Commission.

(13) The Deans agreed that the proposal to purchase an electron microscope as a common facility be postponed to the next plan.

(14) It would have been desirable if a perspective plan were prepared for developing the physical facilities of the university in line with its development of academic programmes so that releases for a given period of time could be made according to fund position against the perspective plan. The university has not presented such a plan.

Recommendations:

The Committee, keeping in view the facts that the School of Life Sciences just made a beginning in the end of the 4th plan and the School of Environmental Sciences made a beginning in the 5th plan and that both the Schools are in

the initial stages of establishment and also in view of the inter-disciplinary nature of the teaching and research programmes of the Schools recommends that the Commission may as a special case consider providing additional funds to Jawaharlal Nehru University over and above the funds already sanctioned for the purchase of equipment for these Schools/Central Workshop as under :

(a) School of Life Sciences

A grant of Rs.10 lakhs may be made in addition to Rs.7.50 lakhs already sanctioned. The Visiting Committee had recommended Rs.5 lakhs under second priority and Rs.5 lakhs under third priority.

(b) School of Theoretical & Environment Sciences

A grant of Rs.10 lakhs may be made in addition to a sum of Rs.10 lakhs already sanctioned by the Commission. The Committee which had assessed the 5th plan needs of the university had recommended Rs.5 lakhs in the second priority and Rs.5 lakhs in third priority.

(c) Central Workshop

The Commission had sanctioned Rs.10 lakhs for the central facilities in the Jawaharlal Nehru University of which Rs.6.50 lakhs will be utilised by the university for the animal house including air-conditioning. The university will therefore be left with about Rs.3.50 lakhs for other central facilities. The university has already incurred about Rs.3.00 lakhs for the workshop equipment. The Committee recommends a further grant of Rs.3.50 lakhs for the central workshop. This will enable the university to provide for a mechanical workshop, electric workshop, glass blowing facility, ~~refrigeration~~ refrigeration equipment servicing machinery and instrument repairing facilities. The university could utilise this amount as under :

Electronic Workshop	Rs.2.00 lakhs
Glass blowing	Rs.0.20 lakhs
Gas plant with piping and burners	Rs.1.00 lakhs
Refrigeration equipment	Rs.0.10 lakhs
Servicing machinery	
Instrumentation repairing facility	Rs.0.10 lakhs

	Rs.3.40 lakhs

(140)

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(d) Central Instrumentation facilities

The Committee further recommends a grant of Rs.5.50 lakh to be used in developing a central instrumentation facilities. The common equipment could include items such as spectrophotometers, gas analysers, etc. This is in addition to the provision made for the purchase of equipment for the other Schools.

7. The financial implications of the recommendations are :

	(Rupees in lakh)
Life Sciences	10.00
Theoretical & Environmental Science	10.00
Common instrumentation facilities	5.50
Workshop	3.50
	<u>29.00</u>

8. The Committee puts on record its thanks to the Deans of the two Schools and the Registrar of the University for meeting the Committee.

(K.T. Chandy)

(R.P. Bambah)

(S. Krishnaswamy)

(A. Seshagiri Rao)

(K.D. Chaudhury)

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UNIVERSITY GRANTS COMMISSION

Confidential

Meeting :

Dated : 31.1.1977.

Item No: 17 : To consider the immediate requirements of Gujarat Vidyapith during the Vth Plan.

(141)

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The University Grants Commission at its meeting held on 7th January, 1976 considered the report of the Visiting Committee to the Gujarat Vidyapith and generally accepted the recommendations made by the Committee. It was also agreed that the Gujarat Vidyapith may be requested to immediately set up committees as recommended by the Visiting Committee and make their reports available to the Commission and pending the availability of their reports the Commission may accept the immediate requirements of Vidyapith within the framed work of the recommendations of the Visiting Committee for Post-graduate Education and Research and other facilities in the existing campus (Item 39).

The Gujarat Vidyapith has now informed that in pursuance of the recommendation of the Vth Plan Visiting Committee, the Vidyapith has appointed a committee to review the overall structure of Gujarat Vidyapith as well as to consider the implications of moving the undergraduate classes to Rural Campus. The Gujarat Vidyapith has also sent its immediate requirements for the consideration of the Commission.

The following statement will indicate the recommendation of the Vth Plan Visiting Committee as well as the immediate requirements of the Gujarat Vidyapith.

Scheme	Recommendations of the Visiting Committee.			Immediate requirements of the Gujarat Vidyapith.	
	<u>Priorities</u>				
	<u>I</u>	<u>II</u>	<u>III</u>		
1. <u>Staff.</u>					
a) Deptt. of Social Anthropology.	1P	-	1R	1P	
b) Indian Culture.	-	-	-	1R	
c) Rural Economics.	1P	1R	1F.A.	1P	1R
d) Social work.	1P	1R	1F.A.	1P,	1R
e) Appropriate Technology Cell.	2R, 1L	-	-	1R,	1L
f) Linguistics.	1L	-	-	-	1L
g) Dean of students.	1R	-	-	1R	-

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142

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h) Fellowships	50,000/-	25,000/-	25,000/-	50,000/-
i) Visiting Professorships.	25,000/-	25,000/-	-	25,000/-

2. Spill over of the Vth Plan.

a) Estab. of Peace Research Institute.	1,30,000/-	-	-	1,24,000/-
b) Improvement of sanitation.	1,85,000/-	-	-	35,000/-
c) Drinking water facilities.	1,60,000/-	-	-	30,000/-
d) Employment Bureau.	15,980/-	-	-	15,980/-

3. Vth Plan proposals

A. Building.

a) Women's Hostel	2,25,000/-	-	-	2,25,000/-
b) Field work Centre.	-	-	50,000/-	50,000/-
c) Agro Industrial workshop on Gandhi Nagar Farm.	2,50,000/-	-	-	2,50,000/-

B. Equipment.

a) Institute of Social Science (Museum)	-	-	30,000/-	30,000/-
b) Central Library Microfiliming.	1,00,000/-	-	-	1,00,000/-
c) Central facilities for Humanities & Social Sciences. Departments. (I & II Priorities)	2,00,000/-	-	-	2,00,000/-
d) Appropriate Technology.	1,00,000/-	-	-	1,00,000/-

C. <u>Library Books.</u>	6,00,000/-	2,00,000/-	2,00,000/-	6,00,000/-
Publication.	1,00,000/-	-	-	50,000/-

A grant of Rs.2,00,000/- has already been sanctioned to the Gujarat Vidyapith for the purchase of library books during Vth Plan. This grant will be charged on Vth Plan allocation of the Gujarat Vidyapith. A report of the Visiting Committee is attached Annexure.

3-160

The matter is placed before the Commission for consideration.

E. O (D4a) / DS (D4)

DRAFT REPORT OF THE FIFTH PLAN VISITING COMMITTEE FOR
THE GUJARAT VIDYAPITH, AHMEDABAD.

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143

The University Grants Commission appointed a Visiting Committee to examine the Fifth Plan proposals of the Gujarat Vidyapith, Ahmedabad consisting of the following:-

1. Professor B.M. Udgaonkar .. Convener
Tata Instt. of Fundamental
Research, Bombay.
2. Professor A.R. Desai
Department of Sociology
Bombay University
Bombay.
3. Professor N.R. Deshpande
Department of Political Science
Nagpur University
Nagpur.
4. Professor B.D. Sharma,
Department of Economics
Kashmir University
Srinagar.
5. Professor S. Shukla
Department of Education,
Jama Millia Islamia
New Delhi.
6. Shri S.P. Gupta .. Secretary
Deputy Secretary

The Committee visited the Gujarat Vidyapith on the 11th September, 1975 and held discussions with the Vice-Chancellor, Members of the Governing Body, Members of the Teaching Staff, Students etc. The Gujarat Vidyapith was established in 1920 by Mahatma Gandhi to conduct higher education with the main objective of preparing workers of character, ability and dedication on the basis of social equality, non-violence, participation in productive work, dignity of labour, equality of religion, needs of villages and the mother-tongue as the medium of instruction. With these aims in view the Vidyapith had been striving to impart education suitable for social workers. The Vidyapith endeavoured to assimilate new ideas for its development from time to time. The objects of the Gujarat Vidyapith which are in the form of a Charter of national system of education requires it to link education with national needs and development. Importance is

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(144)

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given in the daily routine of the students to productive education, crafts, spinning and weaving, teaching of subjects with social service bias etc.

The work of the Vidyapith was suspended during the years 1930-35 and again after the Quit India Movement during years 1942-45. The Institution was revived on the eve of Independence in 1947, making practically a fresh start. The Vidyapith decided to continue its work for the regeneration of Indian people and particularly of the weaker and under-privileged sections of the society following Gandhian ideas. The College named Mahadev Desai College of Social Service was established to impart education leading to the degree in social sciences. In 1962 Hindi Teachers Training College was started for training teachers from non-Hindi regions.

The Vidyapith was declared to be a Deemed University under section 3 of the UGC Act w.e.f. 1963 for a period of three years in the first instance in respect of Bachelor's degree courses in Social Sciences, tribal welfare and teachers training. The College of Education was started in 1965 for training graduate teachers for the post basic schools and high schools. On the recommendations of the Third Plan Visiting Committee the Vidyapith started post-graduate departments in Hindi-Gujarati, Rural Economics and Social Anthropology, from 1965. In July 1966 the Commission also accepted the proposal of the Vidyapith for extension of the scope of recognition granted under section 3 of the U.G.C. Act to cover Ph.D. degree in Gujarati. The scope was extended later on to cover other subjects as well. During the Fourth Plan period the departments of Social Work, Philosophy and Comparative Religion etc. were established. At present the Vidyapith has the following postgraduate departments:-

- i) Department of Social Anthropology and Sociology.
- ii) Department of Rural Economics.
- iii) Department of Indian Language, including Gujarati and Hindi.
- iv) Department of Education.
- v) Department of History and Culture.
- vi) Department of Philosophy and Comparative Religion, including Gandhian Studies.
- vii) Department of Social Work.

The student body at the Vidyapith consists of over 60% students from tribal, Harijan and other backward communities. All students are required to wear Khadi to participate in congregation and community work, to participate in productive manual activities and work camps, to participate in rural and tribal life. The students are expected to work for more than 250 days a year, for at least eight hours a day. The academic system is based on the membership of all the teachers of a discipline constituting a Board of Studies to frame the courses and programmes of studies, subject to the general guidelines laid down by the academic council which consists of Heads of Department

In the first two years of the undergraduate course, all students undergo experience of productive work in one of the crafts like carpentry, spinning, weaving, tailoring, agriculture. In the final year the students are required to spend 12 hours a week in slum areas for functional literacy programmes. At the post-graduate level a student has to write 36 weekly assignments and two term papers. He has also to participate in 30 seminars in a year and has to submit a project based dissertation. The performance of students is assessed, apart from written examination and viva-voce, through field work, community work etc. which have equal importance in the final evaluation. The Vidyapith has an open book system of examinations which consist of weekly tests, term papers etc.

The departments dealing with specialised subjects like Social Anthropology, Tribal Education, Primary Education Administration, Rural Economics and Languages maintain close liason with recruitment agencies and make efforts to secure employment for the graduates. The faculty of the Vidyapith consists of 61 teachers in all and they are involved in a whole time work for 7 to 8 hours a day in the department library and in the slum areas to guide the students.

The total enrolment of students in undergraduate and post-graduate classes is 450 ; besides 17 research scholars are working for Ph.D. on a variety of topics in literature, economics, history, Gandhian Studies and education. 9 scholars have been awarded the Ph.D. degree. A statement of Departments, number of teachers and students is given as Appendix I & II.

LIBRARY.

The total number of volumes in the Central Library of the Vidyapith is about 2 lakhs of which 6000 are text books. The number of journals received in the library including those on exchange or gratis is 514. One hundred reading seats have been provided in the library. The average number of books issued per week to the students and teachers is about 1700. The library also acts as a depository of all books published in Gujarat State. It has a special section of books by Gandhiji and on Gandhiji.

The library facilities at the Gujarat Vidyapith are in a sense unique. The library is considered the best reference library for Gujarati literature and for events in Gujarat.

The Library provides a number of services to the readers. It assists the post-graduate and research students by preparing bibliography and index of books and articles. It organises book-exhibitions and talks to stimulate students towards reading. 21 book exhibitions have been held during the last five years. Xerox Copying service is also available in the library for the benefit of scholars. The reprographic facilities may be strengthened.

1146

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HOSTELS:

Most of the courses at the Vidyapith require the student to participate in community life. There are 2 hostels for men students and one hostel for women students (built for 80 students but which has to accommodate 150 students at present).

STAFF QUARTERS:

There are teachers hostels with 34 units of accommodation which are available to all categories of the teaching staff. There are no separate quarters for the senior faculty.

PEACE RESEARCH CENTRE:

The Peace Research Centre of the Gujarat Vidyapith was established in 1971 in collaboration with UNESCO to promote studies and research on peace and non-violence particularly with a view to investigating the application of non-violence in conflict resolution. Soon after its establishment the Centre collected information from other institutions in the country and abroad about their activities in the area of peace research or related fields. With UNESCO's aid the Centre formed a book shelf of 372 books on the subject. Over a dozen journals on peace, non-violence, conflict resolution, etc. are also received.

A Documentation Cell has been started at the Centre to render services to the students and research scholars working in this field. Clippings from three English and six Gujarati Newspapers on the problems and events of conflict violence and exploitation mainly in Gujarat State are maintained. A summary of the clippings is given to different peace centres and other allied institutions, besides information on the Centre's activities, through a bimonthly news-letter 'SETU' (Bridge).

The Centre organised a seminar on 'Concept, Methodology and Areas of Peace Research in India, in August 1972 with the assistance of the UGC. A summer Institute on Education for Peace and Non-violence was organised in 1974 with the assistance of UGC in which 30 teachers from 12 universities of Mysore, Gujarat M.P. Maharashtra etc. participated. Important studies which the Centre has undertaken with support from ICSSR are 'A study of life in Kutch on the aftermath of war and 'Social Philosophy of constructive programmes.'

Tribal Research & Training Institute.

This Institute conducts a three month certificate course for the officers of tribal Blocks. There are also short-term courses for extension workers, village level workers, Panchayat Officers, primary school teachers, forest staff etc. working in tribal areas.

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The Museum of Tribal Culture maintains a rich collection of paintings, handicrafts, ornaments, musical instruments, housing models, photographs, slides and films on tribal life and culture. It has also models exhibits and maps explaining the economic life of the people of tribal areas.

The Institute carries out research bases on actual field work and data collection in tribal areas. A number of publications have been brought out on dialects, economy, land problem, ethnography and various other aspects of tribal life.

The Committee was shown a film on the life of tribals, prepared by the Institute. The Committee could not help feeling that this film did not have the right kind of focus. The Institute should have excellent opportunities to produce a film depicting the tribal society in transition its problems and challenges.

Progress in the Fourth Plan:

As recommended by the Fourth Plan Visiting Committee the Vidyapith started postgraduate courses in social work, philosophy and comparative religion including Gandhian Studies, and Education. The intake in the B.Ed. course was increased from 80 to 140. A two year part-time course for the M.Ed. degree was also started.

Courses in all subjects were reorganised and internal evaluation was increased to 60% of the total marks. Semester system has been introduced and every student is enabled to choose four courses in each term. Provision has been made to give certificate to a student who completes one or two semesters. There is an increasing emphasis in all the departments on term papers assignments and participation of students in the seminars. Special courses are conducted for comprehension of English for the benefit of undergraduate students, specially for those who did not qualify in English at the Matric examination.

All the building projects sanctioned during the Fourth Plan viz. teaching, blocks, Central Library, addition to boys hostel, NFSC, teachers' hostel, health centre etc. have been completed. 10 units have been added in the teachers' hostel and 80 seats for girls and boys have been added in the students hostels. The equipment grant for reprography, audio-visual aids, craft and education has been fully utilised. The printing press has been established. All teaching posts have been filled in except those of a Professor (Sociology) and Reader (Economics) which were sanctioned towards the end of the Fourth Plan. A statement of spill-over is given as Appendix. III.

148

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Fifth Plan Proposals:

The Fifth Plan proposals of the Vidyapith involved an amount of Rs. 56 lakhs as UGC share split into three priorities of Rs. 34.50 lakhs, Rs. 12.25 lakhs and Rs. 9.25 lakhs. The objectives of the Fifth Plan were stated to be consolidation and strengthening of the existing departments, including their research base, with a view to developing courses relevant to present social needs and to promote multidisciplinary problem-oriented training and research programmes. The Vidyapith therefore proposed to integrate the departments into three institutions namely:-

1. Institute of Social Sciences.
2. Institute of Languages and Communication.
3. Institute of Education.

The courses at these Institutes were proposed to be organised in such a way that students may have a wide choice of subjects and may earn credit for each separately. Each Institute may, in addition to M. degree courses, organise in-service programmes for college teachers leading to M.Phil. or M.Litt degree, or Post-graduate diploma courses in Research Methodology, Tribal WELFARE, Studies in Non-Violence, Communication, Comparative Indian Literature etc.

The Committee had detailed discussions with the members of the governing body and teaching staff of the Vidyapith on this issue. The Committee was not convinced about the advantages of making this structural change at this stage. The teaching and research programmes of the departments have yet to be developed further in interdisciplinary direction, around the main thrust of the Vidyapith and taking into account the desire of the students to join rural services. Similarly, it is not desirable for the Vidyapith for the present to launch M.Phil or M.Litt. programmes. This may be done only after it has first strengthened its research base. However it would be very useful to start short-term programmes in Indian languages, English, Tribal Welfare, Rural development etc. some of these would be quite useful to the village level workers (including past students of the Vidyapith) as continuing education programmes.

Other objectives of the Vth Plan development schemes of the Vidyapith are stated to be linking education with productivity, research to meet national needs and programmes to meet the special needs of rural areas. The designing of such programmes will be continuous effort and a working group has been set up for the purposes. It is proposed that all courses will have some element of integration of academic work with production activities on a continuous basis, by providing work on an agriculture farm or in a small industry for a prescribed period which may vary in each course and the quality of productivity displayed by the student will form part of the evaluation of

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his performance in the course. Extension education and continuing education would be developed to meet the needs of rural areas by organising correspondence-cum-vacation courses like Intensive farming, small industries, Management of cooperatives, sanitation, social legislation etc. In addition over 1500 of its graduates working in rural areas would be given continuing education to further their knowledge.

The Visiting Committee had a brief meeting with the Education Minister of Gujarat on the 8th September. He was of the view that the proposed development of rural campus near Gandhinagar would go a long way in meeting the objectives of the Vidyapith. He also indicated that the Gujarat Government was thinking of deputing the school teachers for further education and training at the Vidyapith in order to meet the demands of the new pattern of education (10+2+3) in the State.

The Visiting Committee held discussions with the teachers and students of the Vidyapith in separate meetings. The teachers held the view that the Gandhian character of the Vidyapith with its stress on social service, field work and productive education should be maintained. However they wanted an outside group of experts to evaluate the present course system. They pointed out that the teachers had full patition of teachers in the decision making bodies of the Vidyapith, not even in planning. Further they said that the service conditions of the teachers are such as can be interpreted in different ways and there is no representative of teachers (even though there is a Teachers Association) or of the government on the Governing Body of the Vidyapith. The teachers also pleaded for early implementation of the revised salary scales recommended by the UGC and facilities for improvement of their qualifications and competence. There is representation of teachers in the Trust of the Vidyapith (which is like Senate) with 6 teachers (including three Principals) among 25 members.

While the Committee was impressed with the sense of purpose and dedication, among the managers as well as the teachers of the Vidyapith, it also noticed the existence of (possibly) severe stresses in the system. Certain overall structural changes appear to be needed in the Vidyapith and the Vidyapith may appoint a Reviewing Committee to look into these. A. U.G.C. representative may be associated with such a Committee. The students representatives demanded more text books in the library, book bank, industrial courses, hostel for P.G. Students, more amenities, creation of the position of a Dean of Students, representation in the governing body of the Vidypaith, books and Stationery at fair price, subsidy for preparing dissertations etc.

150

- 15 -

The Committee was happy to note that most of the graduates of the Vidyapith have been getting jobs in rural areas, though late jobs have become difficult due to slowing down of development programmes. At the postgraduate level, the Vidyapith is instrumental in training the higher education staff for the two rural institutes Lok Bharati and Vedchi, and also the headmaster and teachers of secondary schools. It has also provided 14 lecturers to colleges in Gujarat. Six of its graduates in social anthropology and 8 of social work have joined the field services of the government.

Most of the students of the Vidyapith appears to go into teaching and community service jobs, after their degree. The Vidyapith could diversify the nature of occupations available for its students, if it included rural engineering in the crafts component of its training programme. In that case the students may be enabled to learn to repair implements, motors, pumps, engines, etc. Also instead of seeking established jobs only, at least some of them may become self-employed. The Vidyapith will have to work out a detailed plan in this regard with the help of a Committee. The UGC may consider such a plan sympathetically when presented. For the time being, the Vidyapith may be able to start such a training in collaboration with some local institution in Ahmedabad. The possibilities of this may be explored.

The Vidyapith is already thinking in this direction. It has secured 100 acres of land from the Govt. in the rural area of Gandhinagar at a distance of 25 miles from Ahmedabad. Courses are proposed to be organised on agro-industrial crafts dealing with various aspects of agriculture, animal husbandry, dairy, rural sanitation, rural engineering etc., at the new site to train the students in various vocations and small industries connected with village development. These courses would form part of the undergraduate education in Social Sciences.

The Committee was told that the Vidyapith proposes to shift the undergraduate classes entirely to the new campus. This proposal, the Committee feels, will have to be examined in detail since this would involve the creation of new facilities at the proposed campus and at the same time release some facilities like hostel, building etc. at the present campus. There is also the question of the desirability of locating Under-graduate programmes at one campus and Post-graduate programmes at another. The Visiting Committee therefore would suggest that the Vidyapith may appoint a committee to go into this problem in detail and to suggest as to how best the new campus can be built and the existing facility utilized it finds it difficult to make any financial recommendations on this question, in the absence of this exercise.

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The Vidyapith gives undergraduate courses leading to the degree of Bachelor of Social Science, In order to provide greater professional facilities and greater opportunity for vocational training for the students it may be necessary to augment facilities by way of equipment, workshop, teaching posts in cooperation, Panchyat etc. and craft instructors.

The Vidyapith has been conscious of the weakness of its base in Science and mathematics. There was a proposal to start B.Sc. courses to meet the shortage of science and mathematics teachers in rural areas especially in relation to the new 10+2 pattern. The Committee however feels that the Vidyapith may not start B.Sc. courses since there is a large number of colleges in Ahmedabad and other places giving such courses. Instead of starting a more or less conventional B.Sc. course, the Vidyapith may better initiate research work on the interaction of science and society, impact of science and technology on rural areas, the development of intermediate or appropriate technology, etc. and through such research work develop new types of undergraduate science programmes over a period of time. It is understood that the Vidyapith has already been promised some donation for this purpose. The Committee recommends the creation of three positions of scientists, technologists, and some grant for workshop and other equipment and consumables to enable the Vidypaith to undertake a developmental program in Appropriate Technology. Such a programme will have to be carefully worked out.

In so far as the teaching of mathematics and statistics to the students of social sciences is concerned, the Vidyapith may for the present obtain the services of applied mathematician relevant to social sciences from the nearby institutions on part-time or visiting basis. The Vidyapith has already been thinking of introducing cooperative programmes with advanced institutes, including the Agricultural and Rural Development Cell of the IIM, Sardar Patel Institute of Economics, Gujarat University School of Social Sciences, L.M. Institute of Psychology, State Institute of Education etc.

The Vidyapith could interact more fruitfully with the Vikram Sarabhai Community Science Centre at Ahmedabad, so as to try to evolve some pioneering programmes for teaching science in rural schools.

DEPARTMENTS:

The department of Gujarati has developed comparative studies of Indian languages and literature. It now offers Bengali literature also as an optional subject. Two seminars were organised by the department during the Fourth Plan on the Science of Translation. The department also conducts certificate courses in translation, drama, speech and editing.

152

-102

These weekend courses have benefited many school teachers and journalists. A special seminar on Tulsidas was organised in the department and a research project on Tulsidas has been undertaken. The work on tribal dialects has now been completed and two books have been published on the subject. A three year research project on dialect survey of North Gujarat has also been undertaken with the financial support of the Commission. There are 19 students in the M.A. classes in Gujarati and 13 in the Hindi.

The Department of Rural Economics meets the requirements of rural cooperative movement and village industries. It has (1R + 2L) on the faculty of the department and 21 students M.A. classes. It organised a conference on the economic problems of the rural poor in Gujarat. Its project on Matar Taluke-Re-survey was completed and published. The project on determinants of cropping pattern has also been completed.

The Department of Social Anthropology and Sociology gives a post-graduate course designed to meet the requirements of tribal development and tribal welfare programmes. It works in close collaboration with the Tribal Research Institute of the Vidyapith. A research paper was prepared on Priorities in Tribal Research. The enrolment in MA course is 14 students and there are 1R and 2L in the department.

The Department of Philosophy and Comparative Religion gives the postgraduate course in Philosophy, more particularly on comprehensive 3 year Post-graduate course on Gandhian Philosophy. There are 15 students in MA classes and the staff consists of 2P + 1R + 2L. Its thrust during IV Plan was on Gandhian Studies and peace research. It conducted a summer institute on Education for peace and non-violence. A report of this seminar was published as 'Perspective for peace research'.

The Department of History & Culture has 16 students in MA and 3 Lecturers on the staff. It provides special courses on Ethno-archaeology, Indian freedom struggle etc. It organised a seminar on 'Modernisation of Indology' and its report was published as 'Concept of Indology'. The Vidyapith hosted a seminar on Jainism as a part of Mahavir Jayanti. The department is developing an ethnographic and cultural museum.

The Department of Education provides courses on Primary Education Administration at M.Ed. level. It concentrated its efforts on training school teachers and head masters for the M.Ed. degree. It organised a seminar on Education and Productivity. There is a research cell on tribal education. These did not however appear to be adequate interaction between this Cell and the Tribal Research and Training Institute of the Vidyapith. The very low (around 2 per cent) literacy among tribals in spite of several decades of social and educational work amongst them (including work by products of Gujarat Vidyapith) appears to be subject for urgent depth-study.

There are 11 students in the M.Ed. course and the faculty of the department consists of 1P +4R+12L +2 Instructors. The Faculty of Education also has a Crafts Teachers Training Institute, a Hindi Teachers Training College for training matriculate and graduate teachers of Hindi, a College of Education for Training 60 graduate teachers, and a Basic Education Science Institute for conducting short-term courses ' for Science Teachers. An extension services unit runs an extension centre at Kocharab. It also conducts various refresher courses for the teachers of Social Studies.

The Department of Social Work provides PG training to about 25 students every year with emphasis on rural social welfare, community development etc. It organised a seminar on Integration of NSS with the academic curricula and is engaged in a research project on Impact of War on the Kutch border. The project has been supported by the ICSSR.

GENERAL REMARKS

On the whole, the Committee was impressed with the unique character of the programmes at the Vidyapith, where academic training and training in crafts and community service are sought to be integrated. Educational programmes of this character deserve support, and the Vidyapith should be encouraged to maintain and enrich the special character of its programmes.

On the other hand, as was stated to the Committee, the Vidyapith now finds itself at cross-roads. It is no longer in a rural setting. It is now in the midst of an urban growth, and the urban atmosphere cannot but affect it. It has acquired a new rural campus near Gandhinagar. Its use has to be carefully planned. The teaching and student community is also affected by the winds of change around, and demands participation in management. It is time a Committee went into various aspects of the situation and prepared a perspective plan for the development of the Gujarat Vidyapith. The Committee should also look into questions like service conditions of teachers, and the overall organisation structure of the Vidyapith.

The Committee would recommend that most of the fresh positions and the development of the rural campus may wait until the report of the above Committee is available.

The Committee looked at the titles of Ph.D. theses completed, or under completion at the Vidyapith, and was surprised to find a preponderance of theses in the field of literature and rather few titles (in fact, none amongst the completed theses) dealing with education and Social change.

154

-:12:-

Given the enormous amount of participatory and constructive work in social transformation in which the Gujarat Vidyapith has been involved over the decades, one may expect from its research programmes which bring non-academic intellectuals involved in this work into a relationship with academic intellectuals to have a priority at the Gujarat Vidyapith. The whole institution could therefore develop a research thrust in such directions. For example, even within the field of languages, it could study questions like the influence of language (tribal dialect VS sophisticated Gujarati) on the drop-out rate among tribals, or the educational and social effects of change of medium of instruction to Gujarati that has taken place in recent years in most of Gujarat.

Similarly the Peace Research Institute could undertake a research project on Social Tensions in Gujarat ; Tribals and Harijan. This again would be particularly appropriate in view of the extensive participation of the members and alumni of the Gujarat Vidyapith in programmes with Tribals and Harijans.

The Vidyapith is uniquely situated to undertake in depth investigations of this nature. The Committee feels that if it undertook them, the rest of the country may have something to learn from it with regard to programs of development of rural areas, of tribals and of Harijans.

The financial recommendations made by the Committee are summarised in Appendix-IV.

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GUJARAT VIDYAPITH

155

Faculties:

1. Social Science
2. Education.
3. Tribal Research

Departments:

Social Science

1. Social Anthropology & Sociology
2. Rural Economics.
3. Indian Languages.
4. Social Work.
5. Philosophy including Peace Research Centre.
6. History & Culture.
7. Education.
 - (a) Basic Education Teacher Training
 - (b) Hindi Teacher Training.
 - (c) Basic Education Science Institute.
8. Tribal Research
 - (a) Museum
 - (b) Training Wing
 - (c) Research Wing.

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156

GUJARAT VIDYAPITH, AHMEDABAD

Statement regarding the Number of Teachers and Students
in Courses of Higher Education.

S.No.	Name of the Deptt.	Existing Staff.				No. of students
		P	R	L	O	
		(Instructor)				
A.	Faculty of Social Science.					222 (Undergraduates)
1.	History & Culture.	-	-	3	-	Students of MA & Ph.D. 21
2.	Gujarati.	1	4	3	-	27
3.	Economics.	-	1	5	-	21
4.	Sociology & Social Anthropology.	-	1	3	-	12
5.	Social Work.	-	1	6	-	42
				(L.D.O) (4+2)		
6.	Philosophy including Gandhian Thought and Peace Research .	2	1	3	-	5
7.	Hindi.	-	1	4	-	18
B.	Faculty of Education.					
1.	Graduate Basic Education Training.	-	-	3	-	44
2.	Master of Education (Including Teacher Education units in Tribal Education and Science Education)	-	4	4	-	15
3.	Graduate Hindi Teachers Training.	1	-	6	2	38
C.	English Language Unit.	-	-	3	-	This Unit serve 130 Undergraduate students for imparting training in English as a language & Comprehension.

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UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI

(157)

Schemes approved during the Fourth Plan period or earlier and which are required to be completed during the Fifth Plan period (Gujarat Vidyapith).

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S.No.	Department	U.G.C. Share.	Grant paid during Vth Plan.	Spill over to the Vth Plan.	Remarks
1.	Purchase of Craft Equipment.	27,000	20,000	7,000	
2.	Dictionary Project.	27,000	5,000	22,000	
3.	Community Development Co-operation & Panchayati Raj.	11,000	10,000	1,000	
4.	Construction of Teachers Hostel.	75,424	70,000	5,424	
5.	Construction of Library Building.	3,33,330	2,78,000	5,210	UGC share reduced due to less expenditure.
6.	Appointment of additional staff.	8,11,700	4,75,000	1,32,914	-do-
7.	Estab. of Peace Research staff.	1,50,000	20,000	1,30,000	-
8.	Const. of Tribal welfare building.	75,000	70,000	5,000	-
9.	Audio Visual Equipment for Edu. Department.	20,000	18,000	2,000	
10.	Class IV staff Quarters.	26,250	15,000	11,250	

158

<u>1.</u>	<u>2.</u>	<u>3.</u>	<u>4.</u>	<u>5.</u>	<u>6.</u>
11.	Const. of Women's Hostel.	1,69,800	-	1,69,800	-
12.	Const. of Health Centre.	93,149	10,000	83,149	-
13.	Equipment for Library.	66,667	60,000	6,667	-
14.	Furniture for Reading seats.	15,000	5,000	10,000	-
15.	Purchase of Wooden Planks shelves.	10,000	5,000	5,000	-
16.	Improvement of Sanitation.	2,60,000	75,000	1,85,000	-
17.	Drinking Water facilities.	1,60,000	-	1,60,000	-
18.	Renovation of Kitchens & Store.	40,000	-	40,000	-
19.	Fans for Common Room.	10,000	5,000	5,000	-
20.	Indo ^{SP} Games.	5,000	3,000	2,000	-
21.	Printing Press.	1,20,000	1,15,000	5,000	-
22.	Employment of Trained Coach ^s .	-	7,500	3,037	-
23.	Employment Bureau	15,980	-	15,980	-
				<u>16,12,431</u>	

Summary of Financial recommendations (Rs. in lakhs)

<u>Items</u>	<u>Priority</u>		
	<u>I</u>	<u>II</u>	<u>III</u>
Spill over.	10.12	-	-
Buildings.	5.00	2.25	2.25
Others.	-	-	1.75
Equipment.	3.00	1.30	0.60
Staff.	5.85	2.61	2.34
Library Books.	6.00	2.00	2.00
Fellowship.	0.50	0.25	0.25
Visiting Professorship.	0.25	0.25	-
	<u>30.72</u>	<u>8.66</u>	<u>9.19</u>

Grand Total: 48.57 lakhs.

Including Rs. 1 lakh as seed money for a programme in Appropriate Technology.

Detailed Recommendations

	<u>Buildings</u>	<u>U.G.C. Share (Rs. in lakhs)</u>	
			<u>Priority</u>
1.	Teachers Hostel (2 flats only, continuing construction).	0.25	I
2.	Staff quarters.	1.50	II & III.
3.	Boys Hostel	1.50	II.
4.	Girls Hostel.	2.25	I
5.	Field Work Centre.	0.50	III
6.	Workshop Shed for Basic Education Science Instt.	1.00	III.
7.	Agro-industrial workshop shed on Gandhinagar farm.	2.50	I.
	<u>Others.</u>		
	Bus.	0.75	
	Publications.	1.00	

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(160)

-:2:-

<u>Equipment:</u>		<u>Priority</u>
Social Anthropology Museum.	0.30	III
Rural Economics Agro-Industrial Museum.	0.30	III.
Central Library-microfilming etc.	1.00	I.
Central facilities for Humanities & Social Sciences (Calculators, duplicating machines, tape records, tape recorders, recordplayers, audiovisual aids etc.).	2.00	I & II.
Education.	0.30	II.
Appropriate Technology.	1.00	I.

Workshop equipment:

1. Basic Education Science
2. Agro industrial workshop.

Staff.

<u>Department.</u>	<u>I</u>	<u>II</u>	<u>III</u>
Social Anthropology	1P	-	1R
Rural Economics.	1P	1R	1FA
Philosophy	-	1R	-
Social Work	1P	1R	1FA
Gujarati	2FA	-	-
Hindi	1R	-	-
Sanskrit	-	1L	-
English	-	-	1R
Linguistics.	1L	-	-
Extension.	1L	-	1FA
Appropriate Technology Cell.	2R+1L	-	-
Central facilities	-	2Tech	-
Library	-	-	1LA
Dean of students.	1R	-	-
	<u>3P+4R+3L</u>	<u>3R+1L+2Tech.</u>	<u>2R+4FA</u>
	<u>+2FA.</u>		

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CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

161

Meeting:

Dated : 31st January, 1977

Item No. 18 : To consider a proposal from the Gauhati University for the creation of an additional post of Reader in Mathematical Geography in the Department of Geography during the Vth Plan period.

The University Grants Commission Visiting Committee which examined the 5th Plan Development Schemes of the Gauhati University while making recommendations in respect of the Department of Geography strongly felt that no increase intake should be undertaken at this stage, particularly, in view of the urgent need at present for consolidation of the existing facilities for undertaking imaginative design of courses to which the department must devote itself in the next few years. The Committee felt that creation of the post of a Reader in Mathematical Geography in the Department of Geography would help in the development of this branch of specialisation.

The Commission, however, keeping in view of the limited resources available with it for the 5th Plan period could not provide the aforesaid post of Reader for the Deptt. Geography at the Gauhati University within its over-all Fifth plan allocation.

The Gauhati University has now requested the Commission to approve the creation of a post of Reader in the Mathematical Geography for Geography Deptt. for development of this branch of study in this Deptt.

It may be mentioned, in this connection, that the Commission has already accepted the 5th Plan Development proposals of the Gauhati University to the tune of Rs. 132.90 lakhs against Rs. 133 lakhs which is 2/3rd of the tentative allocation of Rs. 200 lakhs fixed for this University for the current plan period.

The matter is placed before the Commission for consideration.

AS(D-3a)/DS(D-3)

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UNIVERSITY GRANTS COMMISSION

Meeting :

162

Dated : 31.1.1977.

Item No: 19 : To consider the proposal of the Marathwada University for the change of specialisations of the Faculty positions sanctioned during the Vth Plan Period.

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Department of Physics.

The Visting Committee which assessed the Vth Plan proposals of the Marathwada University made the following recommendations for the development of the department of Physics during Vth Plan.

"The Department of Physics was established in 1965 and has a student enrolment of 56, out of whom six are working as research students. The staff strength of the department is one Professor, four Readers and six Lecturers. However, the staff in position consists of only seven members and the Professorship has been lying vacant for quite some time. The Committee feels that early step should be taken to fill up the post of Professor so as to provide proper academic leadership to the department. The specialisations offered in the department are Spectroscopy, Solid State Physics and Nuclear Physics. Thirty eight research papers were published by the staff of the department during the last five years. But due to some reason of the other, not a single Ph.D. came out during this period. During the Fifth Plan the department has put emphasis on consolidation and strengthening of the existing branches in order to promote research activities and to give a stronger research base to post-graduate research programme. The department has also a plan to start Pre-Ph.D. course and also some courses like Material Science and Industrial Electronics. The department also desires to purchase a Liquid Nitrogen Plant which would be useful to all the science department.

This department was originally expected to admit 10-12 students every year but is now admitting 20-22 students every year. The department, therefore, needs more accommodation. The department also needs more equipment and staff to meet the growing needs of teaching and research. The committee recommends the following assistance for this department during the Vth Five Year Plan:-

<u>Purpose.</u>	<u>Priority I</u>	<u>Priority II</u>	<u>Priority-III.</u>
Building including furniture.	Rs.1.00 lakh (as UGC share)	Nil	Nil
Equipment.	Rs. 2.00 lakhs	Rs. 0.50 lakhs	Rs. 0.50 lakhs.

(163)

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<u>Purpose.</u>	<u>Priority-I</u>	<u>Priority-II</u>	<u>Priority-III</u>
Books and Journals	Rs.1.00 lakh	Rs. 0.50 lakh	Rs.0.50 lakh.
<u>Staff</u> Readers (One in Lasers)	Two	Nil	Nil.

The approval to the following facilities in the Ist Phase has been conveyed to the Marathwada University for the development of the department of Physics during the Vth Plan period.

Equipment	-	2 lakhs
Books.	-	1 lakh
Building.	-	1 lakh (UGC Share)
Staff.	-	2 Readers (One in Lasers)

The Department of Physics of Marathwada University offers teaching facilities in the specialisations of (i) Spectroscopy, (ii) Solid State Physics and (iii) Nuclear Physics.

The Marathwada University has now informed that during Vth Plan Period the University is not contemplating to start any new branch of specialisation in Physics Department and appointment of Reader in Lasers Physics will not help the University from the point of view of consolidation of existing three branches in the department. The University has, therefore, requested the Commission to keep the specialisation open for the sanctioned post of Reader in Lasers in the Physics Department.

A list of existing staff in the department of Physics of Marathwada University is attached Annexure-I.*

Department of Political Science.

The Visiting Committee which assessed the Vth Plan proposals of the Marathwada University made the following recommendations for the development of the department of Political Science during the Vth Plan Period:-

Department of Political Science established in 1962 had on its rolls during 1974-75 221 students, out of whom 16 are working as research students for the Ph.D. degree. The staff strength of the department is one Professor, one Reader and three Lecturers. The department is offering facilities for teaching and research in Modern Indian Political Thought, Political Theory, Public Administration and Local Government. One of the specialised groups being taught in the department relates to modern government which includes three papers. The department desires to make Modern Government, a separate group of study altogether. Study of Public Administration was introduced from the academic year 1973-74 and two more papers are proposed to be introduced under this group at the M.A. level. Teaching of

Political Theory is also proposed to be strengthened by introducing more papers. The department has asked for two Readers and two Lecturers, but the Committee feels that in addition to one Readership already available, one Reader (in Public Administration) and two Lecturers (one in Political Theory) and one (in Modern Government or Public Administration) will meet the requirements of staff. The committee recommends the following assistance:-

<u>Purpose</u>	<u>Priority-I</u>	<u>Priority-II</u>	<u>Priority-III</u>
Books and Journals.	Rs. 50,000	Rs. 40,000	Rs. 40,000
<u>Staff</u>			
Reader	One	Nil	Nil
Lecturers	Two	Nil	Nil

The approval to the following facilities in the Ist Phase has been conveyed to the Marathwada University for the development of the department of Political Science during the Vth Plan period.

Reader One (in Public Administration)
Lecturers Two (One in Political Theory and other in Modern Government or Public Administration)

The Marathwada University has requested the Commission for permission to fill up the posts approved by the Commission for the Political Science during the Vth Five Year Plan as under:-

Reader - in Modern Government instead of Public Administration.
Lecturer - in Public Administration instead of Modern Government.

The justifications for the change in specialisation as mentioned above and a list of existing staff in the department of Political Science of the Marathwada University are attached Annexure-II* & III@ respectively.

The matter is placed before the Commission for consideration.

E.O. (D-4a) / DS (D4)

Annexure-I to Item No.19

Existing Staff in the Department of Physics

(165)

- (a) Professor - Vacant
- (b) Reader:
- i) Dr. V.V.Itagi, M.Sc. Ph.D. (Spectroscopy)
 - ii) Dr. R.G. Kulkarni, M.Sc.Ph.D.(Nuclear Physics)
 - iii) Vacant (Solid State Physics).
- (c) Lecturers.
- i) Dr.(Mrs.) S.V. Itagi, M.Sc.Ph.D. (Spectroscopy)
 - ii) Shri P.L.Sardesai, M.Sc. (Nuclear Physics)
 - iii) Dr. K.N.Choudhari, M.Sc.Ph.D. (Elementary particles)
 - iv) Dr. S.S. Shah, M.Sc.Ph.D.(Solid State Physics)
 - v) Shri C.S.Raju, M.Sc.(Electronics).

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Existing Staff in the Department of Political Science

<u>S.No.</u>	<u>Name of the existing Staff.</u>	<u>Designation</u>	<u>Qualification</u>	<u>Specialisation</u>
1.	Dr. G.N. Sarma.	Professor and Head.	M.A., Ph.D.	i) Political Theory ii) Political Thought
2.	Dr. RS Morkhandikar	Lecturer	M.A., Ph.D.	i) Indian Government ii) Asian Governments iii) International Organisation.
3.	Dr.K.Moinuddin (Moin Shakir)	Lecturer	M.A., Ph.D.	i) Modern Indian Political Thought & ii) Muslim Politics.
4.	Shri P.M. Bora.	Lecturer	M.A.(Public Admn.) M.A.(Politics).	i) Public Administration.

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Copy of letter No. Nil dated 19th November, 1976 addressed the Secretary U.G.C. from Professor G.M. Sarma Head of the Department of Political Science and Public Administration Marathwada University.

Subject : Your letter No. F 2-1/76(D4 A) dated 13-10-1976 addressed to the Registrar, Marathwada University, Aurangabad.

Justification for a change of specialization:
Reader in Modern Government and Lecturer in Public Administration (in place of Reader in Public Administration and a lecturer in Modern Government).

Sir,

At present in our M.A. degree course in political Science and Public Administration we are teaching three papers in the area of Modern Government.

- i) Indian Government and Politics.
- ii) Government and Politics of Asian Countries.
- iii) Modern (Western) Political Systems.

By adding another paper (Comparative Federalism/Political Sociology) it is proposed to make Modern Government and Politics a separate group of four papers with a Reader in charge of the teaching of the entire group. This has been one of the oldest groups of papers taught in the Department. It may also be mentioned that the paper on Administrative systems in the optional Public Administration group is very closely related to the papers on Government. The Department has also conducted two ICSSR sponsored research projects in this field (Election Studies 1971 and 1972). Hence in placing the needs of the Department for the Fifth Five Year Plan we had put the post of Reader in Modern Government in the first order of preference.

2. A number of research students have registered themselves for Ph.D. degree in this field of specialization. At present we have one lecturer to teach these papers and to guide Ph.D. students in this field. The University has restricted the number of students that a lecturer can guide to only two. There is a great demand from students for enrolment for Research courses in this field. In view of this, the appointment of a Reader with specialization in this field would enable us to organise a four paper course and research in Modern Government and Politics more effectively.

3. Teaching of a group of four papers in Public Administration was introduced fully only in 1975. As already mentioned in para (1), the paper on Administrative Systems is very closely related to the

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168

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field of Modern Government. At present we have one lecturer for teaching these papers. An additional Lecturer in Public Administration would satisfy the teaching requirements in this area for the present. We had asked for two Readers' Posts, one in the field of Government and the other in the field of Public Administration but we had placed priority on the former and if one post alone is sanctioned we would strongly desire that it should be in the field of Modern Government.

It is for these reasons that we have applied for a change in the field of specialization for the post of Reader to Modern Government in place of Public Administration.

A very early reply in the matter is solicited as the post is to be filled during this academic year.

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CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

(169)

Meeting :

Dated : 31st January, 1977.

Item No. 20 : To consider a proposal from the Ranchi University for the change of specialization of the post of Professor approved for the Department of Physics during the Vth Plan period.

The University Grants Commission Visiting Committee which assessed the 5th Plan requirements of the Ranchi University made the following recommendations for the development of the Deptt. of Physics during the 5th Plan period:-

The Department of Physics was set up in the year 1958. The present intake of the department is 20 students in M.Sc. (Previous) and the same number of students in M.Sc. (final). The sanctioned strength of the department comprises 11 teachers (Professor-1; Readers - 4 and Lecturers-6) in the department, 8 of whom possess research qualifications. The major areas of interest in the department are-x-ray diffraction solid state Physics and microwaves. The department has so far, produced 15 ph.Ds. It has so far published 58 research papers in Indian journals and 64 in foreign journals, besides, 51 books for undergraduate classes. 11 candidates are doing research in the department- ~~also~~ in the field of x-ray diffraction and two in electronics microwave. Four junior research fellowships are available to the department of which two are from the University Grants Commission.

There is a library attached to the department. It has in stock 3256 books. The annual expenditure on the purchase of books and journals is about Rs. 23,000/-. The library is subscribing to 18 journals. It has also a provision for 42 reading seats. The working hours of the library are from 10.00 A.M. to 4.00 P.M.-

The progress achieved by the department in postgraduate teaching and research is satisfactory. The laboratories in the field of X-ray diffraction are reasonably well equipped. Research output in the form of publications and number of Ph.Ds. speak well of the department. However, no significant research activities exist in any

p. t. o.

(170)

other branch. Some steps have been taken in the field of microwaves etc. but these are still in initial stages. The specialisation of the staff presents an extremely wide spectrum of fields in Physics. This situation indicates the necessity of proper coordination and academic planning.

The Committee is not in favour of either increasing the intake or for introducing any new field of specialisation, unless adequate research base is developed. The existing specialisation in electronics needs strengthening of laboratories and staff and during the current plan period preference should be given to develop this branch. The department should also try to introduce specialisation in fields, like, material sciences which may be introduced as an inter-disciplinary venture, seeking the help of physics, Zoology and Chemistry departments where major part of the necessary facilities in the form of equipment and manpower are already available. The Physics Department can usefully extend the facility of equipment and manpower in the fields of x-ray, crystallography and spectroscopy. The introduction of such a specialisation is just a matter of proper organisation. A Committee comprising heads of Physics and Zoology and Chemistry departments should initiate efforts in this direction. The department has no theoretician on its staff and priority be given to the recruitment of such a person. For the present, the space available with the department is adequate. The Committee recommends that the following assistance may be provided to the Department during the current plan period:-

- | | | | |
|-----|--------------------|---|--|
| (1) | Teaching Staff | : | Professor- 1 (Theoretical Physics) and
Reader - 1 (Electronics) |
| (2) | Books and Journals | : | Rs. 1.00 lakh |
| (3) | Equipment | : | Rs. 3.50 lakhs" |

The Commission at its meeting held on 7th January, 1976 noted the general observations made in the report of the Visiting Committee and accepted the report (Item No. 36).

The approval of the following facilities under first phase has been conveyed to the Ranchi University for the development of the Department/Physics during the 5th Plan period :-

- | | | |
|----|--------------------|---|
| 1. | Books and Journals | Rs. 50,000/- |
| 2. | Equipment | Rs. 1,75,000/- |
| 3. | Staff. | 1 Professor (Theoretical Physics)
and
1 Reader (Electronics). |

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The Ranchi University has informed that the specialisation attached with the post of Professor of Physics Departments is not suited to the present needs of the Department and has, therefore, requested the Commission that the specialisation attached to the post of Professor may be removed and the same may be kept open. The proposal of the University does not involve any additional financial liability on the part of the University Grants Commission.

p 172

The list of existing staff in the Department of Physics is attached as Annexure-I *

p 173

A copy of the letter dated the 28th August, 1976 from the Vice Chancellor, Ranchi University is also enclosed (Annexure II) @

The matter is placed before the Commission for consideration.

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Annexure I to Item No. 20

172

Field of Specialisation

<u>Designation</u>	<u>No. of Posts</u>	<u>Name</u>	<u>Date of joining</u>	
Professor	1	Prof. M.P. Gupta	June, 1963	X-Ray Deffraction
Reader	4	Dr. A.L. Saha M.Sc. Ph.D.(Lond)	April, 1970	Electronics (Microwaves)
		Dr. C. Prasad M.Sc. Ph.D(Hull)	April, 1970	Solid State Physics (ESR/NMR)
		Dr. B. Narayan M.Sc. Ph.D.(London)	Feb. 1974	Atomic & Molecular Physics.
		Dr. B. Kumar M.Sc. Ph.D. (Lond)	March, 1974	Theoretical Physics (Statistical Mechanics and quantum Fluids).
Collegiate Professor (Temp) (Similar to Reader)	3	Dr. N.P.Gupta M.Sc. Ph.D.(Ran)	April, 1974	X-Rays.
		Dr. K.N. Sinha M.Sc. Ph.D. (M.A. master)	Nov. 1959	Experimental Nuclear Physics.
		Sri A.K. Das M.Sc., M.Sc.	Nov. 1959	Solid State Physics Phase transformation
Lecturers	4	Dr. S.M. Prasad M.Sc. Ph.D.(Ran)	Sept. 1963	X-Rays.
		Sri N. Prasad M.Sc.	Sept. 1964.	X-Rays.
		Dr. R.D.G.Pd. M.Sc. Ph.D. (St. John. Canada)	Aug. 1974	Atomic and Molecular Physics.
		Sri R.D. Sahu M.Sc.	Feb. 1973	x

P.T.O.

173

A copy of D.O. letter No. RU/C/629/79/76 dated 28th August, 1976 addressed to Shri R.K. Chhabra, Secretary U.G.C. from Vice-Chancellor, Ranchi University.

The Visiting Committee of the U.G.C. sent for assessing the needs of this University during the Fifth Five Year Plan had observed as follows in respect of the Department of Physics:-

"The progress achieved by the department in Postgraduate teaching and research is satisfactory. The laboratories in the fields of X-ray diffraction are reasonably well-equipped. Research output in the form of publications and number of Ph.D. speak well of the department. However, no significant research activities exist in any other branch. Some steps have been taken in the field of microwaves etc., but these are still in initial stages. The specialisation of the department presents an extremely wide spectrum of fields in Physics. This situation indicates the necessity of proper coordination and academic planning." But while making its recommendation it suggested among other things that the post of a Professor with specialisation in theoretical Physics be sanctioned for the Department.

After looking into the needs of the department, however, I feel that this specialisation is not suited to our present needs and I, therefore, suggest that there should be no such specialisation and that the post should be kept open. I hope you will please look into the matter and let me have your decision of the Commission in this regard as early as possible.

With kind regards.

SLK

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

174

Meeting:

Date : 31st January, 1977

Item No. 21 : To consider the proposal of the Aligarh Muslim University for change of specialisation for various posts approved by the UGC during the Fifth Plan period.

The University Grants Commission at its meeting held on 27th and 28th October, 1975 (Item No. 32) considered the report of the Fifth Plan Visiting Committee on Aligarh Muslim University and approved teaching posts for various departments with specialisation as recommended by the Visiting Committee.

The Aligarh Muslim University has now requested that the specialisation for the following posts may be changed:

<u>Sl. No.</u>	<u>Deptt.</u>	<u>Posts approved</u>	<u>Approved specialisation</u>	<u>proposed specialisation.</u>	<u>Justification given by the University</u>
1	Law	1 Professor	Constitutional Law	Constitutional Law & Administrative Law	Constitutional Law and Administrative Law are allied to each other and the line of demarcation between them is very thin. The students offer both in the same group of specialisation and the teacher appointed to teach this group must have specialisation in both.
		1 Reader	Mercantile Law	Mercantile Law & Constitutional Law	The department is engaged in research in Mercantile, Oriental, Constitutional and Muslim Law. The specialisation may therefore be rephrased to include all these branches.

177

Sl. No.	Department	Posts approved.	Approved Specialisation	Proposed specialisation	Justification given by the University
2	English	1 Reader	Comparative language & literature interested in the affinities between the literature of Europe & India	Comparative literature/ Shakespearean studies/ American literature	The specialisation is not properly worded and is likely to create confusion and not to attract any application. Teaching and research is being done in a Shakespearean studies and American literature.
3	Political Science	1 Reader	International organisation	International Relation.	The department is specialising in political theory, comparative politics, international relations and the public administration is a sub-field of international relations and from point of view of teaching and research a specialisation in a field is preferred against that in a sub-field.
		1 Reader	Political behaviour	Open	Political behaviour is a sub-field under comparative politics. The post of Reader approved in IV Plan was filled in political theory and political behaviour. The deptt. feels no need therefore to specify political behaviour as essential specially for reader's post.

(175)

Dept.	Posts Approved.	Approved specialisation	Proposed specialisation	Justification given by the University.
Economics	1 Professor	Mathematical Economics of Econometrics.	Economics Theory.	The courses in the department have a theoretical bias and the teaching of economic theory has been emphasised in all aspects since long. The specialisation may, therefore, be changed to economic theory.
	1 Reader	Public Finance	Open	In view of present workload, it would not be possible to appoint a Reader with specialisation within one area since he has to teach different courses. Removal of specialisation will widen the scope for selection of best candidate.
Botany	1 Professor	Plant Physiology & Cytogenetics	Plant Anatomy be added	Certain major specialisations for which the Department is noted in the country and abroad have been altogether left out in the specialisations suggested for approved posts. A few specific specialisations may, therefore, be added against the posts approved.
	2 Reader	Microbiology/Algaeology/Physiology/Pteridology	Plant Pathology/Plant nematology/Anatomy and Cytogenetics be added	
	1 Reader	Biostatistics/Ecology	Embryology & Experimental Embryology/Biosystematics be added.	

Sl. No.	Deptt.	Posts approved.	Approved-Specialisation-	Proposed specialisation	Justification given by the University.
6	Zoology	1 Professor	Parasitology.	Animal Parasitology/ Animal Physiology/ Animal Ecology	Specialisations may be broadened to include animal Ecology and animal Physiology.
7	Geo-graphy	1 Reader	Applied Cartography with specialisation in Air Photo Interpretation.	Land use studies and Air Photo Interpretation	More than half of Ph. D. work in the department is in land use studies and these would gain much if they are supported by air photo interpretation.
		1 Reader	Quantitative Methods in Geography	Agricultural Geography	The department has done pioneer work in agricultural geography and has gained national and international reputation. As this field is being increasingly diversified and wide in scope, the readership may be in agricultural geography.

Additional Posts Asked for

Geo-graphy	1 Prof.	-	Quantitative Methods in Geography	The department possesses adequate source material and equipment for a speedy development of Geography on quantitative lines. It has been running two compulsory papers in quantification and an elementary course at graduate level. The department has a senior reader in quantitative methods. As all other deptts. in science faculty have been provided with at least one professorship, it will be only fair if geography deptt. is also given a similar position.
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178

1 Reader - For Women's College. 10 Readerships have been sanctioned but distribution of these readerships is such that it denies promotional opportunities to some senior teachers. This may be rectified by providing a readership to geography section since this section has a senior lecturer who stands 3rd in the composite seniority list of the college but has been denied promotional opportunity on the ground that one readership already exists there.

Copies of letters received from the university in this regard are Annexure I* & II. @ Relevant extracts from the Visiting Committee's report in respect of the above departments are at Annexure-III &

The Commission has so far approved schemes of Aligarh Muslim University involving a total expenditure of Rs. 169.60 lakhs which is 2/3rd of the ceiling of Rs. 250 lakhs fixed for the university.

The proposal of the Aligarh Muslim University for change of specialisation for the above posts and for sanctioning two additional posts for the Department of Geography is placed before the Commission for consideration.

p 179-184
@ p 185-190
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(179)

ANNEXURE- I to Item No.21

Copy of letter No.DS/84/76 dated the 3rd November, 1976 received from Shri Hamid Ali Khan, Development Officer, Aligarh Muslim University, addressed to the Secretary, University Grants Commission, New Delhi.

Sub:- Teaching posts sanctioned by the UGC under the Fifth Five Year Plan - Aligarh Muslim University, change in the specialization of -

This kindly refers to the U.G.C. letter No.F.7/75D-2(a) dated the 21st February, 1976 on the subject cited above.

I am directed to say that the University is satisfied that certain changes in the approved specialisation in respect of certain posts for certain Departments of studies in the University as shown in the enclosed statement are necessary on the ground of justifications given in Appendix.

I am further directed to request that the Commission may kindly approve the above changes in specialisation and communicate it to the undersigned at an early date.

Posts as sanctioned by the UGC under Fifth Five
Year Plan requiring change in specialisation:

180

Department	Professor	Reader	Approver's specialisation	Proposed specialisation by the University
English	-	1	In comparative Language & literature interested in the affinities between the literature of Europe and India.	In comparative Literature/Shakespearean Studies/American Literature.
Political Science	-	1	International Organisation.	International Relations.
Economics	1	-	Mathematical Economics or Econometrics	Economic Theory Economics Theory
	-	1	Public finance	Economics.
Botany	1	-	Plant Physiology and Cytogenetics	Physiology/Cytogenetics/Plant Anatomy.
	-	1	Microbiology/Algaeology	Biostatistics/Ecology/Embryology and Experimental Embryology/Biosystematics.
	-	1	Physiology/Pteridology	Physiology/Pteridology/Cytogenetics/anatomy.
	-	1	Biostatistics/Ecology	Algaeology/Microbiology/Plant Pathology/Plant Nematology.
Zoology	1	-	Parasitology	Animal Parasitology/Animal Physiology/Animal Ecology.

APPENDIX I

Department of English for the post of Reader
Justification for -

(181)

That the approved specification is not happily worded and if the post is advertised accordingly it will both create confusion and not attract any applications whatsoever.

In the original proposals two more readerships were requested, one in Shakespearean studies. (The area in which we have been steadily specialising) and the other in American Literature in which both teaching and research is being done at the moment.

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APPENDIX II

182

Department of Political Science for the post of
Reader - Justification for -

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1. The Department of Political Science had originally recommended the creation of teaching posts according to the fields of specialisation. Such fields, as recognized by the Department and also the U.G.C. Committee on Political Science are:-

1. Political Theory
2. Comparative Politics.
3. International Relations.
4. Public Administration.

2. The UGC has sanctioned two posts, specifying not fields but sub-fields of two of the four fields noted above. Thus one Readership with Political Behaviour, as sanctioned by the U.G.C. may be said to fall under the field of comparative Politics and the other Readership, with International Organisation for specialisation, may be said to fall under the field of International Relations.

3. Neither the original proposals nor the general policy of the Department favours the narrowing of specialisation to the sub-fields, because any such narrowing minimises the competitive opportunities in the system of limited higher posts, to those who have specialised in different sub-fields of any given field of specialisation.

4. Accordingly the Departmental recommendation for the advertisement, as unanimously approved by the members of the Board of Studies, seeks to reconcile the original recommendation of the Department with the U.G.C. specifications, by placing the field at the level of essential qualifications & the sub-fields at the level of desirable qualifications.

5. From the point of view of teaching and guiding research specialisation in a field is for the time being to be preferred against that in a sub-field.

It is suggested, therefore, that, if necessary, the prior approval of the U.G.C. may be obtained to advertise the posts according to the unanimous recommendation of our Board of Studies. The change suggested is a minor one and complies with requirement laid down by the U.G.C.

Moreover, as regards the speciality of Political Behaviour it needs to be pointed out that the U.G.C. had already sanctioned, under the Fourth Five Year Plan, a post of Readership in Political Theory and Political Behaviour as specialisation, and the post was filled accordingly. The Department feels no need, therefore, to specify Political Behaviour as the essential speciality for another post.

APPENDIX III

183-III

Department of Economics for the post of
Professor & Reader Justification for -

183

The Board of Studies made the following proposals:-

1. We accept the post of Professor sanctioned for the Department. However, the Department has emphasised the teaching of Economic Theory in all its aspects since long. The courses taught in the Department have a theoretical bias. It will be in the fitness of things if Professorship in Economics be given in the area of Economic Theory. This specialisation is broadly in line with the fields indicated by the Departmental Committee which was appointed by the Department in its meeting held on 15th December, 1975 for its future development.

This meeting of the Board of Studies of the Department of Economics resolves that the present specification of the post of Professor in Mathematical Economics of Econometrics sanctioned by the U.G.C. be changed to Professor in Economic Theory.

2. We accept the post of Reader sanctioned by the U.G.C. under its developmental scheme for the Fifth Five Year Plan. However, as regards the field of specialisation we wish to submit as under:

- (i) In view of the heavy workload in the department it will not be possible to make a Reader specialise teaching only in any one area of Economics. He has to teach a number of different courses, and;
- (ii) the removal of specialisation will widen the scope for the selection of the best candidate.

The Board of Studies in Economics, therefore, resolves that the post of Reader in Public Finance be converted to that of Reader in Economics.

P.70

183

ANNEXURE - I
APPENDIX IV

Department of Botany for the post of Professor and Reader - Justification for

The special meeting of the Board of Studies approved the creation of one post of Professor and three posts of Reader in the Department of Botany and one post of Reader in the Women's College for the duration of the Fifth Five Year Plan. While giving its approval to the item, the special meeting of the Board of Studies was gratified to note that the UGC sanctioned one Professorship and three Readerships for the Department in the Fifth Five Year Plan and although this falls short of the genuine needs of the Department (as laid down in the draft proposals of the Department) and of the recommendations made by the Visiting Committee, which had proposed two Professorships, two Readerships and two Lecturerships.

The meeting further noted with satisfaction that the UGC sanctions of teaching posts have given due consideration to the work which has been done and is being done in the fields such as Plant Physiology and Cytogenetics. It is just as well that these sanctions have taken note of certain fields which are yet little developed in the Department and require more attention. The meeting, however, felt that certain major specialisations for which the Department is noted within the country and abroad have been altogether left out by these sanctions. This may have been due to the constraint of resources or to a few omissions and commissions which have crept into the recommendations of the Visiting Committee.

The meeting, therefore, earnestly desires that certain slight modifications be effected in the sanctions provided by UGC. These modifications may be brought about by a few specific additions of specialisations to the posts already provided. It may be pointed out that these modifications do not make any additional demand of teaching posts.

Therefore, while approving the creation of the posts of one Professor and four Readers (inclusive of one Readership in the Women's College), the Board of Studies seeks the following additions of specialisations to the posts sanctioned by the UGC:-

1. Professorship: Plant Anatomy be added to Physiology Cytogenetics.
 2. Readership:
 - (1) Plant Pathology/Plant Mematology be added to Algology/Microbiology
 - (2) Anatomy/Cytogenetics be added to Physiology Pteridology.
 - (3) Embryology and Experimental Embryology/Biosystematics be added to Biostatistics/Ecology.
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Department of Zoology for the post of Professor
Justification for.

The meeting of the Committee, appointed by the Board of Studies at its meeting dated 20.5.1976 was held at 11.00 a.m. on July 13, 1976 in the Department of Zoology. The Committee took the following decision:-

- 1) that the area of specialization for the post of Professor of Parasitology be broadened and the field of specialisation should be Animal Parasitology/Animal Ecology/Animal Physiology.
- 2) the Committee also requested Prof. S.M. Alam, Dean, Faculty of Science to kindly approach the University Grants Commission to sanction two additional posts of Professors in the Department in the following fields of specialisation:
 - 1) Animal Ecology.
 - 2) Animal Physiology.
- 3) the post of Reader in the Women's College and the post of Reader in Ichthyology be accepted as sanctioned by the UGC.

Copy of the letter No.D-90/DS dated the 22nd December, 1976 received from the Registrar, Aligarh Muslim University, addressed to the Secretary, U.G.C., New Delhi.

185

Sub:- Teaching posts sanctioned by the UGC under the Fifth Five Year Plan - Aligarh Muslim University - Change in the specialisation of - and creation of additional posts.

This is in continuation of this office letter No.DS/84/76 dated 3.11.1976 on the subject cited above.

I. I am directed to say that the University is satisfied that the proposed changes in the approved specialisations in respect of certain sanctioned posts for certain Departments of Studies in the University as shown in the following statement are necessary on the ground of justifications given in the appendices.

It is, therefore, requested that the Commission may be pleased to approve the proposals as to change in specialisations and communicate to the University at an early date to enable the University to proceed further accordingly:-

Department	Post	Approved Specialisation	Proposed specialisation for approval
Law	1 Prof.	In Constitutional Law.	In Constitutional Law & Administrative Law.
Law	1 Reader	In Mercantile Law	In Mercantile Law, Criminal Law, Constitutional Law & Muslim Law. For justification please see <u>App.I.</u>
Geography	1 Reader	In Applied Cartography with specialisation in Air Photo Interpretation.	In Land Use Studies and Air Photo Interpretation.
	1 Reader	In Quantitative methods in Geography.	In Agriculture Geography.

186

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II. Further, the Department feels and the University is satisfied that additional posts of a Professor in Quantitative Methods in Geography in the Department and of a Reader in Geography for Women's College are necessary which the Commission may kindly approve and communicate early for further action at the end of the University.

For justification of the needs of the Department of Geography, please see Appendix-II.

III. The Commission is also requested kindly to read Appendix-III while considering the proposals of the Department of Zoology sent vide this office letter No.OS/84/76 dated the 3rd November, 1976.

Justification for the revised specialization of the posts of Professor and Reader under the V Five Year Plan.

The U.G.C. in the V Five Year Plan vide its letter No.F-1-7/76(D-2a) dated 21.2.1976 approved the following posts for the Department of Law, Aligarh Muslim University with the specialisations noted against each:

- The (a) One Professor in Constitutional Law
- (b) One Reader in Mercantile Law.

The Board of Studies of the Department of Law, in its meeting held on 7.5.1973 had adopted the proposal for the creation of a post of Professor in "Constitutional Law and Administrative Law".

On receipt of the approval of the U.G.C., the Board of Studies of the Department of Law again considered in its meeting dated 21.8.1976 the question and resolved:-

"I- that the post of Professor of Constitutional Law made available to the Department of Law in the V Five Year Plan be rephrased as 'Professor in Constitutional Law and Administrative Law' as originally recommended by the Board of studies of the Department of Law".

The subjects of Constitutional Law and Administrative Law are quite allied to each other and the line of demarcation between them is very thin. Generally the students offer Constitutional and Administrative Laws in the same group of specialisation and as such the teachers appointed to teach this group must have specialised in both. Therefore the Board of Studies decided that the UGC be requested to rephrase the specialisation 'Constitutional Law and Administrative Law'.

II- Regarding the post of Reader in Law it may be mentioned that this issue was also considered and reconsidered at the aforesaid meeting of the Board of Studies. The Original proposal in this case was also for speciality in "Mercantile Law, Criminal Law, Constitutional Law and Muslim Law". Since the Department is engaged in research in all these areas, the UGC may again be requested to rephrase the speciality as "Mercantile Law, Criminal Law, Constitutional Law and Muslim Law."

Extract from the minutes of the meeting of the Board of studies of the Department of Geography held on 10.6.1976 in the Department of Geography.

188

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5. Considered the report on the grant sanctioned to the Department of Geography by the University Grants Commission under the 5th Five Year Plan.

Resolved that the following recommendations be made to the University Grants Commission.

That while the grants relating to purchase of books, journals and equipment are wholly acceptable and welcome, the teaching positions which have been offered by the UGC need some slight modification.

That whereas the UGC has offered two Readerships (one in Quantitative Methods and the other in Applied Cartography and Air Photo Interpretation), the Board notes that these sanctions do not accord with the needs of the Department. It further feels that the needs of the Department would be better served if slight modifications are made so that the following positions are sanctioned.

- i) One Professorship in Quantitative Methods.
- ii) One Readership in Agricultural Geography.
- iii) One Readership in Land Use Studies and Air-Photo Interpretation.

That the justifications for the modification which are being suggested areas follows :-

i) Quantitative Methods have come to assume a wide application in geographical studies and the recommendations of the U.G.C. Visiting Committee themselves recognize the importance of statistical methods and analyses in modern geography. This Department already possesses adequate source material and equipment for a speedy development of geography on quantitative lines. In fact for the last five years it has been running two compulsory courses in quantification and one elementary course at the graduate level. The department already has a senior Reader in the fields of Quantitative Methods. What is now urgently needed is a Professional Position to meet the present requirements. As all the other Deptts. of the Faculty of Science have been provided at least one Professorship each in the 5th Plan, it would be only fair of the Department of Geography is also given a similar position. The Board recommended that a Professorship in Quantitative Methods be provided to this Department.

189

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ii) The Department has done pioneer work in the field of agricultural Geography during the last two decades. The U.G.C. visiting Committee has taken cognizance of the work done by the Department in this field. Indeed in this respect the Department has gained national as well as international reputation. Since this field is becoming increasingly diversified and wider in scope, the existing expertise at the Professional level needs to be assisted by a Readership in Agricultural Geography. It is therefore recommended that a Readership in Agricultural Geography be provided to this Department.

iii) The UGC Visiting Committee report testifies that more than half of the Ph.D. work done in this Department is in Land Use studies and that these studies would gain much if they are supported by Air-Photo interpretation. As there cannot be two opinions on this, the Board recommends that the Department may be provided with a Readership in Landuse studies and Air-Photo Interpretation.

6. **CONSIDERED:-** The position of geography teachers in the Women's College in the 5th Plan.

Having noted that ten Readership have been sanctioned to the Women's College in the 5th Plan, further having noted that the distribution of these Readerships is such that it denies promotional opportunities to some senior teachers and that the College principal has already requested to the P²V.C. to rectify this by providing Readerships to those sections where such senior teachers exists.

Having further noted that the Geography section is one of those sections where the senior-most lecturer in the section, stands third in the composite seniority list of the College, but has been denied promotional opportunity on the grounds that one Readership already exists there.

RECOMMENDED: That an additional Readership be provided in the Geography Section of the College.

Department of Zoology, AMU

190

Justification for the revised specialisation of the Post of Professor, Under the Vth Five Year Plan.

The Sub-Committee appointed by the Board of Studies in Zoology at its meeting held on 25.5.1976 gave careful thought to the teaching posts with specialisations sanctioned to the Department of Zoology visa vis the pressing needs of the Department. It was unanimously decided that the other two specialities, i.e., Animal Physiology and Animal Ecology should not be ignored.

The Professor of Animal Physiology will have a wider horizon with responsibility to integrate the Physiological researchs (Conventional as well as Experimental) which are being done in the Department of Zoology in some important fields of Zoology including Biology of Reproduction namely, Entomology, Ichthyology and Fisheries, Rodentology and Helminthology. The researchs on Insect Physiology alone so far carried out by the Department are very widely spread out and the same have been incorporated in standard publications in India and abroad. This idea of coordinating research in different fields of Animal Physiology is indispensable for University Department as it would provide information advances made in various field of Physiology.

The Professor of Animal Ecology will be responsible for coordinating the research activities which are being carried out in the Department of Zoology on important groups of Animals namely, insects, fishes and mammals.

The Department has already published some very useful dates on the Ecology of these groups of animals which have been incorporated in Indian and foreign publications. Efforts are being made to coordinate the important Ecological activities of the animals which are being recorded under laboratory and field conditions.

In these circumstances the sub-committee has decided to advertise the post of Professor Zoology with Animal Parasitology/animal Physiology/Animal Ecology as specialities. This will give equal opportunities to all the three important fields of Zoology to figure in the advertisement and consequently the University will be in a better position to select the best candidate for the post of Professor of Zoology. It is, therefore, requested that this small note justifying the inclusion of Animal Physiology/Animal Ecology along with animal Parasitology may be forwarded to the University Grants Commission for consideration.

Relevant extracts from the Visiting Committee report in respect of the department in which change of specialisation has been suggested by the AMU for approved Teaching posts.

191

1. DEPARTMENT OF LAW

1. The Department of Law was established in 1920. It offers courses leading to the degrees of LL.B., and Ph.D. The student enrolment during 1974-75 was LL.B. 436; LL.M. 50, Ph.D. 2. The faculty includes 2 Professors, 3 Readers, 11 Lecturers and 3 part-time Lecturers. The post of one Reader is vacant and a Lecturer has been appointed in his place.
2. The research activities are in the areas of Muslim Law, Criminal Law, Constitutional Law and Mercantile Law. During 1966-74, 5 Ph.D. Degree were awarded and 12 books and 159 papers published.
3. During 5th Plan, it is proposed to strengthen the existing teaching and research activities of the Department as also to establish a "Legal Aid Clinic" which will also enable the students to gain practical experience in their trade. The viable group are in the areas of Constitutional law, Criminal Law, Mercantile Law and Law of Torts. The Constitutional Law includes 2 Readers and 3 Lecturers (this needs strengthening at Professors' level) The group in Mercantile Law includes 1 Professor and 3 lecturers. It needs strengthening at the Reader's level.

2. DEPARTMENT OF ENGLISH

1. The Department of English was established in 1920. It offers courses leading to the degrees of B.A. (Hons), M.A., M. Phil. and Ph.D. / and P.U.C. The Department also provides facilities for the teaching of French, German and English. Certificate of Proficiency and diploma courses in these languages are offered. The student enrolment during 1974-75 was PUC 1040; PMC 123; B.A. (Hons) including Evening Classes I Semester 1102; II Semester 726, M.A. 32. The faculty includes 2 professors, 9 Readers and 18 Lecturers.
2. The Major research activities of the Department are in Shakespeare Criticism; Modern British Literature; 20th Century American Literature; English Language Teaching; Contrastive Phonology; Indo-Anglic Writings and Comparative Literature. During the period 1966-74, 3 Ph.D. degrees were awarded and 9 Books and 28 articles were published.

1972

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3. During 5th Plan, it is proposed to strengthen the existing teaching and research activities of the Department as also to undertake the following schemes:

- (1) Bibliography of Indian Literature (available in India (1st Priority)
- (2) Schemes on comparative literature (1st Priority)
- (3) Schemes on the institution of PG Diploma courses in Modern English Literature, Shakespearian stories, American Literature, English Language (2nd priority).
- (4) Development of teaching of Modern European Languages such as German, Russian, French etc. (3rd Priority).

4. The Department has qualified staff for teaching post-graduate classes in English literature and guiding research in American literature, English Language and Shakespearian studies. The Department has produced a number of research scholars in these areas. The number of research scholars has steadily risen inspite of the load on senior teachers for teaching M.A. classes, conducting seminars and providing facilities for sessional work.

5. The Department of English has arranged seminars on some important poets and authors during the recent years. Books on "Wordsworth" and "Donne" comprising the papers presented by members of the staff and some distinguished scholars have been published. Individually almost all senior members have done research work on some aspect of English and American literature and some of them have published them in book-form.

6. Comparison language and literature may be given due emphasis in the post-graduate teaching and research programme. The work done in 20th century American literature could also be usefully strengthened. There is some need also to reduce the teaching load.

3. DEPARTMENT OF POL. SCIENCE

1. Department of Political Science established in 1948, Offers PUC, B.A. (Hons), M.A., Ph.D. and Diploma courses in International affairs and Public Administration. There were 132 Students in PUC

193

300 in B.A. (Hons), 80 in M.A., 23 in Ph.D. and 114 in Dip. course in 74-75. Faculty has 2 professors, 6 Readers and 9 Lecturers.

2. Major Head of Res. activities are Pol. Theory, Int. relations, Const. Politics and Public Administration. 21 Ph.D. were awarded 16 books and 77 papers were published between 1966-74.

3. This is a well developed Department of the University and is known for its contributions to the study of Muslim Political Theory, Politics in Middle East, and State Politics and Government. The Department brings out a bi-annual Journal-Indian Journal of politics.

4. The department is cramped for space, and it has an unfavourable student-teacher ratio. While faculty may be augmented it is also necessary that the department restricts its teaching programmes to the units warranted by its faculty resources. In this context the Committee suggests that the University should consider discontinuing diploma courses. The resulting staff would improve the student-teacher ratio.

5. Collaboration between the Department of Politics and the Centre of West Asian Studies in Teaching and Research needs to be promoted by the University.

6. Diversification of courses with emphasis on new and modern subjects may be given serious thought. The Department may give active consideration to making provision for students to take one optional course in the Centre of Advanced Studies in History.

4. DEPARTMENT OF ECONOMICS

1. The Department of Economics was established in 1920. It offers courses leading to the degrees of B.A., M.A., Ph.D. and PUC. The student enrolment during 1974-75 was PUC 159, B.A. 337, M.A. 164 and Ph.D. 47. The faculty includes 2 Professors, 6 Readers and 7 Lecturers. The Committee noted that in the 4th plan, a professorship was sanctioned in the field of Mathematical Economics/Econometrics. The post was, however, filled by one who did not have this qualification.

2. The research interest is in the area of problems of Indian Economy and International trade. Except for two Lecturers, the remaining faculty has research qualifications. During 1966-74, 6 Ph.D. degrees were awarded and 10 books and 28 research papers published.

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194

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3. During 5th Plan, the University proposed to strengthen its programmes of teaching and research. It is also proposed to operate additional special semester courses and the M.Phil. Programme.

4. Due to heavy increases in the student intake in recent years, the department has been experiencing shortage of space and staff. The department has to reduce its intake to some extent and keep it at a level commensurate with its physical and faculty resources. On account of limitations of space and teaching staff, the Department has not been able to introduce a number of important courses for which provision is made in University regulations; nor has it been possible for the Department to operate the M.Phil programme.

5. DEPARTMENT OF BOTANY

The department of Botany was established in 1920. It offers courses leading to the degrees of B.Sc. (Hons), M.Sc., M. Phil and Ph.D. It also participates in the Pre-University and Pre-Medical Programme. The student enrolment during 1974-75 was pre-Univ.- 115, Pre-Medical- 115, B.Sc. (Hons).-360 M.Sc. 81 and Ph.D.- 38. The faculty includes 2 Professors, 5 Readers and 14 Lecturers. All Teachers, except 5 Lecturers possess research degrees.

2. The research activities are in the field of Plant Anatomy; Cytogenetics; Angiosperm embryology; Plant Pathology; Nematology and Virology and Plant Physiology. During the period 1966-74, 29 Ph.D. degrees were awarded and 338 research papers were published.

3. During 5th plan it is proposed to strengthen the existing teaching and research activities of the department.

4. The department has earned a good reputation in the fields of Plant Nematology, Plant Pathology, Embryology and Cytogenetics. The further development of research work in these fields require the addition of senior faculty in Plant Physiology, Plant Nematology and Cytogenetics. At present there are no specialists for teaching Algology, Bryology, Pteridology and Microbiology. Additional faculty would be needed to fill up these gaps.

5. The department is maintaining an experimental research station in connection with work on Cytogenetics and Plant Nematology and Pathology. The existing facilities at this station are meagre and needed to be strengthened by providing a good small laboratory and supporting staff and equipment.

195

6. Inter disciplinary teaching should be started in Molecular Genetics and Microbiology and Cell Biology. This is to be done in collaboration with the Department of Zoology.

6. DEPARTMENT OF ZOOLOGY

1. The department of Zoology was established in 1920. It offers courses leading to the degrees of B.Sc., M.Sc., M. Phil. and Ph.D. including PUC and PMC. The students enrolment during 1974-75 was B.U. 195, B.Sc. 266, M.Sc. 139 and Ph.D. 75. The faculty includes 2 Professors, 7 Readers and 14 Lecturers. Except for 2 Lecturers, the remaining faculty possess research qualifications.
2. The major research activities are in Entomology; Parasitology; Ichthyology and Fisheries; Genetics; and Plant Nematology. During the period 1966-74, 31 Ph.D. and 31 research degrees were awarded.
3. During 5th Plan it is proposed to strengthen the existing teaching and research activities of the Department and to establish an Institute of Entomology in the Department.
4. The Department started teaching Zoology at the postgraduate level in 1931 and research activities in 1933. The Department has well equipped and well furnished laboratories for teaching and research, three constant-temperature rooms for experimental research, a museum containing good reference collections, a collection of over 7500 books, over a 100 Zoological Journals, reprints and microfilms.
5. The fields of specialisation in teaching at the M.Sc. level and in research are Entomology, Parasitology Ichthyology and Fisheries, Plant Nematology and Genetics.
6. The Section of Entomology is one of the best centres in India for teaching and research, with its strong team of staff consisting of 2 Professors, 4 Readers and several Lecturers. The major areas of research work in this section are Insect Morphology, Taxonomy, Physiology, Toxicology, Endocrinology, Development and Chemical and Biological Control of Insects.
7. The Section of Parasitology has also established an excellent reputation. Besides teaching the fundamentals of Protozoology, Helminthology and Medical Entomology at the Postgraduate level, the research work in this section concerns problems connected with the physiology and biochemistry of helminth parasites and the immunological and chemo-therapeutic studies relating to these parasites. Classical studies like morphology, taxonomy and life history of helminth parasites of a man and animals are also being carried out. The Section of Parasitology is headed by a Reader who is assisted by three Lecturers. This Section needs further strengthening.

196

8. The Section of Ichthyology and Fisheries was constituted in 1958. The major lines of research in this Section include Fish Biochemistry, Limnology, Fish Physiology, Physico-Chemical nature and constitution of fish eggs and the assessment of the nutritive value of many commercially important fishes. This section is headed by a Lecturer assisted by two Lecturers. There is a definite need for strengthening this Section.
9. The section of Plant Nematology is carrying out commendable research on the taxonomy, biology, ecology and Physiology of plant parasitic Nematodes. This Section is headed by a Reader who is assisted by a Lecturer. Not much justification is seen for the separation of this Section out of the Section of Parasitology, especially in view of the fact that in the Department of Botany, research work of international repute is being carried out on almost identical problems in Plant Parasitic Nematodes.
10. The Section of Genetics is the most recent addition to the Department and is headed by a Reader. The major lines of research of interest of this Section are Genetics, Population Genetics and Cytogenetics of Mosquitoes, and more recently Mammalian Cyto-Genetics. This section has also to be further strengthened.
11. From the list of teaching staff and their qualifications supplied it appears that there has been imbreeding in the Department in the matter of appointments. As a direct consequence, the development of the department in the matter of research has been predominantly restricted to the areas of Entomology and Parasitology. For the real and diversified development of the department with respect to both teaching and research in modern Zoology, it is advisable to recruit teaching staff in those modern areas of specialisation which are not available at present in the department. Some such areas suggested are Cell and Molecular Biology, Comparative Animal Physiology, Reproductive Biology, Developmental Biology, Endocrinology, Environmental Biology, etc.
12. The establishment of a School of Fundamental Research in Entomology within the Department will certainly be a great hindrance to the proper development of the other equally important areas of teaching and research in Zoology now functioning the Department. Especially when so many Agricultural Universities all over the country have undertaken intensive programmes of teaching, research and training in Entomology, no justification is seen for the establishment of an institute of this type.
13. The Department of Zoology should undertake teaching interdisciplinary courses in Biochemistry, Biophysics and Bio-statistics, and programmes of inter-disciplinary research in which the departments of Botany, Chemistry, Physics and Statistics and the Medical and Engineering Colleges of the University could be associated.

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14. Because of the division of the Department into various Sections, there is at present no integration in the use and maintenance of equipments, especially costly equipments which cannot be duplicated. It is, therefore, desirable that proper integration for this purpose is brought about at the departmental inter-departmental and Faculty levels.

7. DEPARTMENT OF GEOGRAPHY

1. The Department of Geography was established in 1920. It offers courses leading to the degrees of B.A./B.Sc., M.A./M.Sc. and also Ph.D. including P.U.C. The student enrolment during 1974-75 was Pro-University 51, B.A./B.Sc. I year 41, II year 25 and III year 29, M.A./M.Sc. Previous 29 and Final 39, Ph.D. 52. The faculty includes 2 Professors, 4 Readers and 8 Lecturers. Except for 2 teachers, all other teachers possess research qualifications.

2. The major areas of research in the Departments are: Agricultural Geography; Population and Industrial Geography; Nutritional Geography; Medical Geography; Applied Geography; Land Use; Anthropogeography and Political Geography; During 1966-74, 11 Ph.D. degrees were awarded and 2 books and 125 research papers were published. During 5th Plan, the university proposes to strengthen the existing programmes of teaching and research in the Departments.

3. The Department is one of the leading Geography Departments of the country and has contributed significantly to the promotion and development of Geography at the national and international level. The Department has developed a high level of specialisation in the field of Agricultural Geography and land use Mapping and has attained international recognition in this particular field. A little over 50% of the research scholars who have qualified for the degree of Ph.D. from this Department have worked on aspects relating to Agricultural Geography. In order to strengthen and further improve upon this, the Department proposes to use aerial photographs produced by satellites for analysis and interpretation of agricultural land use and other cultural features. The Department should be encouraged to do so.

4. It would be desirable to diversify and expand its areas of specialisation to other fields of Geography such as Political Geography, Economic Geography etc. It has expertise at the professorial level in the field of Political Geography and therefore can suitably develop this branch of Geography.

5. The Department has to develop adequate understanding and expertise of refined and sophisticated techniques of analysis which are now available for the development of the discipline of geography. The Department may be provided on a priority basis a senior level position for a specialist in Quantitative Methods in Geography.

198

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6. There is quite a heavy pressure of teaching load on existing staff; Cumulatively the staff is doing a little over 100 periods of excess teaching at all levels, Pre-University, B.Sc., B.A. and M. Sc. The exclusion of pre-university will reduce the work-load by only 25%. In order to minimise this pressure the Department does need a couple of junior positions.

7. The Geography Department has its own cartographic and statistical laboratory and does need a separate building of its own. At the moment it occupies 14,000 sq. ft. of first and ground floors of one of the halls of residence. On principle, the teaching departments should be separated from a hall of residence. Moreover, the Department of Geography has already got a building of 10,000 sq. ft. which it has not been able to occupy because of inadequate space. The Department needs additional space. In addition 4,000 sq. ft. (carpet area) be added to the new building. All possible sections of the department should be transferred to the new building immediately so that space in the S.S. Hall is released corresponding by hostel purposes.

8. The Department should promote collaboration with other Departments of Botany, Economics, Geology in their programmes of research.

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

199

Meeting:

Dated : 31st January, 1977.

Item No. 22 : To consider a proposal from the Berhampur University for starting the Department of Mass Communication during the Vth Plan period.

The University Grants Commission Visiting Committee which examined the 5th Plan requirements of the Berhampur University recommended the following assistance for the Deptt. of Journalism for the 5th plan period:-

- | | |
|------------------------------------|-------------------------|
| (1) Teaching Staff | 1 Reader
2 Lecturers |
| (2) Building (including Furniture) | Rs. 1.00 lakh |
| (3) Books and Journals | Rs. 10,000/- |

The Commission however while considering the report of the Committee at its meeting held on 14-15th July, 1975 could not accept the recommendations of the Visiting Committee for providing assistance to the University for the establishment of the Department of Journalism (Resolution No.8).

The Berhampur University later on approached the Commission for necessary assistance for the above Department. This proposal was also discussed by the Chairman, University Grants Commission with the Vice-Chancellor of Berhampur University at Calcutta some-time in June/July, 1976 and the Chairman, suggested that in case the University desired to set up a Department of Mass Communication instead of a Department of Journalism, the proposal could be considered. Accordingly, the University was requested to send a revised proposal for Commission's consideration in this regard.

The Berhampur University has now sent a proposal for starting a Department of Mass Communication amounting of Rs. 9.81 lakhs (Non-recurring) and Rs. 2,16,000 (Recurring) and has sought Commission's approval for the same. The details of the financial implications are given in the enclosed Annexure. *

* p 200-202

The Commission has already accepted the Development proposals of the Berhampur University amounting to Rs. 68-51 lakhs against Rs. 67 lakhs which is 2/3rd of the tentative allocation of Rs. 100 lakhs fixed for this University for the 5th plan period

The matter is placed before the Commission for consideration.

AS(D-3a)/DS(D-3a)

FINANCIAL ESTIMATES FOR THE DEPARTMENT OF 'MASS
COMMUNICATION' FOR IMPLEMENTATION DURING V PLAN PERIOD.

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ABSTRACT AT A GLANCESCHEME 'A'

<u>Buildings</u>	<u>non-recurring in Rs.</u>	<u>Recurring in Rs.</u>
I. Teaching Block, 1800 sq.ft.	6,00,000	
Studio, 1800 sq.ft.		
Press, 1800 sq.ft.		
II. <u>STAFF</u>		
Teaching staff	55,000 p.a.
Radio and T.V. personnel.	...	35,000 p.a.
Press personnel	48,000 p.a.
III. <u>EQUIPMENT</u>		
Radio ...	78,000	8,000 p.a.
Television ...	1,42,000	10,000 p.a.
Film ...	74,000	5,000 p.a.
Press ...	77,000	7,000 p.a.
IV. Library & journals..	-	18,000 p.a.
V. Experimental journals	-	5,000 p.a.
VI. Teleprinter	-	25,000 p.a.
VII. Miscellaneous ...	10,000	-
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Total: ...	9,81,000	2,16,000

or

Rs. 10 lakhs.

BERHAMPUR UNIVERSITY

201

SCHEME 'A'

(i) Teaching Block:

4 rooms	...	18' x 12' =	768 sq.ft.
2 rooms	...	16' x 24' =	774 sq.ft.
3 cubicles	...	x 10' =	240 sq.ft.
			<u>1782 sq.ft.</u> about 1800 Sq.ft.

Studio:

Studio room	...	20' x 20' =	400 sq.ft. with accoustics
Equipment room	...	25' x 25' =	625 sq.ft. (air-conditioned)
Engineer and	...	15' x 15' =	225 sq.ft.
Technicians room			
Workshop	...	15' x 15' =	225 sq.ft.
Film processing	...	10' x 10' =	100 sq.ft.
room			
Store room for		8' x 6' =	48 Sq. ft.
spare parts			
			<u>1623 sq.ft.</u> or within 1800 sq.ft.

Press: with asbestees 60'x30' = 1800 sq.ft.

(ii) Teaching staff Staff Recurring (Annual)

Professor	1	Rs.1500 x 12 =	18,000 p.a.	18,000 p.a.
Reader	1	Rs.1200 x 12 =	14,400	14,400 p.a.
Lecturers	2	Rs. 700 x 2 =	1400x12	16,800 p.a.
			1400x12=16,800	5,000 p.a.
				<u>54,200 or 55,000 p.a.</u>

Radio & T.V. personnel:

1.	Technical Director	.. 1	Rs.700-1300	
	Qualification B.E.			
	(Electronics) or M.Sc.			
	(Physics in Electronics)			12,000 p.a.
2.	Professional Cameraman			
	Qualification B.Sc.			
	Physics	...	Rs.500- 900	8,400 p.a.
3.	Technical Asstts.	.. 2		
	Qualification Diploma			
	in Electronics or			
	B.Sc., Physics	...	Rs.450- 700	14,400 p.a.
				<u>34,800 or 35,000 p.a.</u>

Press personnel:

2 Nos. of machinemen	@	Rs.600/-	p.m.	14,400
2 Nos. of compositors	@	Rs.300/-	p.m.	10,800
1 No. of Impositor	@	Rs.300/-	p.m.	3,600
2 Nos. of Binders	@	Rs.250/-	p.m.	6,000
1 Proof Reader	@	Rs.400/-	p.m.	4,800
1 Nos. of Technical	@	Rs.700/-	p.m.	8,400
Asstt.-cum-Supervisor				
with B.Sc. & Diploma				
in priority				
				<u>48,000</u>

272

(iii) Equipment

Television (closed circuit)

		<u>Non-recurring</u>	<u>Recurring</u>
1.	C.C.T.V. Camera 2 nos. ...	Rs. 50,000	
2.	Vides Tape recorder ...	Rs. 50,000	
3.	Vision Mixer ...	Rs. 5,000	
4.	One key light, two back lights three full lights with fixtures	Rs. 20,000	
5.	K.W. Key lights 2 nos. ...	Rs. 400	
6.	500 W full lights with auto-transfermet which can carry 5 to 6 Kws load for varying voltages.	Rs. 6,000	
7.	500 W Back light 4 nos. ...	Rs. 600	10,000
8.	Installation cope of vides.. equipment and cables.	Rs. 10,000	
		<u>Rs. 1,42,000</u>	

Films:

1.	16 m.m. slide projector 1 no.	Rs. 3,000	
2.	R.C. 16 m.m. moise projector	Rs. 60,000	
3.	Day light (wide) screen bolding type.	Rs. 2,000	
4.	One still camera	Rs. 3,000	
5.	One movie camera	Rs. 6,000	
		<u>Rs. 74,000</u>	5,000

Radio equipment:

1.	Record player 1 no.	Rs. 1,600	
2.	Communcial taperecorder 1 no.	Rs. 10,000	
3.	announcer mike 2 nos.	Rs. 1,000	
4.	4 channel sound mike 1 no.	Rs. 3,000	
5.	Communication receiving set 1 no.	Rs. 2,000	
6.	Monitering amplifier 2 nos.	Rs. 5,000	
7.	Air-conditioning	Rs. 40,000	
8.	Accousties	Rs. 10,000	
9.	Headbhenas 2 nos.	Rs. 5,000	
10.	Miscellaneous	Rs. 5,000	
		<u>Rs. 78,000</u>	

Press:

One blet bed 18" x 22" single demy m/c	1 no.	30,000	
One platen press 12" x 18"	...	12,000	
Cutting m/c			
perferating m/c	...	10,000	
hot press			
Types, cass, store, chasus, boiler etc.		<u>25,000</u>	70,000
		<u>77,000</u>	

(iv) Library and journal

Books	...	-	15,000
Journal	...	-	3,000

(v) Experimental journal

Paper	...	-	2,000
Blocks	...	-	3,000
			<u>5,000</u>

(vi) Teleprinter news ... - 25,000

(vii) Typewriters and miscollaneous - 10,000

Confidential

UNIVERSITY GRANTS COMMISSION

Meeting :

Dated : 31 January 1976

Item No. 43 To consider the proposal received from the Centre of Advanced Study in Geology, Punjab University for utilisation of grants during the V plan period.

203

The Commission at its meeting held on 7th January 1976 vide item No.6 while considering the recommendations of Standing Committee of the programme of Centres of Advanced Study and Department of Special Assistance decided that the Centres of Advanced Study who have completed initial ten years period and whose work has been rated as excellent or good may be provided as assistance upto Rs.20 lakhs within the V plan period.

It was subsequently decided that such proposals may be examined in the light of the recommendations made by the Assessment Committee which has reviewed the work of the Centre earlier. It was also decided that the grants required for scholarships/fellowships etc. may be provided in addition to the allocation of Rs.20 lakhs approved for the Centres. The proposal submitted by the Centre of Advanced Study in Geology, Punjab University has since been examined in the light of above decision and placed for consideration of the Commission:-

Centre of Advanced Study in Geology, Punjab University :

The proposal submitted by the Centre is attached as Annexure - I* and the report of the Assessment Committee is at Annexure - II @

The recommendations made by the Assessment Committee and the action taken or proposed to be taken in the proposal is given below:-

Recommendation

Action taken

1. The Committee has recommended that the two groups Palaeontology and Himalayan Geology should be further strengthened.
2. The Committee has also recommended that it would be appropriate to strengthen the group of Geochronology and to establish contacts with other groups interested in this subject.
3. Additional grants may be provided to strengthen the Library facilities.

The UGC has proposed additional posts of 2 Professors, 3 Readers and 3 Lecturers. These posts are required for Himalayan Geology and Palaeontology.

Additional staff asked for will enable the Centre to establish contacts with other groups.

Additional grants for Books and Journals have been included.

4)

4. The Committee would like to recommend that needs of the staff, both academic and supporting should be favourably considered.

In addition to the 8 academic posts, the Centre has asked for the sanction of 7 posts for supporting staff.

5. Additional support may be available on the basis of well defined research projects.

The proposals submitted by the Centre of Advanced Study in this regard have been examined by an expert committee and grants have been approved.

The proposed allocations by the Centre for the remaining 2 years of the V. plan are as under:-

Non-recurring :

1. Scientific Equipment (including basic grant of Rs.2,00,000/-)	Rs.5,00,000/-
2. Bus and Jeep	Rs.1,50,000/-
3. Field and High Altitude Equipment	Rs.1,00,000/-
4. Museum Equipment (Furniture etc.)	Rs.1,00,000/-
5. Surveying, Drawing and office equipment	Rs.1,00,000/-
6. Library (including basic grant of Rs.100000.	Rs.1,50,000/-
	<u>Rs.11,00,000/-</u>

Recurring :

1. Academic staff: (Present staff: 5 Professors, 5 Readers; and 8 Lecturers/As)	Rs.1,40,000/- p.a. (2 Professors, 3 Readers, 3 Lecturers).
2. Supporting staff (7 positions)	Rs. 36,000/- pa.
3. Contingency	Rs. 15,000/- p.a.
4. Chemicals and glasswares	Rs. 15,000/- p.a.
5. Publication	Rs. 10,000/- pa.
6. Repairs of instruments	Rs. 15,000/- p.a.
7. Field work	Rs. 20,000/- p.a.
8. Books/Journals/Micro Films	Rs. 10,000/- p.a.
	<u>Rs.2,61,000/- p.a.</u>

Rs.5,22,000/- for 2 years.
Grand total (Nt + R) = Rs.16,22,000/-

E.O. (SR.I)/Addl. Secretary

Proposals of the Centre of Advanced Study in Zoology Punjab University, Chandigarh - V Plan grants to be indicated as actual sanction conveyed.

207

Item	Existing facilities/revision available at present			Total requirements proposed under CAS scheme for V Plan.	Remarks/justification for additional requirements.
	Under maintenance budget (including that taken over from CAS from 1.4.74)	Under V Plan schemes accepted by USC.	Basic grants already approved under V Plan from CAS grants.		
	A	B	C		
<u>Non-recurring :</u>					
Building (Lab)	-	-	-		
Equipment	-	4 lakhs	2 lakhs	Rs.9.5 lakhs (Including Rs.1.5 lakhs for Bus and Jeep)	
Books & Journals	-	Rs.60,000/-	Rs.1,00,000/-	Rs.1,50,000/-	
<u>Recurring :</u>					
Teaching	4 Professors 4 Readers Res Associate/ Lecturer - 3	One professor		Professor - 2 Readers - 3 Lecturer - 3	
Supporting Technical Staff	-			7 posts.	
Travel	Rs.10,000/-			Rs.25,000/- p.a.	This is asked for foreign travel for attending conferences etc. This is generally provided separately).
Working expenses	Rs.15,000/-			Rs.15,000/- p.a.	
Seminar's Symposia	Rs.10,000/-			nil.	

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Books & Journals

Publications

Chemicals & Glassware

Repairs of Instruments

Field work

Rs. 15,000/-

Rs. 5,000/-

Rs. 10,000/- p.a.

Rs. 10,000/- p.a.

Rs. 15,000/- p.a.

Rs. 15,000/- p.a.

Rs. 20,000/- p.a.

REVISED PROPOSAL RELATING TO THE BRING UP OF
THE QUANT OF RUPEES 20 LAKHS ALLOCATED BY THE
GOVT FOR G.S. IN GEOLOGY DURING THE FIFTH FIVE
Year Plan.

207

NON-RECURRING :

i.	Scientific equipment	Rs.5 lakhs
ii.	Bus and Jeep	Rs.1½ "
iii.	Field & High altitude equipment	Rs.1 "
iv.	Museum equipment	Rs.1 "
v.	Surveying, drawing & Office equipment.	Rs.1 "
vi.	Library	Rs.1½ "

RECURRING

Academic Staff

1.	Professors	2 (Rs.1500-2500)
2.	Readers	3 (Rs.1200-1900)
3.	Palaeontologist, Hydrologist/Petroleum Geologist & Engineering Geologist/Palynologist (Lecturer's grade)	3 (Rs.700-1600)

(In order to give proper representation in various fields of Himalayan Geology & Palaeontology for which the Centre is recognised, it is very essential to provide with the above posts for the smooth running of the Centre's research work. Two posts of Professors are required for strengthening the various specialities of the Centre of Advanced Study in Geology for which the Visiting Committee agreed to give these posts for further development of the Centre).

SUPPORTING STAFF :

1.	Field Assistant	1 (Rs.120-300)
2.	Field Attendants	2 (Rs.100-200)
3.	Clerk	1 (Rs.110-250)
4.	Store-keeper	1 (Rs.110-250)
5.	Mechanic for sophisticated instruments.	1 (Rs.145-300)
6.	Driver for running the vehicle in hill and remote areas in high altitude.	1 (Rs.200-12-320)

208

WORKING EXPENSES :

1. Working including contingent expenses Rs.15000/- p.a.
2. Chemicals and Glass wares Rs.15000/- p.a.
3. Foreign tours grant for conferences and under collaborative programmes (travelling, DA and other incidental expenses). Rs.25000/- p.a.
4. Research publications Rs.10000/- p.a.
5. Repairs of instruments etc. Rs.15000/- p.a.
6. Expeditions for geological field investigations. Rs.20000/- p.a.
7. Reference books/journals including microfilms. Rs.10000/- p.a.

NOTE:-

SCANNING ELECTRON MICROSCOPE - This instrument is a universal in nature and is also used in almost all the branches of earth sciences e.g. Ore microscopy, sedimentology, Petrology, Palaeontology, Structural Geology, Crystallography, Metallurgy etc. and replaces several instruments. Advanced research work in any branch of geology cannot be taken up on modern lines without this equipment. Thus it is a must instrument in which the Centre is lacking. Since this Centre extends facilities to various geology Departments all over the country, a provision for this will go a long way in the working and efficiency of the Centre, if the UGC agrees to provide more funds besides the above grant. This will definitely help us in furthering the development of the Centre.

sd/-

(BS Tewari)

Director, CAS in Geology,
Panjab University, Chandigarh.

27.10.1976.

Report of the Assessment Committee for the
Centre of Advanced Study in Geology, Panjab
University, Chandigarh.

207

The University Grants Commission appointed an Assessment Committee consisting of the following members to visit and evaluate the work done by the Centre of Advanced Study in Geology, Panjab University since its recognition as a Centre in 1963-64. The Committee visited the Panjab University on 6th April 1974.

1. Professor RC Misra
Head of the Department of Geology
Lucknow University
Lucknow.
2. Dr. KR Surange
Director
Birbal Sahni Institute of Palaeobotany
Lucknow.
3. Dr. D Shankar Narayan
Additional Secretary
University Grants Commission.

The University Grants Commission recognised the Department of Geology, Panjab University as a Centre of Advanced Study in 1963-64, on the basis of the important contributions which this department had made in the fields of Vertebrate palaeontology, Micropalaeontology, Invertebrate Palaeontology, Stratigraphy and Tectonics under the leadership of Professor MR Sahni. The main emphasis of the Centre was to be in the areas of Himalayan Geology and Palaeontology. At the time of recognition, the staff in the department consisted of two professors, two readers and five lecturers. Subsequently posts of one professor, three readers and four research associates were created under the Centres of Advanced Study Programme. The Commission also provided grants for various other non-recurring and recurring purposes. The details of the assistance given by the Commission are given in Appendix I. The department also received support from the collaborative arrangements under UNESCO and UK Assistance Programmes.

As mentioned in the report of the Assessment Committee which visited this Centre at the end of the Third Plan period in March 1966, the activities of the Centre faced a setback in the initial stages because of the retirement of Professor MR Sahni and the consequent change in leadership and emphasis on development of different disciplines. However, after the appointment of Professor IC Pande as Head of the Centre, the Centre has been able to organise its activities in the two main areas identified for emphasis in this Centre. The department at present has about 20 research scholars and 18 persons on its staff. The staff includes three professors, five readers, five lecturers and four research associates, and a Curator for the Museum. The details of the staff and their research interests are given in Appendix II. The Centre also has adequate supporting technical staff for the various laboratories and the museum and for the field work.

The Centre has well equipped laboratories in various branches of Geology, with Petrological & Optical, Sedimentological, Petrofabric, Chemical, X-ray, and other modern instruments. In addition to this, the Centre has also adequate arrangement for (i) Workshop for Vertebrate Fossils, (ii) Workshop for grinding and polishing of rocks and preparation of thin section, (iii) Field equipment for high altitudes, (iv) Surveying & Mapping Equipment, (v) Palaeontological Microscopes for advanced research, (vi) Well-equipped Photographic section.

The Central Library of the University has a large collection of books and periodicals in Geology which is open to students and staff members of the Centre. In addition, the Centre has also sectional library in Geology, with about 1400 books, including text and reference books. The University subscribes for most of the important journals in various branches of Geology published in India and abroad. A catalogue of Foraminifera and Ostracoda is available in the Departmental Library. Two microfilm Readers are also available in the Centre.

The Centre has been able to establish its own Museum on modern lines to enhance scientific as well as educative values. A separate section has also been set up as a repository of the type material for reference purposes.

The teaching programmes of the Centre cover both undergraduate and postgraduate instructions in the B.Sc. and M.Sc. Honours School in Geology. The number of students has gradually increased from 24 in 1960 to about 56 in 1972. However, the enrolment in the M.Sc. Honours School during the current year is only 5. The courses offered by the department are well balanced, modernised and provide for adequate field training in various parts of Himalayan Region to help the students in location surveying, systematic mapping, collection of structural data etc.

The research work of the Centre falls into three major areas, viz., (1) Palaeontology, (2) Himalayan Geology & (3) Petrology, Mineralogy and Geochemistry. The Committee had detailed discussions with the members of each of these groups and also with the research fellows. The Committee also had a meeting with the participants in the UNESCO sponsored course in Palaeontology in which a student each from Iran, Bangladesh and Nepal are participating.

The Centre is, at present, engaged in deciphering the tectonic and metamorphic history of the Himalaya and the palaeontology and stratigraphy of India. Important contributions have been made regarding the Geochronology of the crystalline rocks of the Himalaya, Kun-lun Himalayan polymountain system, central crystalline axis of the Himalaya, continental drift in relation to the development of Indian Shield and the Himalaya, Silurian-Devonian boundary of the Indian sub-continent, granitic activity in parts of Rajasthan, discovery and description of conodonts in the Kumaon Himalayas, Carboniferous ostracodes in the Spiti Valley, and Vertebrate finds from the Kargil basin of Ladakh.

In addition to the problems on Himalayan Geology and Paleontology assigned to the individuals, the Centre has also undertaken the following projects which will be carried out by the party consisting of teaching staff members/Research workers:-

- i. Systematic study of ~~Stratika~~.
- ii. Lower Tertiaries of Panjab Himalaya.
- iii. Study of Blaini Series and associated rocks.
- iv. Crystalline and Metamorphic rocks of Panjab Himalaya.
- v. Structure of Ladakh.
- vi. Palaeontology and Stratigraphy of Ladakh.
- vii. Study of Igneous and Metamorphic rocks of Ladakh.
- viii. Palaeontology and Stratigraphy of Ladakh Valleys.
- ix. Study of Indus - Flysch of Ladakh.
- x. Metamorphic and Structure history of Lahaul Valley.

The Centre has published over 300 research papers over the last ten years. The Centre has also regularly organised annual seminars on various problems of Himalayan Geology and Palaeontology and has brought out some publications and monographs resulting from these deliberations. The Centre has utilised the foreign assistance available to it from UNESCO and UK and has been able to establish contacts with Geology Departments in these countries and also to arrange for exchange of scientists. Sixteen Ph.D. degrees have been awarded during the past ten years and seven others are awaiting the award of degrees. One of the faculty members has obtained a D.Sc. degree, and another has supplicated his D.Sc. thesis.

The main areas of work and contributions by the two groups relate to the development of a new hypothesis on the origin and development of the Himalaya, polymetamorphism and migmatization of older rocks. Further, an attempt has been made to correlate the northwardly drift of Peninsular Shield, the outpouring of lava in the peninsular Platform and the Orogeny of the Himalaya. Important contributions regarding the discovery of conodonts in Kumaon Himalaya, Carboniferous ostracodes in the Spiti Valley, vertebrate finds from the Kargil basin of Ladakh have also been made. Some of the fossil finds from Muth Quartzite and Graptolite from Kashmir Himalayas have greatly helped in solving long standing controversies in the Himalayan Geology and also in bridging certain lacunae in the Geology of India. An important discovery of fusulinids from Leh area has also been made by the Staff members/Scholars of the Centre for the first time in India.

The investigations in the Himalaya, west of Nepal and particularly in Kumaon, Punjab and Kashmir have brought to light certain very important fossil finds like the occurrence of graptolites in Kashmir, the fossil occurrence in Muth quartzites, the occurrence of fusulinids in the transitional zone between the Kashmir and Spiti Valleys, the occurrence of Tertiary vertebrate fossils from Ladakh region, deciphering of lacunae in the stratigraphy of the NW Himalaya based on these fossil finds, the occurrence of fossils immediately overlying tillite horizon in Chamba thereby fixing the age limits of this tillite horizon and with an impact on the tillite horizons of other parts of the Himalayas etc. The occurrence of ostracodes in the Tertiary Formation, the pulmonate gastropods from the passage beds of Subathu-Dagshai, the occurrence of Diplopora algae from Krols etc. have helped in establishing the correct stratigraphic order in this part of the Himalayan terrain. In the field of petrology and mineralogy, quite a number of important publications, like the origin of Himalayan granites, migmatites, polymetamorphism, specific investigation of garnets, geochronology were made by the members and research workers of the Centre.

The Group in Palaeontology consist of one professor, two readers and one lecturer and five research workers. Similarly the group in Himalayan Geology has five staff members and four research workers. The third group which includes several areas, has a staff of seven and six research workers.

On the basis of the discussions which the Committee had with various research groups, research scholars and others, the Committee would like to record that the work done by this department is of good quality and academic value, and is, therefore, appreciated. The staff in the areas of Himalayan Geology are doing much better as a group and have developed some very useful programmes of research. On the other hand, the group in Palaeontology is rather diffused and appears to lack proper leadership. The Committee would not like to consider the third group as a distinct group, since most of the work undertaken by them is closely related to that of the Himalayan Geology Group and which makes available useful techniques to it. It would, therefore, be more appropriate and desirable for the members of this group to closely associate and get merged with the Himalayan Geology group so that it can become stronger and more viable. In both the groups of Himalayan Geology and Palaeontology, there are some enthusiastic young workers who should be further encouraged. At the same time the Committee felt that the two groups, Palaeontology and Himalayan Geology should be further strengthened, particularly at the higher level involving upgrading of one Reader's post to the Professor level in each group. The department has plans for taking up work in new areas and also to introduce studies in Applied Geology. The Committee does not see much logic or reason for introducing areas of Applied Geology or Ore beneficiation studies. On the other hand, it would be appropriate to strengthen the group in Geochronology and to establish contacts with other groups interested in this

subject such as Bhabha Atomic Energy Centre (BAEC) and Physical Research Laboratory, Ahmedabad. The department has also requested for a large number of items of equipment. The only sophisticated equipment that may be useful is a stereoscan which, if acquired, should be supported by a trained technician who will handle this instrument.

On the basis of the evaluation of the work and the above observations made by the Committee, the Committee would recommend further support and strengthening of the work of this Centre in the two chosen areas. The Committee would also like to mention here that it would be extremely necessary for all the senior staff and representatives of the junior staff to be associated with the Advisory Committee and also day-to-day functioning of this Centre. The assistance to be made available to this Centre would be in respect of a few staff positions and strengthening of library facilities which can be done both from the normal development grants during the Fifth Plan and also assistance from the Centre of Advanced Study Scheme. Any additional support should be made available on the basis of well defined research programmes which the staff may develop for consideration by the Science Research Council of the University Grants Commission.

The Committee understands that from 1st April 1974, onwards, the existing level of recurring support would be treated as committed expenditure by the University. The University should, therefore, ensure that the existing level of support would continue to be available to the Centre for various purposes and programmes undertaken by it as hitherto before. Any specialised needs of the Centre for staff, both academic and supporting technical staff should be favourably considered by the University Grants Commission. The requirements for specialised equipment and research workers should generally be given as part of the research projects to be funded by the University Grants Commission.

The Committee is grateful to the University authorities and the staff of the Centre for facilities given for its work during the visit.

Centre of Advanced Study in Geology - Panjab University.

IVth Plan period.

214

Non-recurring :

<u>Item</u>	<u>Grants approved during IVth Plan period.</u>	<u>Grants released upto date.</u>
Equipment	Rs. 3,00,000	Rs. 2,80,000
Books & Journals	Rs. 40,000	Rs. 36,000

Academic Staff :

<u>Name of Post</u>	<u>Approved</u>	<u>Filled up</u>
Professor	1	1
Readers	2	2
Curator	1	1
Res. Associates	4	4
Sr. Research Fellows	4	1
Jr. Research Fellows	4	3
National Scholarships	4	4

Recurring: (Ceiling grant)

<u>Items</u>	<u>Amount approved</u>
Administrative	Rs. 21,000
Visiting Fellows	Rs. 18,000
Books	Rs. 15,000
Contingencies	Rs. 15,000
Publications	Rs. 5,000
Travels	Rs. 10,000
Seminars	Rs. 10,000
Other expenditure	Rs. 15,000
	<u>Rs. 1,09,000</u>

215

- 2 -

Centre of Advanced Study in Geology - Panjab University

IIIrd Plan

Non-recurring

<u>Item</u>	<u>Grants approved during III Plan period</u>	<u>Grants released</u>
Jeep	Rs. 2,25,000	Rs. 25,000
Field Equipment	Rs. 25,000	Rs. 10,000
Scientific Equipment	Rs. 2,50,000	Rs. 65,000
Building Underground Cellar	Rs. 1,59,000	Rs. 80,000
Rocks & Journals	Rs. 50,000	Rs. 25,000
Office equipment	Rs. 5,000	Rs. 5,000
Museum (Furniture, maps specimens)	Rs. 50,000	Rs. 15,000

Academic Staff :

<u>Name of Post</u>	<u>Approved</u>	<u>Filled up</u>
Professors	1	1
Readers	2	2
Curator	1	1
Research Associates	4	4
Sr. Research Fellows	4	4
Jr. Research Fellows	4	4
Research Scholar	1	1
National Scholarships	3	3

Recurring : Annual Ceilings:

Admn. & Technical Staff	Rs. 58,000
Books & Journals	Rs. 30,000
Contingencies	Rs. 15,000
Publications	Rs. 12,000
Travels	Rs. 30,000
Seminars	Rs. 30,000
Other Expenditure	Rs. 40,000

APPENDIX-II

Centre of Advanced Study in Geology - Panjab University

216

Staff Members :

1. Professor IC Pande
 - i. Geology of Kargil-Leh Area
 - ii. Geology of Nainital Area.
 - iii. Geology of Simla Area.
 - iv. Tectonics of Himalaya with special reference to Kumaon and Punjab Himalaya.

2. Prof. BS Tewari
 - i. Stratigraphy and Paleontology of the Tertiary Rocks of India.
 - ii. Geology and Palaeontology of Ladakh.

3. Prof. AD Kharkwal
Study of the Krol Sediments of the area around Solan, HP.

4. Dr. SB Bhatia
Study of Siwalik Mollusca and Charophyta.

5. Dr. MN Saxena
Crystallines & Tectonic history of the Himalaya and relationship between Himalaya and Indian shield.

6. Dr. VJ Gupta
Palaeontology and Stratigraphy of the Palaeozoic rocks of the Himalaya.

7. Dr. BK Das
 - i. Geological investigation of the area around Banihal, Kisthwar in J&K.
 - ii. Petrological study of the area near Khetri, Ajmer and other adjoining places.

8. Dr. SP Jain
Ostracola and Foraminifera.

9. Sh. Ramesh Kumar
Geology and Structure of Arki-jutogh area.

10. Dr. RS Chaudhri
 - i. Geology of Cenozoic Sediments of north-western Himalayas.
 - ii. Study of heavy minerals from Siwalik formation.

11. Dr. AM Patwardhan
 - i. Geochemistry of the spilitic rocks around Mandi and other areas

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

218

Meeting :

Dated : 31st January, 1977.

Item No. 24 : To consider a proposal from S.N.D.T. Women's University, Bombay for naming the Women's Polytechnic as Premilila Vitthalidas Polytechnic.

The S.N.D.T. Women's University has approached the Commission for naming the Women's Polytechnic as Premilila Vitthalidas-Polytechnic. While forwarding the proposal the Vice Chancellor, S.N.D.T. Women's University has written as follows :-

"As you know, Dr. Premilila Thackersey has devoted her entire life to the development and growth of our University. She was the Vice-Chancellor of the University for a number of years and has also given very generous donations from the family trusts as well as her own trusts on different occasions for the University. We are celebrating the Diamond Jubilee of the University during 1976-77. On this occasion as a gesture of appreciation of the great services rendered by Dr. Premilila Thackersey to the University, the members of the Executive Council and the Diamond Jubilee Celebrations Special Committee would like to associate Lady Thackersey's name with the Women's Polytechnic of the University which has been recently started with the help of the University Grants Commission. I have discussed the matter with the Chancellor and he has approved the proposal. I am, therefore, writing this letter to you seeking the approval of the University Grants Commission for naming the Polytechnic as Premilila Vitthalidas Polytechnic. I shall thank you to expedite the same."

The Commission has been providing grant for Non-Recurring purposes to the University as given below:-

	Approved Expenditure	Commission's share @ 75%	Grant so far paid under the scheme.
	Rs	Rs.	Rs.
1. Construction of Women's Polytechnic.	42,39,480	31,79,610	21,00,000
2. Equipment	4,93,500	3,70,125	75,000
3. Furniture and Fittings	6,20,000	4,65,000	2,00,000
4. Books and Journals	50,000	37,500	25,000

The entire non- University Grants Commission portion of the Non-recurring expenditure is being borne by the University.

p.t.o.

219

The Commission's policy with regard to naming of buildings constructed with University Grants Commission assistance is contained in the letter No.F.33-14/65(Cup/Cdn) dated February 1st, 1971/Annexure to item No. 25. *

p 221

The matter is placed before the Commission for consideration.

SLK

UNIVERSITY GRANTS COMMISSION

Confidential

720

Meeting :
Dated : 31ST January, 1977

Item No. 25: To consider the proposal of Sambhu Nath College, Labpur (Burdwan University) for naming the Laboratory Building as Bindulal Bijnan Bhavan.

In July, 1976 the Commission approved the construction of Laboratory building for Physics and Chemistry at Sambhu Nath College, Labpur at an estimated cost of Rs. 1,55,783/- with UGC share limited to Rs. 1,03,855/- or 2/3rd of the actual cost whichever is less. The construction work has not been started and no grant has been paid so far.

A proposal from the Professor-in-charge, Sambhunath College has been received requesting the Commission to permit the College to name the proposed laboratory building as Bindulal Bijnan Bhawan, to perpetuate the name of late Bindulal Banerji, who was a renowned teacher of Mathematics and reputed Headmaster of a High School and father of Dr. Sambhu Nath Banerji, ex Vice-Chancellor of Calcutta University. The letter is reproduced below:-

" Dr. Sambhu Nath Banerji, ex-Vice-Chancellor, Calcutta University and ex-Justice, Calcutta High Court and chief founder of the college has contributed matching share 1/3rd of the total estimate for the construction of one-storeyed Laboratory building. The Governing Body of the College has decided to name the Laboratory building, proposal of which was duly approved by the Commission as Bindulal Bijnan Bhawan after Late Bindulal Banerji, father of Dr. Sambhu Nath Banerji chief founder of the College. Late Bindulal Banerji was a renowned teacher of Mathematics and reputed Headmaster of Palamau Govt. High School in the last century. It would be nice if you please permit the college to name the proposed Laboratory Building as Bindulal Bijnan Bhawan to perpetuate the memory of one of the illustrious sons of the area".

p 221
The Commission's policy with regard to naming of buildings constructed with UGC assistance is contained in the letter No. F.33-14/85 (CUP/On) dated 1st February, 1971 (Annexure)*in which it is stated that ordinarily the buildings of teaching departments laboratories should not be named after individuals. The library buildings, hostels and colleges could be named after persons of outstanding eminence in the field of teaching, research, scholarship and public service whose life and work would be a source of inspiration to the younger generation provided that no building shall be named after living persons.

The matter is placed before the Commission for consideration.

AS(D-3b)/DS(D-3)

Copy letter No.F.33-14/65(CUP)/(Cdn) dated 1st February, 1971
addressed to the Registrars of the Universities from Shri R.K. Chhabra
Secretary, University Grants Commission.

221

Subject: Naming of buildings constructed with the assistance
from the University Grants Commission.

....

Sir,

I am directed to say that the Commission vide this office
letter No.F.33-14/65(CUP) dated 21st May, 1965 had communicated the
following principles for naming of buildings constructed with assistance
from the University Grants Commission for the guidance of the
University/Institution deemed to be University:-

- (1) Ordinarily the buildings of teaching departments
laboratories should not be named after individuals. The
library buildings, hostels and colleges could be
named after persons of outstanding eminence
in the field of teaching, research, scholarship and
public service whose life and work would be a
source of inspiration to the younger generation provided
that no building shall be named after living person.
- (2) The proposal for naming University buildings should
emanate from the Syndicate or the Government and be
subject to the concurrence of the University
Grants Commission.
- (3) No educational buildings should be named after
Mahatma Gandhi and Jawaharlal Nehru Unless the
purpose is commensurate with their eminence.

The University Grants Commission at a recent meeting considered
this matter again and desired that the attention of all the
Universities/Institutions deemed to be Universities may be drawn
again to the guide-lines prescribed by the Commission for naming
the buildings constructed with assistance from the University Grants
Commission.

The matter is accordingly being brought to your notice again.

.....

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

Meeting: 222

Dated : 31st January 1977.

Item No. 26 To consider the Feasibility Report prepared by the Bombay University on the Regional Instrumentation Centre.

....

At the meeting of the UGC (item 34) held on 14.7.1975 the Commission had agreed in principle to set up a Regional Instrument Centre (RIC) for the Western Region at the Bombay University. The Commission accepted the following recommendations of the Science Research Council:

"The Science Research Council has recommended the acceptance of the proposal in principle and to provide initially a grant of Rs.50,000/- to the University of Bombay to appoint a core staff of three persons (including 1 person at Professors level and the other two at Readers/Lecturers level) to prepare a feasibility report on the basis of a survey to be conducted with regard to the servicing functions, repair and maintenance functions and design and fabrication of new equipments functions to be taken up by the Centre. The feasibility report, which should be made available within a period of six months, and in no case later than 9 months, should indicate the phasewise discipline-wise, prioritywise as well as costwise aspects of the development of the Regional Instrumentation Centre. The university, for purposes of this feasibility report, may associate the expertise available in the Tata Institute of Fundamental Research, Bombay, Bhabha Atomic Research Centre and also the Department of Physics, Poona University. The feasibility report could then be considered by the Science Research Council and specific recommendations made with regard to the non-recurring and recurring expenditure that may be approved for the duration of the fifth plan period for the development of the Regional Instrumentation Centre. The university may provide the required secretarial assistance for the preparation of the feasibility report mentioned above by the core staff to be appointed for the purpose."

The University secured the services for this purpose of Dr. N.V. Patenkar of the Tata Institute of Fundamental Research, and on the basis of a survey he has made of instruments in colleges and university departments, he has prepared the 'Feasibility Report' which the University has now submitted to the UGC (Attached) (Encure)*

223

The problems to which this Regional Centre proposes to address itself are:-

- i. Servicing & maintenance of large number of instruments in the universities of the region and in the affiliated colleges,
- ii. replacement of outdated experimental hardware by technologically superior & less expensive systems,
- iii. training and education of teachers and others from USICs in instrumental techniques, servicing, maintenance and repairs,
- iv. information dissemination,
- v. R & D in instrumentation for modern teaching & research, and
- vi. expose the colleges and departments of the universities in the region to the culture of instrumentation & help in the growth of this culture in a sustained manner.

For the above purpose, it has been suggested to set up the following:-

- (a) Mechanical workshop and its auxilliary services
- (b) Electronics shop
- (c) Glass-blowing shop
- (d) Photography facility
- (e) Library, information & documentation facility
- (f) Administrative and auxilliary services.

The financial implications of the proposal are given below:-

A. Capital (in lakhs)		V Plan 1977-79	VI Plan 1979-82 82-84	
Report Annexure	III.8,9 (a) Mechanical shop	5.84	-	-
"	" III,7 (b) Electronics shop	3.30	1.75	0.50
"	" III,10,11 (c) Glass blowing shop	1.35	-	-
"	" III,12 (d) Photography	0.15	-	-
"	" (d) Library, information & documentation	2.10	2.30	1.50
"	" III,13 (f) Building 15000 sq.ft.	10.36	-	-
	Air-conditioning	1.00	-	-
	Furniture	1.14	-	-
	Total (A)	<u>25.24</u>	<u>4.05</u>	<u>2.00</u>

(221)

B.	<u>Recurring (in lakhs)</u>	V Plan	VI Plan	
		1977-79	1979-82	1982-84
	Consumable stores	2.85	6.92	5.20
	Travel & incidentals	0.80	0.77	0.40
	Contingencies	1.23	1.47	1.02
	Total: ...	<u>4.86</u>	<u>9.16</u>	<u>6.62</u>
	Total of A & B ...	30.12	13.21	8.62

C.	<u>Staff</u>	
	Scientific	20
	Technical	20
	Administrative & auxilliary Services	17

It may be mentioned that the Department of Science and Technology is setting up several "sophisticated Instrument Centres" in which very costly modern instruments will be housed so that research institutions including universities, and the industry can use their services. The proposed Regional Instrument Centres, such as the one in the Bombay University, will play a complementary role to the "Sophisticated Instrument Centres" in as much as they will build up capability within the University system not only for the proper maintenance, servicing and operation of such instruments but eventually to undertake design and development of instruments involving highly complex technology.

As desired by the Commission the feasibility report has been circulated to members of Science Research Council and their comments, if any, will be made available when this is considered by the Commission.

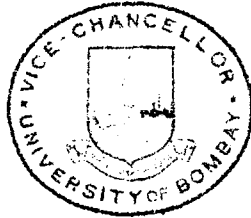
The matter is placed before the Commission for consideration.

Director (SRC)

FEASIBILITY REPORT
ON
REGIONAL INSTRUMENTATION CENTRE
(Western Region)



1976
UNIVERSITY OF BOMBAY



Bombay - 400 032,
29th December, 1976.

Dear Shri Chhabra,

I have great pleasure in submitting the feasibility Report on the Regional Instrumentation Centre for the Western Region prepared by Dr. A.V. Patankar. This report, prepared at the instance of the UGC, presents an objective analysis of the problem of instrumentation in the western region and the remedial actions necessary to tackle it. The survey conducted under this programme concurs with the realisation of the seriousness of the problem by the UGC. The action taken by the UGC, therefore, is most timely.

The methodology suggested in the report for tackling the problem of instrumentation essentially calls for strengthening the existing educational infrastructure by conducting programmes suitable for the purpose. The consideration given to the magnitude and long term needs of the educational system justifies the necessity of these programmes. The model suggested for the Regional Instrumentation Centre is well optimised, in view of the possible resource constraints and naturally it is desirable to execute it in its entirety to revitalise the Science Education, which is so very essential for the country's progress.

I compliment Dr. Patankar for presenting this valuable analysis and practical remedial measures to treat the problem of instrumentation. Successful implementation of this model should pave the way for its extension to the other regions also.

I hope the Commission would give an early consideration to this report and implement the recommendations with a view to making this much needed beginning.

I express my appreciation and sincere thanks to the UGC for providing the financial support.

With regards,

Yours sincerely,

T. K. Tope

(T. K. Tope)

Shri R. K. Chhabra,
Secretary,
University Grants Commission,
Bahadur Shah Zafar Marg,
NEW DELHI 110002.

UNIVERSITY CAMPOS (VIDYANAGARI)
Science Block, C.S.T. Road,
KALINA,
Santacruz East
Bombay 400 098

27th December 1976.

Dear Vice Chancellor,

I have much pleasure in submitting the Report on the feasibility of the Regional Instrumentation Centre for the Western Region.

As suggested by the UGC, the Report covers the analysis of various functions related to training, servicing and maintenance and design and fabrication of new instruments that the proposed Regional Instrumentation Centre for the Western Region should undertake. It also indicates phasewise, disciplinewise, prioritywise and costwise feasibility of the Centre.

I could have submitted the report earlier, but for the difficulties we had in recruiting staff members suitable for the nature of the project. I should take this opportunity to express my gratitude to you for your sympathetic considerations of my difficulties and the encouragement that I had all along from you.

I apologise for the size of the Report. It could have been shorter, but that would have cost us in terms of time. What most of us are anxious to see soon, is the Centre vigorously pursuing the objectives given in the Report to vitalise our Science Education.

A. V. PATANKAR

Principal, T.K. Tope
Vice-Chancellor,
University of Bombay,
Bombay 400 032.

FOREWORD

While emphasizing the need for improvement in the standards and quality of science education, Kothari Commission in its monumental report had recommended, way back in 1966, a number of steps which include

"Development of laboratory workshops and facilities for servicing, repairs and fabrication of scientific apparatus, training of laboratory technicians".

-Education Commission, 1966, p 390.

This lacuna in our science education has been under active consideration of the University Grants Commission for quite some time. The present report is a result of the specific step taken by the Commission in this direction as a sequel to its expression of its intentions to establish a network of regional instrumentation centres in the country.

Instrumentation in higher education, though appears outwardly a simple matter of hardware, in fact, is intimately connected to the attitudes of its users. It is this latter feature that makes it a problem, exceedingly difficult to deal with. So far, very few coherent attempts have been made to treat this problem in its total perspective and to suggest a purposeful model to tackle it. While preparing this report, we were faced with a situation in which a meaningful assessment of the problem had to be made by way of authentic data in support of the model. This Report is an attempt to present a model for the Western Region in which the Regional Instrumentation Centre happens to be a linchpin.

The component of the proposed model concerning hardware generation is too well understood to pose a serious problem. The other component, that deals with the attitudes and skills of a large number of teachers spread all over the region, on the other hand, needs an approach consistent with the features of educational system of the region. In the absence of proven approaches, we had no choice but take recourse to long experiences of our colleagues and friends who had spent years in a number of formal and non-formal programmes of quality improvement in science education. My own experience of the last eight years in this field proved very useful.

It has been observed that there are three critical factors that strongly influence the pace of programmes related to quality improvement and attitude changes. The first and the most obvious one is the paucity of funds. It is indeed a serious factor which has so far eluded satisfactory solutions. The second factor, often underestimated, is the feeble 'resource structure' through which the scanty resources are mobilised for effective utilisation. And lastly, the educational system has not yet produced a meaningful 'incentive structure' which could give impetus to the desired changes.

In the first part of the Report, we have proposed a model which refers to an infrastructure to best utilise available resources through proper linkages between the elements of the educational system. The suggested infrastructure consists of a Regional Instrumentation Centre (RIC), University Servicing and Instrumentation Centres (USICs) and the colleges. The RIC in this model is the resource centre and has a key role of strengthening the infrastructure. No major changes are needed in the existing structure to accommodate the proposed infrastructure. We would be unfair to so many working in this area if we claim exclusiveness for the model; the preparation of the Report merely gave us an opportunity to apply their experiences to the specific problem of the region.

The second part of the Report presents a plan of action to translate the conceptual basis into well defined programmes, majority of which are infrastructure oriented. They are servicing and maintenance, training of personnel from the system, generation and dispersal of teaching aids and information dissemination on instrumentation. The third part of the Report deals with the resource requirements of the RIC.

While preparing the Report we had to make conscious efforts to avoid being accused of 'ignoring necessity in favour of perfection', as can be seen in the financial analysis of the proposal. One must however recognize that the necessity of meeting diverse and compelling needs of the educational system in a complex and ever-shifting social environment demands innovation, revision and change. Faith in one's goal is more important than faith in one's method. It is indeed a challenge to those who will participate in achieving the goal, set by the Report. We hope the Report will find favour with those involved in planning education in the country.

The Report could not have been completed in the time provided, unless I had the fortune of having unhesitant co-operation from so many of my colleagues and friends.

To Principal T.K. Tope, Vice-Chancellor of the University of Bombay, I am indebted for his continued encouragement. I am grateful to Professor B.M. Udgaonkar, Member U.G.C., whose critical analysis of the problem and inspiring guidance helped to crystallize the concepts and the practical aspects of the RIC. The members of the Advisory Committee, appointed by the Vice-Chancellor, gave valuable advice in shaping the Report. I am grateful to them.

I am grateful to Dr P.K. Iyengar and Shri C. Ambasankaran, both of Ehabha Atomic Research Centre, Bombay, for useful discussions on the technical aspects of the Report.

My sincere thanks are due to Professor B.V. Sreekantan, Director, Tata Institute of Fundamental Research, Bombay, for permitting me to take up this assignment of preparing the Report, and for readily providing the administrative support of the Institute. His critical analysis of the problem and encouragement are gratefully acknowledged.

I record my gratitude to Dr S. Ramani, National Centre for Software Development and Computational Techniques, Bombay, for his interest in the computer survey and to Shri Chanchal Mitra and Shri P. Ganguli (TIFR) for developing the computer software for analysis of the data. Shri M.A. Parelkar's help in editing the Report is gratefully acknowledged. I thank Shri S.M. Panchal and his colleagues for^aesthatic typing.

I thank Shri T.V. Chidambaram, Registrar of the University, and the University administration for their invaluable support.

I am specially grateful to my colleagues for their invaluable help in preparing the Report.

Many college principals and the heads of the University departments in the region collaborated by willingly providing the data for the survey and opened the doors of their institutions for my visits. I express my gratitude to them.

I cannot conclude my acknowledgements without expressing my indebtedness to Professor B. Ramachandra Rao, Vice-Chairman, UGC, and Dr Jagadish Shankar, Director, Science Research Council, for their continued interest and the financial grant which made this report possible.

Bombay,
December 1976

A.V. PATANKAR

SUMMARY
OF
FEASIBILITY REPORT
ON
REGIONAL INSTRUMENTATION CENTRE
(Western Region)

S U M M A R Y

Instruments, a familiar sight in any science laboratory, is essentially a product of technology and the science of Instrumentation. This branch of science has its conceptual foundation in the basic sciences and utilizes technology to generate a suitable hardware for the purpose of measurement. The interplay, in the field of instrumentation, between the basic sciences and technology makes it potentially an important factor responsible for rapid growth of both of them, as amply seen in the industrialised countries. Unfortunately, the distinction between the science of instrumentation and its technical product, namely the instruments, is often not realised.

Instrumentation, essentially a technology based activity, has to wait for its development, in a country like India, until adequate number of supporting technologies are readily available. In the last quarter of a century, country has developed a wide range of technologies and a sound scientific base in its higher educational system. This is, therefore, the right moment to pursue vigorously the development of the science of instrumentation through the educational system which alone can provide the desired interplay between the basic sciences and technology.

The belated development of instrumentation has naturally created certain harsh problems adversely affecting various activities such as research, health services, industry etc. One of the main victim of these circumstances is, of course, the educational system itself. This has been repeatedly pointed out by a number of reports submitted so far by individuals

and committees to the University Grants Commission. The purpose of the present report, prepared at the behest of the UGC, is to study the multi-dimensional problem of development of instrumentation in general and examine, in particular, the possibilities of establishing a Regional Instrumentation Centre for proper growth of instrumentation in the Western Region.

Instrumentation and the Educational System:

Although the adverse effects on the higher educational system due to the lack of importance given to instrumentation are recognised, there is very little data available to assess their magnitude. A detailed survey of instruments, technical competence of the laboratory and teaching staff, workshop facilities etc., was conducted in the colleges and university departments of the Western Region. The observations and problem identification given here, though derived from the Western Region, would most probably be valid for the whole country.

The results of the survey discussed in Chapter II overwhelmingly show that as many as 30% of the instruments in the colleges of the region are out of order. This accounts for an estimated unutilized capital investment of Rs. 1.75 crores on instruments for the undergraduate level alone. The instruments used in post-graduate teaching and research are often very expensive and may account for investment much larger than for undergraduate. The total investment in instruments in the region would run into tens of crores. It is interesting to note that majority of colleges spend not more than 1% of their total investment in instruments. This figure is dismally

small compared to the needs. Out of the reported technically oriented laboratory staff, about 80% has qualification S.S.C. or below. Presumably there are many more who do not have any technical competence. It is interesting to note that the colleges have at least one academic staff member having postgraduate degree in electronics. It is found that about 5% of the science departments in colleges have small and simple workshops. It is encouraging to know that the departments make attempts to use facilities available elsewhere.

It is also observed that the instruments indigenously available for laboratory instructions are generally technically poor and educationally inadequate inspite of their high prices.

The inability of the system and the instrument industry to keep up with the increasing demands of modernisation in science education has resulted in the experimental instructions lagging way behind in quality and content with respect to the advances in theoretical programme. This is evident from the continued use of outdated instrumental techniques and the absence of demonstrations in class-room teaching. In the case of research programmes, dependence of the system on imported equipment is considerable. Considering the ineffectiveness of the traditional relation of the industry as a supplier of instrumentation, one would have expected the educational system to take steps to draw upon the expertise available elsewhere in the country.

No doubt the country has technically advanced in certain sectors due to deliberate efforts in research and development^{which} have resulted in the development of a number of complex instruments. The technical know-how on these instruments though available in the research laboratories has not yet percolated in the educational system due to absence of suitable mechanism.

In addition to these known problems, a discerning eye cannot miss the value system adopted which places very little stress on instrumentation in education. As a result of this attitude experimental programmes remain undermined. This is also strongly reflected in research programmes.

Analysis and Strategy:

Behind the symptoms, discussed above, are three identifiable causes which are responsible for the present state of affairs in instrumentation.

1. Inherent inability of the system to meet the requirements of modern science education due to
 - (i) the absence of technical cadre,
 - (ii) devalued role of instrumentation, and
 - (iii) lack of communication among institutions.
2. Inability of the system to draw upon the expertise available in the neighbouring research laboratories.
3. Failure of the instrument industry to fulfil needs in instruments demanded by the process of modernisation.

If the university system has to play its legitimate role of sustaining and growing the culture of instrumentation, obviously, it must overcome its weaknesses as soon as possible and prepare itself for the future.

The immediate problems confronting the system therefore are

1. servicing and maintenance of large number of instruments and
2. replacement of out-dated experimental hardware by technologically superior and less expensive systems.

These problems, though not much of technological significance, are mainly governed by stupendous logistic difficulties, created by the geographical expense. The optimum solution for solving these problems would be to generate an operationally viable structure consisting of college as a basic unit supported by a Centre at the University and a Regional Instrumentation Centre to provide resources in the form of training, information and technical back up.

It has been cited earlier that the educational system has not provided for itself a suitable mechanism of transferring complex technical know-how on instrumentation available with the research laboratories. Undoubtedly such a transfer would prepare the system for a continuous process of modernisation imposed by the rapid advances in Science. However, the translation must judiciously blend technological content with educational expedience.

It is needless to emphasize that being the part and parcel of the University system, the structure must necessarily carry out research and development in instrumentation.

The recognition of the need for the structure discussed above is really not new. The University Grants Commission has already decided to institute University Servicing & Instruments Centres (USIC) with similar functions at the universities. It has also accepted in principle to have a Regional Instrumentation Centre for the Western Region in Bombay. The earlier analysis merely establishes the need for well-defined functional relationships backed by co-ordinated action through the infrastructure. Part II of the Report gives working details for the proposed infrastructure with particular reference to the role of the RIC proposed to be established in Bombay.

Regional Instrumentation Centre:

The structural and programme details summarised below are based on the data obtained on the problems of instrumentation in the Western Region. A close look at the distribution of the educational institutions, location of universities, industries and research laboratories convinces one of the viability of the proposed infrastructure in the region (see Chapter V). From the analysis of the problems it is apparent that the RIC should undertake following programmes.

(a) Structure Oriented Programmes:

1. Training and Education:

This programme aims at providing need-based training in servicing and Maintenance, including workshop practices, suitable for a wide range of instruments, presently in use at the colleges and departments. It is designed to equip the personnel in the USICs and colleges responsible for

the servicing and maintenance of instruments upto medium technical complexity. It is intended that this programme will be completed within an year and a half in order to accelerate the establishment of the infrastructure. The details of the programme are given in Chapter VI.

2. Servicing and Maintenance:

It is expected that the well-trained personnel at the USIC and colleges will take care of majority of low and medium complexity-instruments. The instruments of high complexity and beyond the technical expertise of USICs will be the responsibility of the RIC. Since the RIO will act as a USIC for the University of Bombay the servicing and maintenance of instruments in the university area will be its continuing activity. The details can be seen in Chapter VII.

(b) Hardware Oriented Programmes:

Besides looking after the existing hardware by way ^{of} servicing and maintenance etc., generation of new hardware consistant with the needs is an essential aspect of instrumentation. The following programmes of the RIC are aimed at well defined hardware outputs.

1. Development of Teaching Aids:

Nonavailability of educationally appropriate hardware for laboratory and class-room instructions has been adversely affecting science education. Generation of teaching aids for this purpose is highly technology oriented activity requiring clear understanding of the needs of the educational system. It is proposed that the RIC should develop aids

and devise methods of their dispersal in the educational institutions through the infrastructure. This development programme will have two components,

- i) modernisation of old laboratory experiments by utilizing modern technology and
- ii) translation of technical developments of modern instruments available with the research laboratories to the form suitable for the educational system.

It may be pointed out that the process of translation does not involve development of new technologies. The details of the programmes are given in Chapter VIII.

It is recognised that the teacher has lot to contribute in teaching aid developments. The RIC will therefore provide facilities for motivated teachers to develop new teaching aids.

2. Research and Development:

The research and development programmes of the RIC aim at development of modern instrumentation which will be of use to the educational system in the near future. Research in computer compatible instrumentation has been identified as a promising area and a programme along the line is discussed in Chapter IX. A similar programme on particle size analysis is also indicated in the chapter.

Phasing of the Programmes:

It should be recognised that the programmes need phasing since they are governed by the following factors:

1. Immediate requirements of the educational system
2. Structure limited immediate requirements
3. Requirements of the future.

Applying these criteria it is obvious that the RIC should give high priority to building and strengthening of the infrastructure through training and to provide technical support for servicing and maintenance.

The modernisation of old experiments is another immediate need of the system but has to depend upon the availability of minimum physical facilities for hardware generation and the infrastructure for its dispersal.

The translation of complex instrumentation is limited by the physical facilities and mechanisms of know-how transfer.

Besides the structural limitations, R & D programmes have to be delayed in favour of the other immediate programmes.

The relative activities due to these programmes are shown in Fig. 1. The programmes in relation to the establishment of the physical facilities at the RIC are shown in the bar-chart (Fig. 2).

Physical Facilities:

In arriving at the physical facilities for the RIC, care has been taken to optimise the size by considering the requirements of the programmes, minimum number of trades necessary to make the system self-sufficient and by taking the maximum advantage of the overlap of the trades and equipment wherever possible. The RIC will need the following facilities:

1. Central electronics equipment facility
2. Mechanical workshop and its auxilliary services
3. Glass-blowing shop
4. Photography
5. Library, information and documentation facilities
6. Administrative and auxilliary services

The details of these facilities are discussed in Part III.

Personnel:

In the light of the proposed programmes and the envisaged facilities for that purpose, the RIC will need the services of personnel in the three categories, viz. scientific, technical and administrative. In arriving at the number in each of these categories, care has been taken to evaluate the requirements of each programme and the facility, the irreducible number of skills and functions, the possible overlaps and the phasing of various activities. The personnel for the RIC, as discussed in different chapters, is as follows:

Scientific	- 20
Technical	- 20
Administrative & auxilliary services.	- 17

Building:

In order to house its facilities and to conduct the proposed programmes the RIC will need a space of about 15,000 Sq.ft. The details of this requirement are given in Part III, Section 4.

Financial Requirements:

The programmes presented earlier are task-oriented and conform to the needs of the education system. The expenditure to implement the programmes and to build the infrastructure is Rs. 38.30 lacs for the remaining two year of the current Five Year Plan. The estimated cost of implementing the programmes and sustaining the infrastructure for the first three years of the Sixth Five Year Plan is Rs. 32.20 lacs. The projected recurring annual cost of the RIC from the Sixth Year of the existence is Rs. 11.00 lacs only.

The detailed Financial Statement and the Annual breakup of its budget are given in the following pages.

FINANCIAL STATEMENT

The financial requirements of the Regional Instrumentation Centre for the Fifth Plan and Sixth Plan periods are as follows:

I.	<u>CAPITAL</u>	(Rs.)		
	A. Laboratory and Workshop Equipment	Vth plan period (1977-79)	VIth plan period 1979-1982	1982-84
	a) Laboratory Equipment			
	1) Central Electronic Equipment	2,70,000/-	67,000/-	-
	2) Servicing and Maintenance	27,500/-	-	-
	3) Special equipment for programmes	32,500/-	1,07,500/-	50,000/-
	b) Mechanical Workshop and Auxiliary services)	5,84,200/-	-	-
	c) Glass-blowing shop	1,35,000/-	-	-
	d) Photography	15,000/-	-	-
	B. <u>Information and Documentation</u>			
	a) Reprographic Equipment	40,000/-	-	-
	b) Books, periodicals, Manuals etc.	1,70,000/-	2,30,000/-	1,50,000/-
	C. <u>Administration and Auxiliary Services</u>	84,000/-	-	-
	D. <u>Building</u>			
	a) Cost of Building	10,36,335/-	-	-
	b) Air-conditioning	1,00,000/-	-	-
	c) Furniture	1,13,495/-	-	-
II.	<u>REVENUE</u>			
	a) Salaries	7,77,200/-	18,25,400/-	13,40,580/-
	b) Consumables	2,85,500/-	6,91,500/-	5,17,680/-
	c) Travel & incidental expenses	80,300/-	76,900/-	39,300/-
	d) Contingencies	1,23,300/-	1,46,590/-	1,02,000/-
	Total	38,56,330/-	31,94,990/-	22,00,350/-

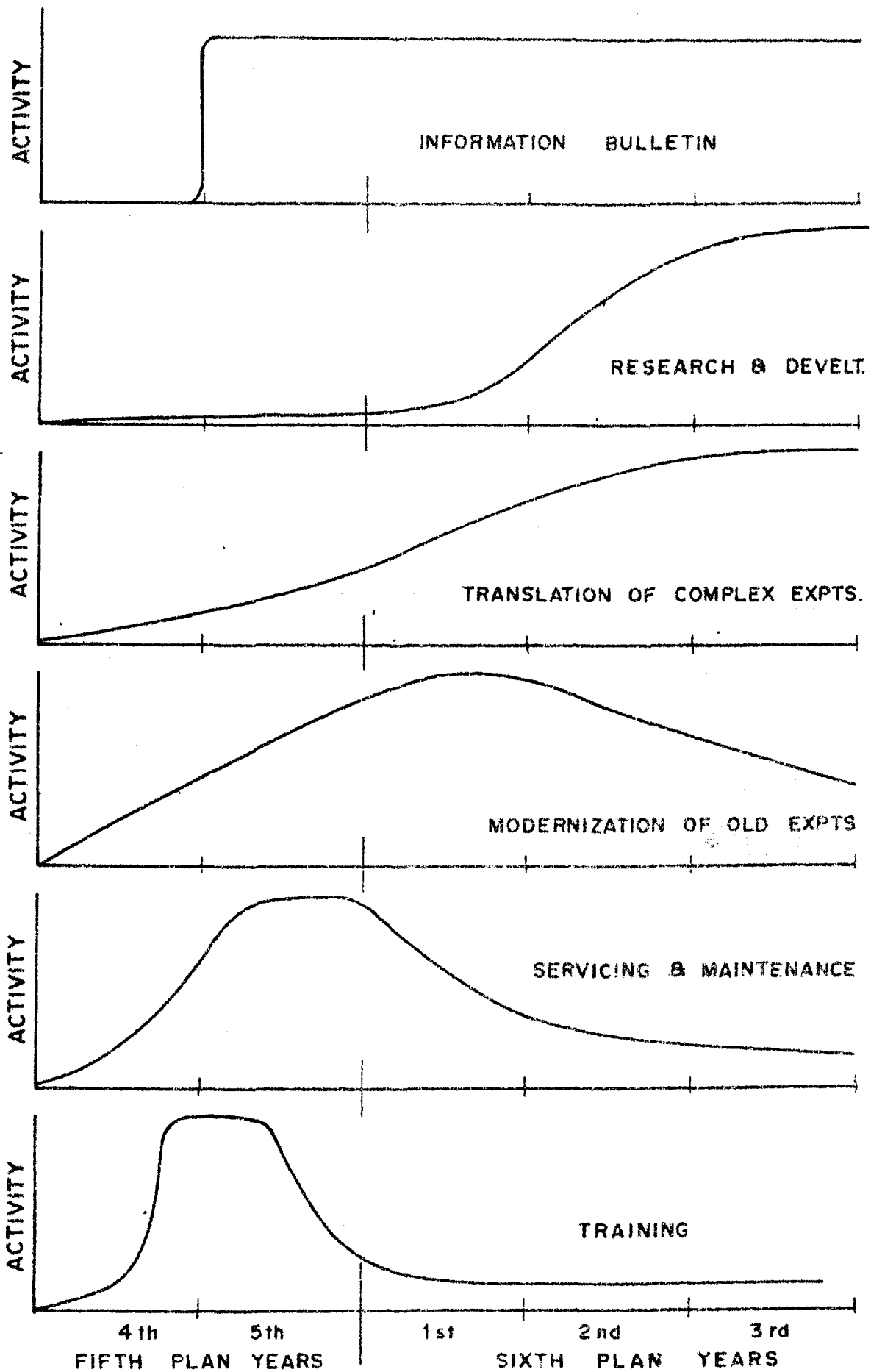


FIG. 1 PHASING OF ACTIVITIES OF THE RIC

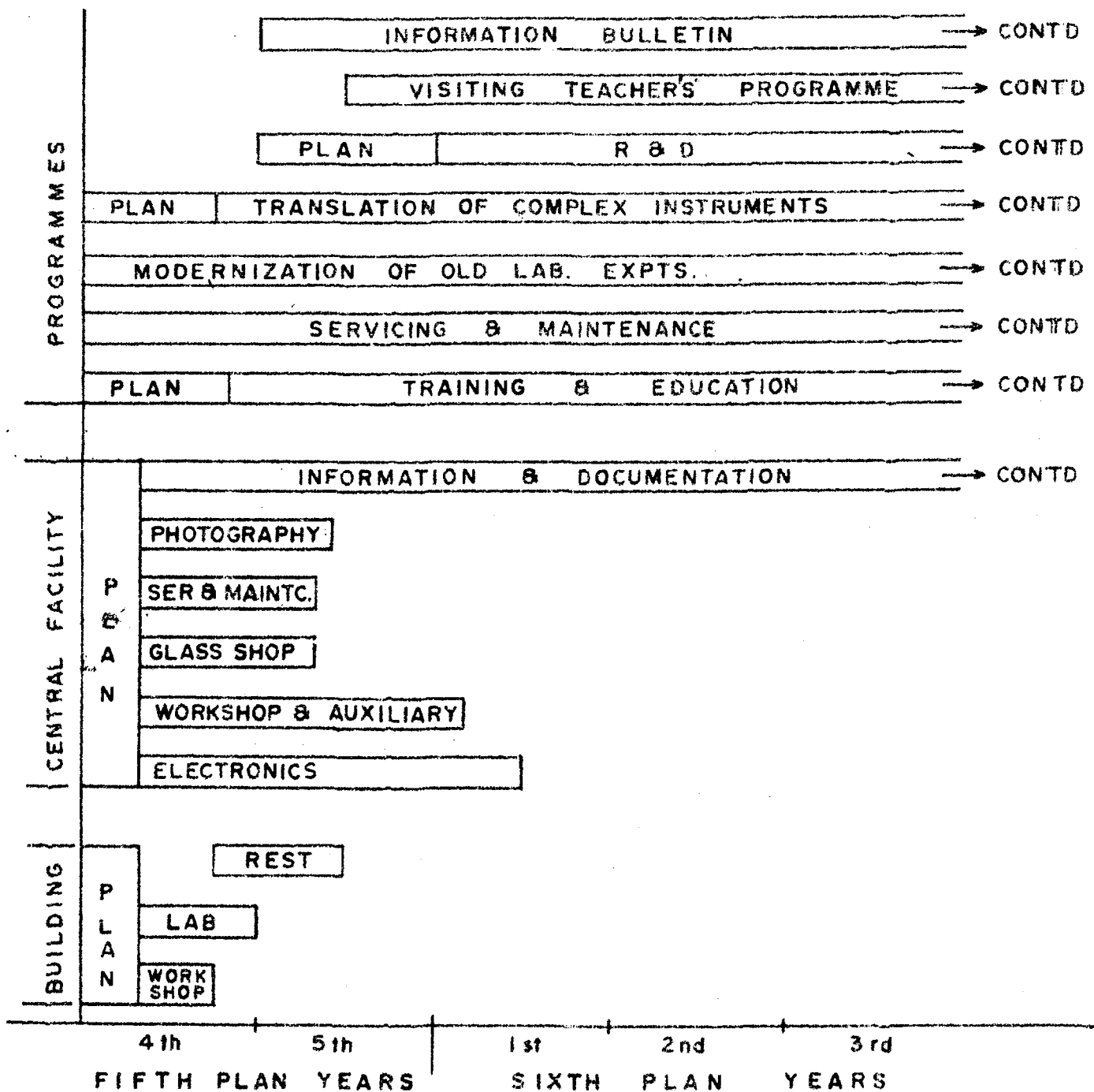


FIG. 2. BAR-CHART FOR ACTIVITIES OF THE RIC

FEASIBILITY REPORT

ON

REGIONAL INSTRUMENTATION CENTRE

(Western Region)

CONTENTS

PART I : PROBLEM ANALYSIS

1. INTRODUCTION
2. SURVEY OF INSTRUMENTATION
3. PROBLEM IDENTIFICATION
4. ANALYSIS AND STRATEGY

ANNEXURES

PART II : PROGRAMMES OF THE RIC

5. BACKGROUND INFORMATION & THE INFRASTRUCTURE
6. TRAINING AND EDUCATION
7. SERVICING AND MAINTENANCE
8. DEVELOPMENT OF TEACHING AIDS
9. RESEARCH AND DEVELOPMENT
10. PROGRAMME PHASING

ANNEXURES

PART III : STRUCTURE AND FINANCE

- Section 1 : CENTRAL TECHNICAL SERVICES
- Section 2 : ADMINISTRATIVE & AUXILIARY SERVICES
- Section 3 : DOCUMENTATION & INFORMATION SERVICES
- Section 4 : BUILDING, FIXTURES & FURNITURE
- Section 5 : COST-BENEFIT ANALYSIS

ANNEXURES.

PART I : PROBLEM ANALYSIS

I. INTRODUCTION

It is a fact that a large investment has been done in the basic technological infrastructure which has placed our country in a very comfortable position with regard to a leap towards higher and more sophisticated technological development.

The western region comprising of Maharashtra, Gujarat, Rajasthan, the Madhya Pradesh and Goa is a technologically progressive part of the country. It has a well developed industrial base, has a number of internationally known research laboratories and a well developed and viable educational structure extended all over the region.

The technological growth and the industrial advancement have brought in new and modern technologies in the region. However, one finds an absence of proper development in the field of instrumentation, which is so very essential for the development of other technologies that are based on science.

Instrumentation is a multidisciplinary science and depends largely for its development on the technologies of materials, components, electronics etc. In the recent past, the region has been poised to undertake development of this branch of science and technology as the supporting technologies such as glass, machine tools, electronics etc. are now being developed. The demands for instruments of sophisticated nature are steadily growing in industry, research laboratories, hospitals and the educational institutions. It is, therefore, imperative that the development of instrumentation as a technology cannot be allowed to be neglected anymore, but needs to be given a priority.

It is worth noting that the major developments in instrumentation seen today in the advanced countries have occurred due to innovations in the universities and research organizations. The industries played a complementary role by adopting these innovations and by giving feedback for faster development. It is therefore obvious that the universities and research institutions of the region have a similar role to play in the development of this science at this juncture. The University Grants Commission initiative in this respect is indeed welcome.

The slow development of instrumentation has no doubt posed several harsh problems. Some of these have created severe handicaps to the development of science education in the universities. This aspect has been analysed earlier in a number of reports submitted to the University Grants Commission on the subject by individuals and committees. The problem areas identified by them are summarised below:

- 1) Lack of teaching aids designed to suit the Indian conditions;
- 2) Total absence of lecture demonstrations as a component of teaching method due to non-availability of demonstration apparatus;
- 3) Poor servicing and maintenance facilities at the educational institutions;
- 4) Absence of feedback from the research institutions and the instrument manufacturers resulting in the present stagnation in the teaching methods and research ideas.

The reports point out the fact that considerable talent exists in the universities to develop instruments and further suggest the following remedial action:

- 1) Establishment of a Central Agency under the University Grants

Commission with the following tasks:

- i) Design and fabricate instruments and apparatus for research purposes;
 - ii) Development of teaching aids and demonstration kits;
 - iii) Generation of a technical cadre in the teaching institutions to take care of the servicing and maintenance problems;
 - iv) Close collaboration between the units and the research laboratories in the region.
- 2) Establishment of a central facility for sophisticated instruments.

A recent proposal on the subject, submitted by a committee appointed by the Vice-Chancellor of the University of Bombay, has now been accepted in principle by the Commission.

Purpose and Scope:

This report is a comprehensive analysis of the multi-dimensional problem of instrumentation. It presents data, sets the tasks and suggests methods of achieving a sustained growth of the science of instrumentation through the university system according to the suggestions made in the reports mentioned earlier.

The study is, however, limited to the western region only. The report takes an over-view of the university system as a whole and its surroundings, and sets the long term and short term objectives to achieve the desired changes.

The problems of instrumentation faced by the other sectors like agriculture, health services and industry are not dealt with in this report. These could be taken up at a later stage.

II. SURVEY OF INSTRUMENTATION

In the absence of sufficient data on the present status of instrumentation in the region, it was necessary to conduct a survey with a view to get a closer insight of the problem. This has been done in two steps; firstly, by conducting a detailed survey of colleges in Bombay and then by undertaking a computer-based survey of the region.

1. Bombay Survey:

The survey covered 32 colleges in the city and its neighbourhood.

It sought the following information:

- 1) Number of instruments of a given type in the colleges.
- 2) Number of instruments needing repairs.
- 3) The nature of the faults which generally arise in them.

The survey covered optical, electrical, mechanical and electronics instruments used for the under-graduate and post-graduate laboratory instructions in Physics, Chemistry, Life-sciences, Psychology and Geology. The information of the state of audio-visual aids was also asked for.

The instruments covered by the survey in the various categories are as follows:

- 1) Optical : Student Microscope, Telescope, Spectrometer, Refractometer, Desecting Microscope, Polarisation and Phase-contrast Microscope, Polarimeter, Comparator.
(Average price per unit Rs. 1,500/- at the current prices)
- 2) Electrical : Variac, Furnace, Incubator, Thermostatic Bath, Refrigerated Centrifuge, Vacuum Pump.
(Average price per unit Rs. 1000/- at the current prices)

- 3) Mechanical : Microtome, Shaking Bath, Paraffin Bath, Chronoscope, Reaction Time Apparatus, Kymograph, Time Sense Apparatus.
(Average price per unit Rs. 2,000/- at the current prices)
- 4) Electronics : Oscilloscope, Regulated Power Supply, L.F. Oscillator, V.T.V.M., G.M. Counter and Scaler, Scintillation Counter, High Voltage Power Supply, Strip-chart Recorder, Vacuum Gauges and Controls, L.C.R. Bridge, pH Meter, Conductivity Meter, Photoelectric Colorimeter, Polarograph, Dipole Meter, Flame Photometer, Fluorimeter, Chronoscope.
(Average price per unit Rs. 3,000/- at the current prices)
- 5) Audio-visual aids : Epidiascope, Slide Projector.

The results based on 100% returns are as follows:

Categories of instruments	Instruments		Inst. out of order		% out of order
	Total No.	Total cost (Rs. lacs)	Total No.	Total cost (Rs. lacs)	
Optical	3867	58.00	1140	17.00	29.5
Electrical	193	2.00	56	0.60	29.0
Mechanical	152	3.00	49	1.00	32.2
Electronics	576	17.00	222	6.37	38.5
Audio-Visual Aids	25	0.50	14	0.28	56.0
Total :		80.50		25.45	

For calculating the cost of these instruments at the current prices, the price of the major component of instruments in each category was taken into account. Since the list includes some instruments costing many times more than the estimated average price, the costs given above are on the conservative side.

In order to ascertain whether the faults in the instruments were within the capacity of the staff, a few faulty instruments were brought for repairs. Table 2.1 shows that most of the faults were easily repairable. The cost towards replacement of the components was very small compared to the basic cost of the instrument.

2. Regional Survey:

The experience of the Bombay survey indicated that the regional survey should aim at finding answers to ~~five~~^{four} basic questions:

- 1) What percentage of instruments of a given type need immediate attention ?
- 2) What is the technical competence of the laboratory staff ?
- 3) Are the teachers technically oriented ?
- 4) What type of facilities are available for maintenance and repairs of instruments in the colleges ?

A questionnaire along this line was designed and was sent to all undergraduate and postgraduate departments in the region. Every questionnaire was accompanied with a specially designed computer card which the heads of the departments were expected to fill in the suggested way. The special feature of the card is that the information marked on them is directly read by the computer available at the National Centre for Software Development and Computing Techniques (NCSDCCT) in Bombay. The data compiled therefore is what the heads of the departments have supplied.

General Features:

The following information was obtained from the survey.

a) Instrument profile:-

The purpose of this part of the survey was to identify instruments listed in ANNEXURE I. 1, available in colleges and university departments, and also to estimate percentage of them out of order. For convenience in compilation of the data, the instruments have been put into the first four categories, as in the earlier case.

b) Technical staff profile:-

This information aims at estimating the technically oriented manpower at the colleges dealing with laboratory instruments.

c) Technical profile of academic staff:-

The number of technically oriented academic staff and their capabilities to handle instruments of varying degrees of complexity has been estimated in this part of the survey.

d) Workshop facilities:-

Here, attempt is made to evaluate the types of workshops available at the colleges as well as the level of usage of workshop facilities available elsewhere. The facilities included in this part are mechanical, electrical, electronics and glass-blowing workshops.

Results

The data collected for this survey covers the undergraduate and postgraduate levels. Due to the unmanageably large variety of instruments involved at the research level, no attempt has been made to deal with this level at this stage.

Undergraduate level:-

The data obtained, based on approximately 31% returns, is given at the end of the chapter.

It is seen that out of the total about 30% of the instruments need immediate repairs, a figure similar to that observed in the detailed survey of Bombay Colleges. It is possible to estimate the capital locked up in these instruments by assigning an approximate per unit average cost at the current prices, of Rs.500/- for electrical, Rs.1000/- for electronics, Rs.500/- for optical, and Rs.1000/- for miscellaneous instruments. It appears that about Rs.1.75 crores worth of instruments out of the estimated total investment of about Rs.6.0 crores are not in working conditions. It may be pointed out that this estimate is most likely to be on the conservative side since the survey aimed at identifying the lower limit on the basis of selected instruments.

The survey on laboratory staff shows that the education system depends very heavily on laboratory personnel of qualification, S.S.C. or below. Out of the reported technically oriented laboratory staff, about 80% belong to this category; the remaining 20% have some form of technical and post-S.S.C. training. It should be recognized that there would be many more who do not have technical competence as was observed in Bombay colleges.

It is interesting to note that the colleges have at least one academic staff member having Post graduate degree in Electronics. Out of the total reported technically oriented academic staff less than 15% have technical background.

About 5% of the departments have small and simple workshops. Glassblowing facilities hardly exist. It is encouraging to know that a large number of them make an attempt to approach facilities available elsewhere belonging to the other departments or agencies outside the institution.

Postgraduate level

The data so far obtained on the above profiles for this level has been received mainly from colleges imparting postgraduate education. Similar data obtained from the university departments is very scanty. It is felt that any form of generalisation from such data will not project a true picture. Nevertheless, the trends as seen from the information so far obtained are similar to those observed for the undergraduate level.

Limitations of the Survey

- 1) Limits on information permissible by the size of the computer card.
- 2) Compromises arising out of difficulties in handling a large number of variables associated with various factors under consideration.
- 3) It cannot be claimed that the questionnaire has been optimised since it is the first time such an exercise has been done.

3. Maintenance Expenses

The colleges under the University of Bombay were approached for information on the annual expenses incurred by them on maintenance of instruments. 14 colleges responded. For the year 1975-76 they have spent

an average of Rs.2,700/-. Assuming these expenses for rest of the 18 colleges surveyed, ^{the colleges} would have spent together about Rs.90,000/-, this would be about 1% of the capital investment estimated earlier. Bombay colleges have a special access to the services from the commercial organisations which is not available to the rest of the colleges in the region. It is, therefore, expected that the expenditure on repairs by them would be even less than 1%.

SULT OF THE COMPUTER BASED SURVEY, (UNDERGRADUATE)

TOTAL NO OF DEPTS RESPONDED 467.

A. INSTRUMENT PROFILE

CATAGORY	TOTAL NUMBER	OUT OF ORDER
1. ELECTRICAL	15757.	5092.
2. ELECTRONIC	2332.	632.
3. OPTICAL	9216.	2632.
4. MISCELLENIOUS	3371.	1026.

B. TECHNICAL STAFF PROFILE

QUALIFICATIONS	TOTAL NUMBER
1. S.S.C./Below S.S.C.	427.
2. F.Y.Sc./Equivalent	47.
3. Int.Sc./Equivalent	18.
4. B.Sc./Equivalent	26.
5. I.T.I.Certificate	14.
6. Tech.Diploma	5.
7. B.Sc.(Tech)/B.E.	0.
8. M.Sc.(Tech)/M.E.	0.
9. M.Sc.(Instr)/B.E.(Instr)	0.

C.a) WORKSHOP FACILITIES PROFILE

(ALL TYPES OF WORKSHOP TAKEN TOGETHER)

1. Depts do not have wksp	157.
2. Depts have small wksp	12.
3. Depts having small wksp & few machines	5.
4. Same as 3, plus part time techn,	0.
5. Depts have few elect machines	6.
6. Same as 5, & part time techn,	3.
7. Well equipped wksp	0.
8. Same as 7 & part time staff	0.
9. Same as 7, & full time staff	1.

b) OUTSIDE WORKSHOP USAGE

1. Outside wksp not available	414.
2. Outside wksp available, but not used	70.
3. Outside wksp used	268.

D. TECHNICAL PROFILE OF ACADEMIC STAFF

1. M.Sc.(Electronics)	190.
2. B.Sc.(Tech)	2.
3. M.Sc.(Tech)	2.
4. M.Sc.(Instr)	9.
5. M.Sc. & Tech Cert,	14.
6. M.Sc. & Tech, Diploma	6.
7. M.E.	0.
8. M.B.B.S. & Cert. Med, Instr.	0.
9. M.Sc.(Aq) & Tech Cert,	9.

SULT OF THE COMPUTER BASED SURVEY, (POSTGRADUATE)
 TOTAL NO OF DEPTS RESPONDED 114.

A. INSTRUMENT PROFILE

CATAGORY	TOTAL NUMBER	OUT OF ORDER
1. ELECTRICAL	922.	262.
2. ELECTRONIC	1243.	368.
3. OPTICAL	826.	143.
4. MISCELLENIOUS	945.	234.

B. TECHNICAL STAFF PROFILE

QUALIFICATIONS	TOTAL NUMBER
1. S.S.C./Below S.S.C.	78.
2. F.Y.Sc./Equivalent	12.
3. Int.Sc./Equivalent	11.
4. B.Sc./Equivalent	20.
5. I.T.I.Certificate	11.
6. Tech.Diploma	10.
7. B.Sc.(Tech)/B.E.	4.
8. M.Sc.(Tech)/M.E.	2.
9. M.Sc.(Instr)/B.E.(Instr)	1.

C.a) WORKSHOP FACILITIES PROFILE

(ALL TYPES OF WORKSHOP TAKEN TOGETHER)

1. Depts do not have wksp	34.
2. Depts have small wksp	8.
3. Depts having small wksp & few machines	2.
4. Same as 3, plus part time techn.	0.
5. Depts have few elect machines	3.
6. Same as 5, & part time techn.	0.
7. Well equipped wksp	3.
8. Same as 7 & part time staff	0.
9. Same as 7, & full time staff	8.

b) OUTSIDE WORKSHOP USAGE

1. Outside wksp not available	66.
2. Outside wksp available, but not used	26.
3. Outside wksp used	73.

D. TECHNICAL PROFILE OF ACADEMIC STAFF

1. M.Sc.(Electronics)	34.
2. B.Sc.(Tech)	0.
3. M.Sc.(Tech)	1.
4. M.Sc.(Instr)	5.
5. M.Sc. & Tech Cert.	6.
6. M.Sc. & Tech, Diploma	3.
7. M.E.	3.
8. M.B.B.S. & Cert. Med. Instr.	0.
9. M.Sc.(Ag) & Tech Cert.	0.

RESULT OF THE COMPUTER BASED SURVEY, (POSTGRADUATE)
 TOTAL NO OF DEPTS RESPONDED 114.

A. INSTRUMENT PROFILE

CATAGORY	TOTAL NUMBER	OUT OF ORDER
1. ELECTRICAL	922.	262.
2. ELECTRONIC	1243.	368.
3. OPTICAL	826.	143.
4. MISCELLANEOUS	945.	234.

B. TECHNICAL STAFF PROFILE

QUALIFICATIONS	TOTAL NUMBER
1. S.S.C./Below S.S.C.	78.
2. F.Y.Sc./Equivalent	12.
3. Int.Sc./Equivalent	11.
4. B.Sc./Equivalent	20.
5. I.T.I.Certificate	11.
6. Tech.Diploma	10.
7. B.Sc.(Tech)/B.E.	4.
8. M.Sc.(Tech)/M.E.	2.
9. M.Sc.(Instr)/B.E.(Instr)	1.

C.a) WORKSHOP FACILITIES PROFILE

(ALL TYPES OF WORKSHOP TAKEN TOGETHER)

1. Depts do not have wksp	34.
2. Depts have small wksp	8.
3. Depts having small wksp & few machines	2.
4. Same as 3, plus part time techn.	0.
5. Depts have few elect machines	3.
6. Same as 5, & part time techn.	0.
7. Well equipped wksp	3.
8. Same as 7 & part time staff	0.
9. Same as 7, & full time staff	8.

b) OUTSIDE WORKSHOP USAGE

1. Outside wksp not available	66.
2. Outside wksp available, but not used	26.
3. Outside wksp used	73.

D. TECHNICAL PROFILE OF ACADEMIC STAFF

1. M.Sc.(Electronics)	34.
2. B.Sc.(Tech)	0.
3. M.Sc.(Tech)	1.
4. M.Sc.(Instr)	5.
5. M.Sc. & Tech Cert.	6.
6. M.Sc. & Tech. Diploma	3.
7. M.E.	3.
8. M.B.B.S. & Cert. Med. Instr.	0.
9. M.Sc.(Ad) & Tech Cert.	0.

TABLE 2.1

Nature of faults observed in some instruments from Bombay Colleges

Sr. No.	Instrument	Hrs. spent on repairs	Nature of Faults	Approx. cost of insts. (Rs.)	Cost of repairs (Rs.)	Remarks from teaching staff of the colleges
1.	Photoelectric Colorimeter	4 hours	1) Low Transformer voltage 2) Faulty Photovoltaic Cell 3) Faulty slit	2,200	30.00	-
2.	Photoelectric Colorimeter	4 "	1) Meter (indicator) not working	2,200	150.00	Manufacturer did not respond to their request for repairs.
3.	Photoelectric Colorimeter	3½ "	1) Meter coil damaged, i.e. meter required replacement	2,200	150.00	No response from the manufacturer.
4.	Potentiometer	7 to 9 hrs.	1) Precision resistances damaged	3,500	00.00	This instrument was lying unused for about 2 yrs. A reputed electric company kept it for more than 6 months and sent it back without repairs.
5.	Conductivity Meter	4 hours	1) Lack of knowledge of operation on user's side	3,500	00.00	
6.	Scaler	4 days	1) Nixies damaged 2) Ckts. discont.	6,000	150.00	-
7.	Scaler	2 weeks	1) A resistance open.	6,000	2.00	-

III. PROBLEM IDENTIFICATION

Science education is undergoing radical changes today due to the recognition of the fact that it needs to match the overall development of science and technology and to overcome the ill-effects of the past.

The quality of education imparted by the University system is largely influenced by a number of internal and external factors. In this chapter an attempt is made to identify the problems related to instrumentation, arising out of the internal influences like staff, equipment, facilities etc. and those arising due to the external factors such as the relationship with the other institutions outside the fold of the system.

A. STATUS OF INSTRUMENTATION AT THE UNDER-GRADUATE & POST-GRADUATE LEVEL:

General features of these levels:

- i) Every science college in the region has undergraduate level.
- ii) Post-graduate level is generally located at the university departments and few selected colleges in major cities.

1. Hardware Problems:

- a) The survey has established that a large number of the instruments in the educational institutions are not working and hence not available for teaching.
- b) Though the institutions placed nearer to the urban centres have an access to the commercial services for repairs, these services are found to be expensive and not always dependable, being of poor quality. The institutions away from urban centres find themselves totally helpless.

- c) Commercially available instruments are not educational suitable, besides being very expensive in relation to their performance. High pressure sales tactics and exploitation of relative unawareness of technical details of the instruments on the part of teachers, make it possible for the manufacturers to palm off these instruments to the colleges.
- d) Very few colleges are equipped with the supporting workshop facilities to provide the in-house servicing and maintenance.

2. Technical Competence of the Staff:

Most of the teachers learn something about the instruments only during the course of their work in the absence of formal courses on technical aspects of the instruments in use. A laboratory attendant, who is next to the teacher, hardly knows anything of the instruments and normally helps move things around.

All these raise the following problems:

- a) Absence of a preventive maintenance of expensive equipment.
- b) Under-utilization and misuse owing to ignorance about the functional utility.
- c) Absence of improvisation of simple aids make the laboratory instructions restricted to the commercially available instruments, and hence stereotyped.
- d) Although minor defects are generally taken care of by the teachers, they are not in a position to tackle major repairs. Fabrication of glass apparatus is known to a very few teachers.

- e) There is a considerable absence of technical knowledge essential to select instruments, and consequently, their capabilities are not fully exploited. Obviously, they do not find their rightful place in the teaching programmes.

3. Institutional Problems:

- a) Owing to the lack of accepted channels of exchange, extensive use of equipment within the system is not possible, though desirable.
- b) Absence of dialogue between the users and manufacturers bars an effective feedback for improvements or new developments.
- c) Servicing/maintenance of an instrument in a college is still not recognised as an essential component of functioning of the science colleges and even the budget allocation for this is unjustifiably small in relation to the investment.
- d) There is a lack of procedural and technical knowledge about the procurement of instruments and spares, and of other managerial details required for a good upkeep and growth of a laboratory.

4. Effect on Teaching:

- a) There is a resistance to modernisation of teaching methods or subject component owing to the unfamiliarity with the instrumentation which such changes would bring in. If the modernisation is enforced, the tendency is to make the syllabi theoretically heavy with, rather, marginal changes in the old experimental programme. This has caused an imbalance between the theoretical and practical training.

- c) Departmental staff structure does not necessarily include a competent technical cadre to help the research programmes.
- d) Purchase of equipment is often not backed by the technical knowledge about the instrument to be purchased, which is evident from the choice of equipment often falling on the most expensive equipment in the range, instead of the one suitable for the immediate research problem.

3. Institutional Problems:

- a) The departments/institutions do not have sufficient information base on instruments, materials and components which could help them to arrive at proper decisions in purchases.
- b) There appears to be a serious lack of inter-departmental collaborations regarding the use of expensive equipment, perhaps due to the unwarranted fear on the part of the researcher that his instrument will remain out of order, in case the outside user misuses and spoils it. It is obviously wiser to deny the use under the present circumstances than to repair the equipments in the event of it being damaged.
- c) The expenses towards the repairs are not necessarily budgeted, as such instruments often remain unattended for lack of funds.
- d) There is a lack of procedural knowledge about the procurement of hardware and other managerial details required for a good upkeep and growth of a laboratory.
- e) The value systems prevalent in the Universities do not place premium on innovation in instrumentation.

4. Effects on Research:

- a) The choice of research programmes are often governed mainly by the ready availability of instruments rather than by the recent development and challenges in the subject of research, which would inevitably demand development of new instruments. It is preferred to wait until the equipment is, in due course, available commercially abroad, rather than to experience the thrill of being in the forefront, by designing innovative experimentation. In either cases, the quality of research is adversely affected.
- b) Due to the value system, the teachers and students are reluctant to take on problems of innovative nature, requiring new instrumentation.
- c) The inability to build proper instruments has been one of the reasons for the reluctance on the part of the researches, to change to fruitful areas of research.
- d) The overall effect of these factors has been to repel talented student from the experimental sciences. The lack of such human input to these areas over the years has further aggravated the problems.

G. HIGHER EDUCATIONAL SYSTEM AND RESEARCH ORGANIZATIONS:

The western region is particularly fortunate in having a number of laboratories (Table 5.3). It has some of the best known organizations such as the BARC, TIFR, NCL, NEERI, CSMCRI and several others, which are at the forefront in the basic sciences. In addition to the varied types of

know-how generated by them, these institutions have been strong centres, where new instruments are designed for specific research programmes. The higher educational system stands to gain in instrumentation from their being in the region in the following ways by establishing strong collaborations:

- a) Use of the equipment available in the research laboratories or help in building similar instruments for research in the university departments.
- b) Extensive information on equipment and materials available with the research organisations.
- c) Assistance in generation of the teaching aids on subjects, in which vigorous research is going on. This would help to keep teaching in line with the modern development in sciences.

However, the system has not been able to take advantage in this direction, resulting in the education lagging way behind the modern development in sciences. As stated earlier, the only modernisation evident is in the theoretical subjects, with the outdated experimental programmes acting as brakes on the process of modernisation in the science education.

The absence of knowledgeable people in the areas of instrumentation in the educational system, is perhaps the strongest reason for the lack of dialogue with the laboratories, which is otherwise so very vital to effect the transfer of know-how between them and the educational system.

D. STATUS OF R & D IN INSTRUMENTATION:

Development in instrumentation is generally determined by the intensive interactions between universities, research laboratories, and

are industries who are the main users of instruments. The analysis given below is made from the point of view of the higher education.

- a) Very few universities have instrumentation as a formal subject for students to do research in. A few engineering colleges have courses leading to the Master's degree, but further research in instrumentation is not in evidence. Whatever one sees by way of design of new instruments etc., in some selected university departments is mainly due to the enthusiasm and interest in the subject shown by the staff members.
- b) Major part of development of instruments takes place in the research laboratories, mainly for the internal use. Excepting some cases, like the ECIL, where official channels of knowhow transfer exist with its parent research organisation, the BARC, these developments are generally not available for commercial exploitation. This situation does not help the university system as it has to depend for its research needs on expensive, imported equipment which can be a heavy drain on its scarce resources.
- c) The instrument industry has not recognised the importance of strong in-house R & D as a part of their production strategy, nor does it approach the universities for help in development of new instruments. As a result there is an overall stagnation in instrumentation.

IV : ANALYSIS AND STRATEGY

Development in instrumentation is generally decided by the intensive interactions between universities, research laboratories and industries who are the main users of instruments. The analysis given below is made from the point of view of the higher education.

A close look at the problems identified earlier clearly indicates three basic dimensions for the present state of affairs in instrumentation as far as the higher education is concerned.

- a) Inherent inability of the system to meet the requirements of modern science education, due to the past neglect of instrumentation.
- b) Inability of the system to draw upon the expertise available in the neighbouring research laboratories.
- c) Traditional relationship of the industry as a supplier of instruments to the system is not as effective as it should be.

The analysis given here attempts to identify the underlying causes and their interrelationships.

A. ANALYSIS :

a) Shortcomings of the Educational System:

An attempt is made here to identify some of the prominent causes responsible for the inability of the system to respond to its needs.

1. Absence of Technical Cadre:

The main feature of our educational system is that there have been no deliberate efforts to introduce a technical cadre in the science departments.

This could perhaps be due to the "on par treatment" meted out to the science and the humanity departments in the matter of staffing. The presence of such a technical cadre within the institution will generate an atmosphere of confidence amongst the teachers and the students. This will encourage them to modernize and improve the present laboratory instructions, increase the utilisation of the instruments and to make use of and improvise the teaching aids for class-room teaching. As for the research activities, such an atmosphere will motivate them to accept challenging research programmes demanding complex instrumentation, which could even be planned, designed and fabricated indigenously.

2. Devalued Role of Instrumentation:

Instruments are purchased merely as an unavoidable commitment to syllabi and used just as work horses. As a result of this attitude, instruments are not accepted as a part of our educational methodology. This lackadaisical attitude towards instrumentation is responsible for the present conditions of the instruments and their use.

The snail's pace with which the experimental training is being modernised in relation to the theoretical instructions, has not helped to bring the required talent in experimental sciences, which, in turn, has resulted in the continuance of the present deplorable state of affairs.

The present disregard to instrumentation shown by the teachers and students adversely affects the system further, since it has to depend for inputs as teachers on the illtrained students. The overall effect of such a devalued role of instrumentation is seen in the absence of development of hardware, its appreciation and proper utilisation.

3. Marginal Investment in Instruments:

No doubt, the investment made so far in the instruments does not match the requirements for the modern science and the allocation of funds for the maintenance is even much below the expected level. The paucity of funds coupled with the poor utilization of instruments due to submarginal inputs in maintenance, has aggravated the situation still further.

4. Lack of Communication:

Academic community in higher education is poorly informed of the developments in instrumentation, in general, and those taking place in the research laboratories and the Universities in the country, in particular, due to the absence of proper communication. This is responsible for the present stagnant atmosphere in the experimental instructions.

The above factors though appear symptomatically different, are in reality interrelated. For example, any additional investment to make up for the past would hardly be useful in the absence of a technical cadre, healthy attitude towards instrumentation etc. It is, therefore, important that for the remedial purposes these factors be tackled together.

The analysis of the educational system leads one to conclude that it is not yet exposed to the culture of instrumentation and internal efforts to instil and grow such a culture in a sustained manner are necessary.

b) Diffusion of Knowhow from Research Institutions:

diffusion of know-how,
One is likely to underestimate the efforts needed for / particularly in the case of the educational system which involves thousands of persons at

various levels. The process is bound to be slow but certainly call for an immediate start. In order to hasten the process, one must also look for assistance from other institutions in and outside the region which already have intense activities in instrumentations, while the system prepares itself internally to accept the help to grow the required culture. Fortunately, there are a number of institutions in the country where instrumentation is considered to be an essential part of their objectives and hence has been developed to high standard. The educational system must therefore, provide an efficient mechanism of diffusion of their knowhow to itself so as to supplement the internal efforts of improving its own position in relation to instrumentation. The mechanism must, however, take into consideration the needs of the system, the level of technical expertise available with the system and should make the process self-sustained.

c) Role of Instrument Industry:

Traditionally, the system has always depended on the industry to meet its growing and changing needs in instrumentation. In the post-Independent period, however, the industry has not been able to keep pace with the needs for various reasons of its own. It is doubtful, whether the system can still depend on it, in view of the pressures of modernisation.

The educational system will have to take on itself the task of not only the development of instruments but also of dispersal in the initial stages of development so that everybody concerned gets the fruits of development.

B. STRATEGY :

The analysis given above leads to specific remedial action points. In the following paragraphs they are elaborated and the role of various agencies of the educational system are discussed.

a) Remedial Actions:

The main thrust in the remedial actions for the problem of instrumentation must be in the direction of developing internal capabilities to overcome the shortcomings of the past and prepare itself for accepting future developments in instrumentation. Evidence of such capabilities only will encourage the agencies such as research laboratories, industries, etc., to effectively transfer their knowhow.

1. Development of Internal Capabilities:

Following steps for development of internal capabilities are necessary.

- i) Upgrading of technical competence of the teaching and laboratory staff through training to facilitate servicing and maintenance of instruments.
- ii) Development of hardware with a view to modernise old laboratory experiments.
- iii) Development of hardware with a view to introduce new experiments consistent with the advancing syllabi.
- iv) Undertaking research and development in instrumentation.
- v) Development of channels of communication in order to assist the former actions.

2. Use of External Resources:

To accelerate the pace of development of the internal capabilities, the educational system will need to seek assistance of research organisations in the following manner:

- i) To translate sophisticated equipment already developed in these organisations to suit the requirements of the educational system.
- ii) To utilize the expertise from these organisations by associating experts in the internal programmes of the system.

b) Role of University System:

It is already mentioned earlier that instrumentation which aims at measurement of physical parameters relies heavily on basic concepts in the sciences. It is therefore imperative that the universities alone should embark on intensive activities in this area. However, under the present circumstances described so far, it is doubtful whether the Universities can effectively play this legitimate role.

Recently the University Grants Commission has expressed its concern over the large number of instruments in the Universities and colleges lying idle for the lack of servicing and maintenance and over the training needs of the universities and colleges. It is encouraging to note that the Commission has accepted as its responsibility to solve these problems. As is evident from the analysis, the problem of instrumentation is so deeprooted that the efforts required to generate self-sustained culture in instrumentation will have to be put-in, for a long time, by all concerned. It is,

therefore, necessary that the UGC as an ultimate body responsible for the higher education should be primarily involved in the process. Universities, on the other hand have an important role to play in the process, due to their geographical and administrative proximity to the affiliated colleges.

c) Structure:

In view of the importance of this problem it is imperative that a proper structure should be evolved to achieve these long term objectives and a in shortest possible time/at/minimum cost. This structure should provide scope for maximum involvement of all concerned and the co-ordinated growth of the culture. It would, therefore, consist of the Colleges, Service and Instrumentation Centres at the Universities (USIC) and a Regional Instrumentation Centre (RIC).

1. College:

The operational framework required for this strategy will have the college as the basic element. It needs support in terms of up-grading its manpower in instrumentation, easy availability of teaching aids and the necessary technical back-up in the event of servicing and maintenance.

2. University Servicing and Instrumentation Centre (USIC):

It is observed from the survey that a majority of the instruments used in the colleges are of a low or a medium technical complexity, which can be easily handled by a trained person in the college. A need-based training can be given to the college teachers by the USIC. These centres will also provide the necessary technical back-up for those instruments which are beyond the expertise and the facilities available at the colleges.

The centres in due course should provide facilities to college teachers for design and fabrication of instruments, teaching aids etc. whenever required. Depending upon the availability of talent they should undertake R & D in instrumentation.

3. Regional Instrumentation Centre:

Development of internal capabilities in instrumentation has been identified earlier as an immediate remedial action. In this respect, it is possible to visualise natural limitations to which USICs would be subjected. It is, therefore, necessary to overcome these limitations affecting the pace of the development of internal capabilities by supplementary efforts from RIC in the following manner:-

- 1) Providing the resource personnel.
- 2) Providing the technical back-up for servicing and maintenance of sophisticated equipment
- 3) Development of teaching aids and instruments for modernisation of old experiments and introduction of new experiments.
- 4) Dispersal of the teaching aids.
- 5) Providing source material and information on instrumentation.
- 6) Undertaking research and development in instrumentation.

In addition the RIC should translate sophisticated instrument technology available in the research institutions for the benefit ^{of} the higher education. Such a co-ordinated approach will help in a fast and balanced development of instrumentation in the region.

Aims and Objectives of the RIC:

The foregoing analysis of the problems of instrumentation and the strategy developed make the case for establishing Regional Instrumentation Centre with the following aims and objectives:-

- 1) To train resource personnel with a view to generating technical cadre in the colleges and the Universities of the region.
- 2) To design and develop new teaching aids with the help of teachers and work out mechanisms for their dispersal in the educational institutions.
- 3) To conduct research and development programmes on instruments of interest to the educational system and to the other sectors of the society.
- 4) To provide an updated technical information, to produce source material for training and to provide information on the latest developments in instrumentation to the Universities and the colleges in the region.
- 5) To provide servicing and maintenance facilities for sophisticated instruments.
- 6) To translate the latest developments in the research laboratories and the other institutions in the country to suit the requirements of the educational system.
- 7) To interact with the industry, research laboratories and the other sections of the society in the interest of the development and growth of science and technology of instrumentation.
- 8) To develop a culture of instrumentation of an all out and all level participation in the concerted efforts to develop new methods of teaching and training to establish a meaningful relevance between the national objectives and the University education.

ANNEXURE L 1

INSTRUMENT PROFILE

The instruments are classified according to the degree of technical complexity as follows :

- A : Low technical complexity.
- B : Medium technical complexity.
- C : High technical complexity.

PHYSICS UNDERGRADUATE

INSTRUMENT	Class	INSTRUMENT	Class
Travelling microscope (Vertical)	A	Physical balances	B
Travelling microscope (Horizontal)	A	Induction Coil	B
Travelling telescope	A	Variacs	C
Rheostats	A	Spectrometers	C
Constant pressure air thermometer	A	Transformers	C
Victor Meyer apparatus	A	Discharge tubes apparatus	C
Table galvanometer	B	Oscilloscopes	C
Mirror galvanometer	B	Regulated power supply	C
*Resistance box	B	L. F. Oscillator	C
Condenser box	B	Multimeter	B
Battery charger and/or eliminator	B	V. T. V. M.	C
*Ammeters	B	L. C. R. Bridge	C
*Voltmeters	B	Nuclear Counting equipment	C
Optical bench components	B	Double beam Oscilloscopes	C
Post-office box	B	Epidiascope	C

PHYSICS POSTGRADUATE

INSTRUMENT	Class	INSTRUMENT	Class
Multimeters	B	Accessories for spectroscopic	B
Constant deviation spectrometer	B	Light sources	B
Michelson Interferrometer	B	Babinet compensator	B
Spectrograph (Quartz/LiF Prism)	B	Optical densitometer	B
Comparators	B	Concave grating spectrometer	B
		Epidiascope	B

ANNEXURE I 1 (contd.)

Microphotometer	C	High Impedance Micro Meter	C
X-ray powder camera	C	Strain Guage Meters	C
Weisenberg X-ray camera	C	Thickness Moniter Unit	C
Rotating & Oscillating Crystal X-ray camera	C	L.C.R. Bride	C
L. V. Regulated power supply (transistorized)	C	Stripchart recorder	C
Oscilloscope	C	Microwave test bench	C
L. F. Oscillator	C	Gaussmeter	C
H.F./R.F. Oscillator	C	Vaccum systems and guages	C
V.T.V. Meter	C	Vaccum deposition equipment	C
High Voltage power supply (Valve type)	C	X-ray machine	C
Pulse generator	C	Mossbauer equipment	C
Q Meter	C	G. M. Counting equipment	C
Frequency Meter	C	Scintillation Counting equipment	C
Power Meter	C	E.S.R. Spectrometers	C
Phase sensitive Detector	C	Ultrasonic Spectrometer	C
Electrometer	C	Cryostats	B
Electronic Thermometer	C	Furnaces	B
		Overhead projector	B
		TV Moniter	C
		Closed circuit TV Camera	C

CHEMISTRY UNDERGRADUATE

INSTRUMENT	Class	INSTRUMENT	Class
Freezing point apparatus	A	Rotary vacuum pump	B
Sodium Press	A	Air compressor	B
Hand Centrifuge	A	Conductivity meters	B
Analytical balance	B	Hot plates	B
Distillation apparatus electrically operated	B	Ion exchange plant for water	B
Gas plant electrically operated	B	Electric centrifuge	B
Gas plant oil fired	B	pH meter	C
Potentiometer	B	Colorimeter	C
Polarimeter	B	Polarograph	C

ANNEXURE L 1 (contd.)

**CHEMISTRY
POSTGRADUATE**

INSTRUMENT	Class	INSTRUMENT	Class
Oil fired gas plant	A	Conductivity meters	C
Electrically operated gas plant	B	Thermogravimetric apparatus	C
Sodium press	A	Differential Thermal analysis	C
Ion exchange water purifier	A	pH meter	C
Hot plates	B	Photoelectric colorimeter	C
Water distillation plant	B	Fluorimeter	C
Analytical balance	B	Polarograph	C
Semimicro analytical balance	C	Dipole meter	C
Air compressor	C	Thin layer chromatography	B
Electric Centrifuge	C	Column Chromatograph	B
Ultracentrifuge	C	Gas chromatograph	C
Magnetic stirrer with hot plate	B	Electrophoresis apparatus	C
Thermostatic water bath	B	Refractometer	B
Rotary vacuum pumps	C	Flame photometer	C
Oven	B	X-ray spectrometer	C
Muffle furnace	B	G. M. Counter and counting equipment	C
Shaking machine	B	Contamination monitor	C
Cryostat	B	UV and visible spectrophotometer	C
Medium pressure hydrogenation Apparatus	C	I. R. Spectrophotometer	C
High Pressure apparatus	B	Atomic absorption spectrometer	C
Freezing point apparatus	B	Emission spectrograph	C
Melting point apparatus	B	Mass spectrometer	C
Polarimeters	B	Ozonizer ...	B
Potentiometer	B	Ozonolysis unit	B
		Semimicro and micro elemental analysis	C
		Epidiascope	B

**LIFE SCIENCES : Botany, Zoology
microbiology, and
Biochemistry.**

UNDERGRADUATE

INSTRUMENT	Class	INSTRUMENT	Class
*Student--Microscopes	B	Rotary type Microtomes	B
Double demonstration eye-pieces for microscope	B	Rocking Microtomes	B
Pointer eye-pieces for microscope	B	Wood cutting Microtomes	B
Compound/Oil immersion microscope	C	Incubators	C
*Dissecting Microscopes	B	Ovens	C
Freezing type Microtomes	C	Paraffin Baths	B

ANNEXURE L1 (contd.)

Water bath with temperature control	C	Lyophiliser	C
Colorimeters	C	Aeration pumps	C
pH meters	C	Equipment for at least 3 kinds of chromatography; paper, column and thin-layer	B
Refrigerator	C	Kymograph	C
Autoclave	C	Samplers for air, water and soil pollution	B
Shakers	B	Slide projectors	B
Microbalances	C	Microscope slide projectors	B
Hemocytometer	C	Epidiroscope	B
Hot plates	B		
Surgical instruments for animal "Operations"	B		

LIFE SCIENCES: Botany, Zoology, Microbiology and Biochemistry.

POSTGRADUATE

INSTRUMENT	Class	INSTRUMENT	Class
Phase contrast Microscope	C	Electric balance	C
Polarisation Microscope	C	Automatic microtome knife sharpener	B
Double demonstration Eye-piece for Microscope	B	Infrared moisture balance	C
Dissection microscope	B	Gas plant	B
Camera	C	Distillation apparatus	B
Slide projector	B	Vacuum pump	C
Flame photometer	C	Kymograph	B
Spectrophotometer	C	Autoclaves	B
Spectrophotometer with Gel Scanning attachment	C	Vortex mixture	B
Camera lucida/micro projector	B	Electrophoresis apparatus	C
Overhead projector	B	Gas chromatograph	C
Epidiroscope	B	Column chromatography	B
Colorimeters	C	Paper chromatography	B
Fluorimeter	C	Thin layer chromatography	B
Polarograph	C	Homogenizer	B
Warburg respirometer	B	Freezing/cryocut microtome	B
pH meter	C	Automatic wood microtome	B
Polarimeter	B	Rotary Microtome	B
Lux-meter	C	Sliding wood microtome	B
Turbidity meter	C	Refrigerated centrifuge	C
Conductivity meter	C	Incubators	B
Chemical Balance	B	Water Bath with temperature control	B
Micromanipulator	B	Shaking bath (Reciprocating gyratory)	B
Fraction collector	C	Hot plates	B
Microbalance	C	Centrifuges (Electrical)	B
		Magnetic and ordinary stirrers	B
		Refrigerators	C

ANNEXURE L I (contd.)

GEOLOGY

POSTGRADUATE

INSTRUMENT	Class	INSTRUMENT	Class
X-ray diffractometers	C	Panphoto(Leitz) Microscope	C
X-ray fluorescence Spectrometer	C	Isodynamic Separator	B
Atomic Absorption Spectrometer	C	Spectrophotometer	C
Flame Photometer	C	Rapid Photometer	C
Magnetometer	C	Spectrograph	C
Sesmic Timer	C	Optical Theodolite	B
Electrical Resistivity Meter	B	Dumpy Level	B
Gravity Meter	B	Prismatic Compass	B
Ore Microscope	C	Clinometer	C

PSYCHOLOGY

UNDERGRADUATE AND POSTGRADUATE

INSTRUMENT	Class	INSTRUMENT	Class
Chronoscope	C	Ergograph-electrical	C
Voice - keys	C	Multistimulus Response Time apparatus	C
Memory Drums (Electrically operated)	B	Persuit Rotor	C
Impulse counters	C	Audio Oscillators	C
Markers (Electric relay markers)	B	Orthorator	C
Kynographic equipment	B	Polygraph for EEG, EMG and respiratory responses	C
Reaction Time apparatus light stimulus	C	Phi-phenomenon apparatus	C
Reaction Time apparatus sound stimulus	C	Multiple choice apparatus	B
Calculator - electronic	C	Autokinetic apparatus	C
Calculator - mechanical	C	Beat-Frequency Oscillator	C
Time sense apparatus	C	Flicker fusion apparatus	C
Induction coil generators	C	Fourier analyzer	C
Psycho-galvanoscope	C	Humascope	C
Ergograph-mechanical	C	Illuminometer	C
		Obstruction box	A

ANNEXURE L 1 (contd.)

INSTRUMENT	Class	INSTRUMENT	Class
Oscilloscope	C	Dunlop Visual stimulus	C
Pseudoscope	C	Colour Rotator with Tachometer	C
Rod and frame apparatus	"	Electric shock apparatus	C
Brightness discrimination apparatus	C	Signal Detection Apparatus	C
Camera Tachistoscope	C	Visual Choic Reacting Time apparatus	C
Stereoscopes	A	Light-Discrimination apparatus	C
Visual test module	A	Brightness constancy apparatus	C
Activity cage and activity wheel	C	Auditory Activity Elec- trical Test	C
Skinner box	A	Chronograph	C
Mirror-drawing apparatus	A	Colour comparator	C
Metronome	C	"Malux" 250" film strip/ slide projector	C
Mazes-different types	A	Red Blindness (Demos- tration)	B
Sonometer	C	Dimmers-cum-Regulators 150 Watts	C
Watson's Hand withdrawal apparatus	C	Psychomotor task simu- lator Marietta apparatus	C
Different types of illusions	A	Overhead projector	C
Perceptual constancies-Bright- ness, size, shape apparatus	B	Stimulus controller	C
Sound cage	B	Two Hand coordination apparatus	C
Darkness adaptation appara- tus	C	Audiometer	C
Visual acuity apparatus	C		
Binocular rivalry apparatus	C		
Voice-keys i) Electronic ii) Transistorised	C		
Tape-Recorder	C		
Electromagnetic Deprez signals	C		
Blood pressure cage	C		
Marey's Cardiograph	C		
Graphic Chronometers	C		
Precision Electro-Magnetic stop watches	C		
Colour mixers	B		

PART II : PROGRAMMES OF THE RIC

V. BACKGROUND INFORMATION & THE INFRASTRUCTURE

A. BACKGROUND:

The Western Region, for which the proposed Regional Instrumentation Centre is to^{be} established, comprises of four states: Maharashtra, Gujarat, Rajasthan and the Madhya Pradesh. It has a well developed industrial structure consisting of around 1,500 large and medium scale industries supported by about a lakh of ancilliary and small scale industries (see Annexure II.1). The industries have a wide coverage of industrial activities with major component in the metallurgical, electrical and the industrial machinery, the chemicals, pharmaceuticals, textiles and the sugar industries. Largest number of instruments manufacturers and dealers are based in the Western Region (Annexure II.2). Their products are limited to the test, analytical and the laboratory instruments. However, they are of a very elementary nature in their technological content. The region also has a large number of research laboratories (see Annexure II.3), some of which are internationally recognised for excellence.

1. Educational Structure:

The Western Region has a long tradition of education and has shown a steady growth particularly in science education in the post-independence period. Higher educational needs of the region are being fulfilled by 21 universities situated in the major cities having affiliated colleges imparting mostly under-graduate education; a fair number of them, in addition, also give post-graduate instructions. The total number of colleges and departments belonging to this structure is 487.

General features of the system as shown in Annexure II.4 are summarised below:

- 1) 88 University departments and 121 Colleges impart post-graduate education. Out of these, 51 colleges are in the cities having the university establishments. It shows that the total number of post-graduate institutions in the university towns is double that of those away from them.
- 2) The number of existing under-graduate colleges away from the university towns is about three and a half times those in the university towns.
- 3) The research activities are conducted mainly in the university departments, and some colleges which are in the university towns.

It is evident from these points that the research is confined to the universities, while the post-graduate education shows slight diffusion to the district places with a concentration at the university towns. However, the under-graduate which forms a large part of our institutional framework is spread evenly over the region. A few universities in the Madhya Pradesh, to some extent, happen to be an exception to this general pattern; however, a closer look reveals that they are compact enough so as not to upset the general arguments made above.

2. Instrumentation Needs:

In order to ascertain the types of instruments used for the under-graduate, post-graduate and research in basic science, enquiries were made with the heads of the university departments of the region. A comprehensive

list of instruments for each subject was prepared on the basis of the replies received. These lists were used for the computer based survey and are given at the end of Part I.

The analysis of the technical complexity of these instruments clearly indicates that:

- i) Instruments used for the under-graduate studies are generally simple with an occasional instrument being of a higher technical complexity.
- ii) Instruments used in the post-graduate training are of a slightly higher complexity. Due to the lag between the experimental programmes and the theoretical ones, the really technically complex instruments are not yet introduced at this stage.
- iii) In research, modern sophisticated instruments of high technology content are required and hence are mainly imported, as equivalent instruments are not available indigenously.

It is apparent from this analysis that the instruments with a high technical complexity are confined to the university departments and the post-graduate colleges, conducting research and generally located in the university towns. Major portion of the simple instruments used in our educational system is required in the region away from the university towns.

It has been shown so far that the educational structure and its needs of instruments have a definite co-relation. It is interesting to note that a similar co-relation is shown in the nature of technology in the industry located in the major cities, in the university towns and in the district place.

The above analysis shows that the suggested infrastructure, consisting of colleges on one hand and the USICs and the Regional Instrumentation Centre for the Western Region in Bombay on the other, will operationally be the most viable structure. The details of such infrastructure are discussed below:

B. INFRASTRUCTURE:

(a) Basic Element - College:

1. Functions:

The primary function of this element of the infrastructure is to service and maintain the instruments belonging to the college.

2. Technical Structure:

Ideally one would like to have optimal formal structures consisting of technically competent persons looking after servicing, maintenance, development of teaching aids etc. at every institution. Besides, the fact that the cost of having such an exclusive cadre is high, the technical requirements to maintain equipment in colleges, as shown earlier, does not warrant induction of such personnel under the present condition. Instead, most of the immediate needs can be satisfied by providing a totally need based training to a teacher from the departments of each of the colleges.

As for the training of laboratory assistants, it is felt that at this stage any formal training of such a large number of persons, whose basic educational background is inadequate, would be fraught with too many difficulties. It is, therefore, suggested that for the time being the

trained teacher should provide informal instructions to the assistant so that she is more useful to him in his maintenance activities.

3. Facilities:

In the proposed structure, the colleges and the departments will be the beneficiaries by way of having trained teachers on the premises for looking after the instruments. No formal set-up is envisaged. The Principal or the Head of the Department is expected to use them appropriately in the best interest of the institution. The colleges and the departments should provide their own facilities for the servicing programme.

4. Financial Requirements:

The college/department may have to provide a set of tools to the trained teacher which is expected not to cost more than a few hundred rupees.

(b) University Service & Instrumentation Centre (USIC):

It has been shown earlier that for attaining the short-term objectives of getting the most of the instruments back to working conditions and for achieving the long-term objective of developing inner capabilities, which would allow the system to respond to the changing needs of the education, it is necessary to have strong service and instrumentation centres at the universities. In the total scheme, these centres have to play a very important role since they will be directly in touch with the colleges.

The immediate goals of servicing and maintenance, training of personnel from colleges and introduction of aids in teaching programmes could be achieved only if the USICs of minimum size are established in each

university concurrently with the establishment of the RIC. Such a structure of the USIC with minimum manpower and capital investment suitable to meet the immediate requirements of the programme is discussed below. It should be pointed out that additional support be given to those USICs which show promise of growth in due course.

Objectives of USIC:

- 1) To provide training in instrumentation to the teachers from the colleges and the university departments.
- 2) To service and maintain equipment in the university region, which are beyond the capabilities of the colleges.
- 3) To provide support to the motivated college teachers for the development and improvisation of the teaching aids.
- 4) To popularise teaching aids among the teachers.

Functions:

- 1) To conduct training courses for the teachers on the basis of the material provided by the RIC.
- 2) To assess periodically the state of the instruments in the colleges and departments by conducting surveys and by visits.
- 3) To service instruments of medium complexity sent by the colleges and departments and to co-ordinate with the RIC for servicing of instruments which are beyond its capabilities.
- 4) To provide technical support to the teacher for the development of teaching aids.
- 5) To bring to the notice of the teachers, by demonstrations, the teaching aids developed by them and the RIC.

Manpower Requirements:

Considering the existence of medium and high level complexity instruments at the university departments, operationally it is desirable to maintain a technically sound set-up consisting of technically trained people within the university premises. Since it is envisaged, for the operational convenience, that the USIC should also conduct training programme for the college teachers and laboratory assistants, if necessary, and develop simple teaching aids, it is imperative that for effective working

the set-up should be headed by a senior academic member of the university. It is suggested that such a person should be at the level of a Reader with research experience in a branch of experimental science. The other members of the team can be a Scientific Officer (B) and a Scientific Assistant (B) preferably having background in electronics. The details about the functioning of these centres and the estimated financial outlay are discussed below:

Structure of the USIC:

- 1) The USIC should be managed by a Users Committee to be appointed by the Vice-Chancellor.
- 2) The USIC will co-ordinate with the RIC through the Inter-University Advisory Board.
- 3) The USIC will function under the guidance of a Reader nominated by the Vice-Chancellor and will be assisted by a full time Scientific Officer and a full time Scientific Assistant. They will be subjected to the rules and regulations of the university concerned.

Facilities:

- 1) The university will provide the space (about 40 sq. meter) and the necessary furniture for the Centre.
- 2) For effective servicing and maintenance, the UGC will provide the minimum equipment given in the list, (Annexure II.5a).
- 3) The University will provide expensive service instruments, if available, whenever needed by the USIC. It should also provide the workshop and the glass blowing facilities.
- 4) The University will also provide such facilities as a Workshop, a glass blowing shop, lecture rooms and equipment required during the training programmes.
- 5) The University should provide administrative assistance to the USIC.

Financial Implications:

The expenditure towards running a Centre for a period of five years is given in Annexure II.5b.

It is proposed that the USIC shall not charge for the services rendered to the colleges for repairing the instruments. However, colleges will have to pay the actual cost of the materials and components used for servicing. This will partly recover the expenses on consumables.

(c) Regional Instrumentation Centre (Western Region):

In the recent past, there had been moves to establish instrumentation centres at IITs with a view to provide much needed sophisticated instruments for research and industry. In contrast to the functions of the regional

instrumentation centre, as elaborated in Part I, these centres are essentially pools of sophisticated instruments used as a central analytical facility open to the departments of the IITs, industries and university departments on payment of standard service charges.

Functions and Programmes

It has been already stated that the regional instrumentation centre has a role collateral with the USICs to accelerate the process of developing the internal capabilities of the higher educational system. Its main functions in view of the need of the Western Region are given in the previous chapter.

Considering its crucial position in the infrastructure, the following well defined programmes are suggested:

- 1) Training of the staff at USICs,
- 2) Providing servicing and maintenance facilities to cover sophisticated instruments in the region,
- 3) Development of teaching aids and instruments with a view to modernise experimental programmes,
- 4) Translation of highly complex instruments into inexpensive and educationally suitable instruments for teaching,
- 5) Providing technical information and source material on instrumentation,
- 6) Research and development in instrumentation.

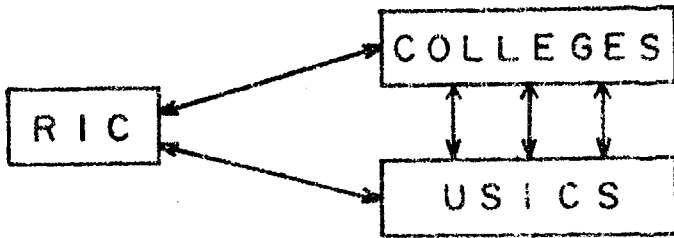
These programmes and the resources needed to execute them are discussed in the following chapters.

RELATIONSHIP

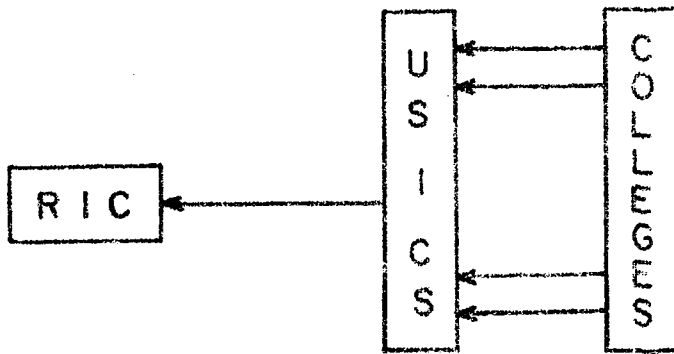
FUNCTIONS



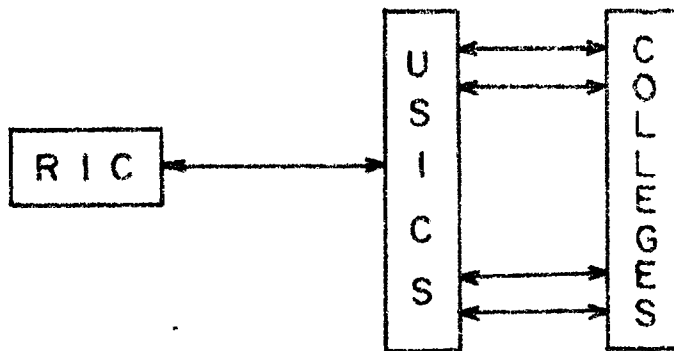
RESEARCH &
DEVELOPMENT



INFORMATION
DISSEMINATION



SERVICING
MAINTENANCE



1) TRAINING
2) TEACHING AID DEV &
DISPERSAL

FUNCTIONAL RELATIONSHIPS WITHIN INFRASTRUCTURE

FIG. 3

Location:

The functions enumerated above and the programmes arising out of them need close liaison with the research laboratories and multitude of technical expertise available in the industries. In the Western Region the city of Bombay has a unique advantage of having these resources essential for fast growth of instrumentation. The acceptance of the University Grants Commission, in principle, to establish the RIC for the region in Bombay is, therefore, most appropriate.

Structure:

In the proposed infrastructure, the RIC is expected to interact with all the universities and the colleges of the region, and also research laboratories. It, therefore, cannot restrict itself to play a local role. In deciding the management structure of the RIC these factors should be taken into consideration.

VI: TRAINING AND EDUCATION

The earlier analysis showed that the efforts in the area of education and training are crucial to the success of the programme. Education in instrumentation is an essential aspect of the continuing process of growing the desired culture while training will satisfy the immediate and the long term intrinsic needs of the system.

Considering the immediate problems of the system and the possible resource constraints, it is suggested that the maximum emphasis in the initial stages be placed on the training with a specific aim of generating a technical cadre supported by a purposeful infrastructure. The most obvious symptom of the long neglect of instrumentation is seen in thousands of instruments lying idle in the absence of servicing and maintenance. A centralised facility to relieve the system of this symptom will only face major logistic hurdles which would be too expensive to overcome. An optimum solution, therefore, will be to provide enough in-house expertise in servicing and maintenance, which can be quickly achieved by imparting need-based training to the teachers and the laboratory staff.

Since attracting talent to the area of instrumentation and then training it for wider uses in the society is an essential aspect of a sustained growth of a culture, it is necessary to include an educational programme to meet this purpose.

I. TRAINING:

The training programme will be designed for training resource personnel for manning the university service centres with a view to equipping

them to train at least one college teacher and a laboratory assistant from the various colleges of the university. They should also be equipped to service and maintain equipments of high technical complexity commonly used in the university departments.

A. General Features:

- 1) Since the University centres and the College teachers trained by them are expected to serve the needs of all the departments using instruments, the training programme should be oriented to meet the requirements of the various disciplines.
- 2) Since the maintenance programme has to be started without any further delay, the training programme should be strictly need based and of short duration. This would naturally be an in-service training.
- 3) Modernisation in instrumentation is expected to influence the needs of the system. Hence periodical exposure to the modern developments would be given to these personnel through orientation courses.

B. Details:

a) Readers at the University Centre:

The RIC will arrange to train the Reader assigned to this programme by the University in a period not exceeding two months; preferably during the summer vacations. The purpose of this training would be to prepare him to organise the university service centre, conduct training programmes for the teachers and the laboratory assistants from the colleges and simultaneously enrich himself by exposure to the various instrumentation techniques. The

details of this programme, in terms of the contents and the financial implications, are given below:-

Place : Regional Instrumentation Centre, Bombay.

Duration of the course: 2 months.

Expected dates of the programme : May - June, 1978.

Purpose of the Course:

- 1) To introduce the instrumentation used in the Physical and Life Sciences.
- 2) To introduce him to the laboratory and workshop practices including the glass-blowing technique.
- 3) To instruct him in the use of the module prepared by the RIC for training the college teachers.

Suggested Syllabus : See ANNEXURE II.6.

Financial Implications:

No. of candidates for the course (Excluding Bombay University)	-	20
1) Travelling expenses Average @ Rs.300/- per head	-----	Rs. 6,000
2) Daily allowance Rs.300/- p.m. per head	-----	Rs.12,000
3) Incidental expenses including consumables and honoraria to the Guest Lecturers	-----	Rs.20,000
4) Contingencies	-----	Rs. 2,000
	Total	Rs.40,000

Problem Areas:

1) Accommodation for the trainees:

It is preferred that this programme be arranged during the vacation period so that arrangements can be made in the hostels of the University and colleges in Bombay. Since the number is small this arrangement should not be difficult.

2) It is likely that Centre's building may not be ready by May, 1978, in which case the University of Bombay could be asked to provide the laboratory space and the lecture room facilities. In any case, efforts will have to be made to get the workshop facilities ready.

3) Since this programme will be taken up in the early stages of the RIC, it will have to seek the collaboration of the BARC, the TIFR and the local instrument industries in order to cover satisfactorily all aspects of the syllabus.

b) Training Programme for Scientific Officer:

The Scientific Officer, belonging to the USIC to be located at the University, is expected to have a technical back-ground acquired by him in a technical institution or an engineering college. It is necessary to expose him to the modern instrumentation used in the basic sciences. The nature of this part of the training will be interdisciplinary. He will also be trained in the maintenance techniques, the workshop techniques, materials, photography etc. An essential component of this training will be the development of a simple teaching aid. The details of the programmes are given below:-

This programme has been designed to equip him to play a main role in assisting the Reader in organising the activities of the Centre and to enable him to participate and supervise the servicing and maintenance programme of the centre.

Place : Regional Instrumentation Centre, Bombay.
 Duration of the course : 3 months.
 Expected dates of Programme : July - September, 1978.

Purpose of the course:

- 1) To acquaint him with the instrumentation used in the Physical and Life sciences.
- 2) To train him in the laboratory and the workshop practices.
- 3) To train him in servicing and maintenance.

Suggested Syllabus : See Annexure II.7.

Financial Implications:

No. of candidates for the course (Excluding Bombay University)	-	20
1) Travelling Expenses Average @ Rs.300/- per head	-	Rs. 6,000
2) Daily Allowance @ Rs.300/- p.m. per head	-	Rs.17,000
3) Incidental Expenses including consumables, honoraria to guest lecturers	-	Rs.20,000
4) Contingencies	-	Rs. 2,000
		<hr/>
	Total	Rs.45,000
		<hr/>

Problem Areas:1) Accommodation for the trainees:

Since this is an extended programme and has immediately to follow the programme for Readers, finding accommodations for the trainees would prove to be a serious problem. However, co-operation in this respect may be sought from the Bombay University and the other organisations in the city.

2) In order to cover effectively the above syllabus, the RIC will have to seek collaboration from the departments of the Bombay University, the local colleges, the BARC, the TIFR and the local instrument industries.

c) Training of Scientific Assistant:

It may be assumed that training to the Scientific Assistant will not be necessary since his main function will be to provide the technical support to the Reader and the Scientific Officer. Besides, he is expected to be technically qualified for the work and hence capable of servicing the instruments.

d) Training Programme for Teachers from Colleges and Departments:

The training of teachers will be need based and mainly aimed at preparing them to maintain the instruments available in the colleges. They will also be exposed to the simple laboratory and workshop practices.

The details of the programmes are given below:-

Place	:	University Centre (Except Bombay University, which will be at the RIC)
Total number of candidates:	:	1600
Duration	:	3 weeks.

Purpose of the Course:

- 1) To acquaint them briefly with the instrumentation used in the physical and the life-sciences.
- 2) To introduce them to the simple workshop practice.
- 3) To train them in the servicing and the maintenance of equipment generally used in the colleges upto the post-graduate classes.

Suggested Syllabus: See Annexure II.8

It may be pointed out that these courses are to be given with a purpose to train at least one teacher in each department. Since the total number of science departments in the universities and the colleges involved is about 1550, it will not be possible to train such a large number of college teachers in one session. It is suggested that four such programmes may be conducted over a period of three to four years so that the main task of building up the cadre in the system will be completed.

Financial implications

The calculations given below are done on average requirement towards travel and daily allowance and the consumables per head for the programme:

1) Travel expenses @ Rs.50/- per head	-	Rs. .80,000
2) Daily allowances for 20 days admissible to 1000 who are expected to come from outside the university towns @ Rs.200/- per head	-	Rs. 2,00,000 2,00,000
3) Consumables @ Rs.100/- per head to cover the cost of electronic components, metal sheets, wood etc.	-	Rs. 1,60,000

4) Incidental expenses towards courses per University @ Rs.1000/- per course	-	Rs. 80,000
5) Contingencies @ 5%	-	Rs. 5,000
		<hr/>
Total		Rs.5,25,000
		<hr/> <hr/>

The amount shown here is a rough estimate of the expenditure to be made at the University Centre. The fund for this programme should preferably be channelled through a Governing Council of the RIC in consultation with an Inter-University Advisory Board for a proper co-ordination, feedback and follow-ups.

Problem Areas:

1) Accommodation:

It may be necessary to provide accommodation for the duration of the course to those teachers coming from outside. The local university should try to arrange the necessary accommodation.

II. EDUCATION

The experience of the programmes run by the other organizations giving degrees and diplomas in instrumentation is not so very heartening as to recommend similar programmes in Instrumentation to be implemented at the Centre. This is presumably due to the fact that we have not yet reached the level of awareness about the importance of this branch of technology. It is suggested that the Centre should concentrate on building

up the infrastructure and on the development of teaching aids and research in instrumentation in the early stages. These efforts are expected to induce changes in the system. Until such time as these changes and the needs generated by them are properly assessed, this programme should be postponed.

The financial details for these programmes budgeted for a period of five years for capital, consumable and other expenses are given in Annexure III.1.

VII. SERVICING AND MAINTENANCE

In the chapter of Education & Training it has been shown that the training of teaching and laboratory staff, in servicing and maintenance of the major part of instruments in the educational system, is the optimum solution. The complex instruments beyond the expertise and facilities of USICs will obviously be the responsibility of the RIC. It is also understood that the RIC will be located in the precincts of the University of Bombay, and hence should serve as USIC for the University.

The RIC will have the following activities in servicing and maintenance.

- 1) Servicing of instruments referred to it by the colleges of the University of Bombay.
- 2) Servicing of complex instruments referred by University centres in the region.
- 3) To service and maintain equipments of the RIC.

This activity will involve considerable work-load for which an exclusive staff is required. Since the workload expected is good deal more than that of a USIC, it is proposed that the servicing and maintenance cell of the RIC should have one Scientist and two Scientific Assistants. They will get guidance and help, in dealing with complex instruments, from the other members of RIC.

Financial Implications:

This cell will need minimum equipment same as needed by the University Centre (USIC). However, special test and measuring instruments will be made available from the central facility for servicing complex instruments. The members of the Cell may have to visit institutions in the region, mainly the university departments, for repairing complex instruments which cannot be moved. Since it is difficult to make exact estimate for their travel expenses at this stage, a tentative provision of Rs. 10,000/- per year is made. The expenditure for a period of five years is as follows:

1. Capital equipment	-	Rs. 27,500
2. Consumables	-	" 42,500
3. Travel	-	" 50,000
4. Total :	-	<u>Rs.1,20,000</u>

The details of the budget for this programme for the period of five years is given in Annexure II.2.

VIII. DEVELOPMENT OF TEACHING AIDS

Teaching aid is essentially a hardware, which assists the process of learning. The main features of the modern science education are (1) the increasing level of abstraction that goes with new concepts in science and (2) the impact of technology on the methods of measurements, which form an essential component of the practice of science. There is no doubt, therefore, that the teaching aids have a major role to play in the science education.

Use of teaching aids at present is on the wane in our higher educational system. It is absolutely essential to reverse this trend by making the teacher aware of its importance and by making them readily available to him. The teaching aids required even for the present syllabi are not often available and those few available are quite expensive. At the same time, the strides made by the modern science and technology has given rise to the large number of sophisticated methods of measurement. These are mainly seen to be used only by the scientists in research laboratories and are not accessible to the students and hence has kept them way behind.

Science education in India is passing through a phase of rapid changes directed towards its usefulness to the society. It can be visualised that the major changes will be in the area of methodology of teaching and subject contents of interdisciplinary and intensive nature to suit the future requirements. It is, therefore, imperative that the educational system generates its own capabilities to develop and disperse teaching aids.

Development of teaching aids involves a process in which a number of technologies need to be utilised. It will be economical if this activity is undertaken by a centralised system. The RIC, in particular, has an advantage of being a centralised technology oriented part of the educational system with a feel for its needs. It is, therefore, proposed that the RIC should undertake the development of teaching aids as one of its major responsibilities for the region. This will therefore form a task-oriented programme and should fulfil the following objectives:

- 1) Modernisation of old laboratory experiments.
- 2) Translation of complex instrumentation from the research laboratories to simple teaching aids.
- 3) Innovate new teaching aids and demonstration kits.
- 4) Popularization of teaching aids amongst the teaching community.

The following paragraphs describe the ways to fulfil these objectives:

(1) Modernisation of old laboratory experiments:

It is known that the equipment used in the laboratories of the colleges have not changed over the years. Due to the outmoded technology that has gone into their fabrication, these equipment are often awkward to use. Students spend more time in struggling with such instruments and finally get disinterested in the experimentation. Due to the availability of the modern techniques of fabrication it is possible to design inexpensive and educationally appropriate instruments to help students develop

interest in instrumentation. Consider, for example, a galvanometer which is a delicate and expensive instrument for measuring small currents and is often found in every Physical Laboratory. This can easily be replaced today by a Field Effect Transistor (FET) Amplifier which is not only sturdy, but is far more sensitive and equally less expensive. One can similarly quote a number of instruments which can be modernised with little efforts. It is expected that the availability of such inexpensive and rugged instruments will encourage the teacher to incorporate them in more challenging laboratory programmes. A short list of such instruments which can be modernised is given in Annexure II.9.

(2) Translation of complex instrumentation:

The research laboratories in the region have varied experience in the development and use of the modern instrumentation. Often the techniques used by them form a part of our syllabi. However, due to their exorbitant cost, these instruments cannot be incorporated in our teaching strategy. Hence the students are deprived of a first-hand experience in using these techniques as a part of their study. It is necessary to put in efforts to close this gap between what is desirable and what is available by translating the complex instrumentation from the research laboratories by appropriate modification. The main purpose of such a translation is to provide means to understand the principles involved by experience rather than to emphasize nuances of the technique.

For example, an Electron Microscope is commercially available for several lacs of rupees and is still not accessible even to a small fraction

of the students. It is possible now with the modern technology and the know-how in electron optics, available in research laboratories, to develop a student version to elucidate the principles of electron optics. Another relevant example is that of X-ray crystallography which is done by very selective research students often by arrangements with the major research laboratories. It is possible to bring this technique within the reach of the post-graduate and the undergraduate students by designing miniature X-ray tubes and if possible simple camera systems. A short list of similar examples of translation is given in Annexure II.10.

(3) Innovate new teaching aids and demonstration kits:

New educational pattern aims at preparing the students through multi-disciplinary subjects which calls for innovations in teaching aids. In addition, it is expected that the academic disciplines will be treated much more intensively to include the future trends. It is for this purpose that the system should have in-built capabilities to innovate teaching and demonstration aids. It may not be possible to identify specific problems at this stage, but one can visualise the possible areas such as pollution monitoring and control, agriculture, computer sciences etc. from which such programmes would emanate.

(4) Popularization of teaching aids:

In order to make the maximum impact on the science education through various types of aids described above, it is necessary that the teacher who, in the ultimate analysis, is the user, should readily accept them and use them in his teaching methods. It is, therefore, obvious that

the involvement of the teacher at the various stages is crucial and can be brought about by demonstration and by respecting his views on them.

There can be two distinct ways of allowing such involvement. On one hand, the aids developed at the RIC should be demonstrated, in all its aspects, to the teachers at the University Servicing and Instrumentation Centre (USIC) and obtain a feedback from them for further improvements. On the other hand, a motivated teacher, if he desires to develop a teaching aid, should be given an opportunity to do so at the RIC.

Details of the Programme:

The RIC will undertake the following programme of development in this area:

(1) Modernisation of old laboratory experiments:

The present approach to laboratory experiments depends on the commercially available units which are designed for specific purposes. Such an approach is expensive, because quite often an experiment needs a number of such units. It appears that a systems approach is the proper answer to the problem. It is based on optimising the number of functions and therefore the units required for a set of experiments in a given subject will be minimum and hence less costly. In addition, the flexibility that it offers, will encourage the teachers and students to embark upon new experiments.

The RIC will develop modular systems for experiments in Physics, Chemistry, Bio-chemistry and Applied Psychology. Under this programme the RIC should produce about 20-25 modules over a period of five years.

(2) Translation of Complex Instrumentation:

The short list given in Annexure II.10 is based on research and development activities that are being carried out in the research laboratories in and around Bombay and comprehensively covers a wide range of modern techniques, which need to be translated into simpler ones for the benefit of the educational system. This would avoid expenses and time towards development of these techniques. Annexure II.11 shows a few cases of translation of some of the complex experimental techniques listed in Annexure II.10.

A close look at the subject reveals that four specific areas of special expertise cover the most of them. They are (1) Optical Instrumentation, (2) Analytical Instrumentation, (3) Optics of electrons and ions and (4) Electronics. Since these areas are not closely interlinked, it is proposed to form a group for each one of them. In the first five years, these groups will undertake development of instruments as given below:

- Group I : Optical instrumentation
- i) Spectrophotometer
 - ii) Flash Photolysis
 - iii) Laser Optics
 - iv) Vacuum System for Thin Film Deposition
- Group II : Analytical instrumentation
- i) Electron Spin Resonance
 - ii) Nuclear Magnetic Resonance
 - iii) Gas Chromatography
 - iv) X-ray Spectrometer

Group III : Optics of electrons and ions

- i) Field Ion Microscope
- ii) Mass Spectrometer
- iii) Electron Microscope

Group IV : Electronics

- i) Digital Electronics
 - a) Timers
 - b) Simple Signal Averager
 - c) Digital Programmer
- ii) Microwave Electronics and its applications for teaching aids.
- iii) Support to the other groups in designing their electronic equipment
- iv) Crystal Growth Apparatus.

It may be pointed out that, besides these four areas, there is instrumentation needed for geosciences, nuclear sciences and bio-medical sciences. In choosing the areas of development, importance is given to the immediate needs of those catering for larger number of students in basic sciences. It is possible to include the other areas in due course.

Personnel:

(1) For the programme of modernisation of laboratory experiments a team consisting of one Scientist (C) assisted by Two Scientific Assistants and Two Laboratory Assistants will be required. The Laboratory Assistants will help the team by assembling enough number of prototypes for demonstration at the University Servicing and Instrumentation Centres (USIC).

(2) For the programme on translation of sophisticated instruments, each group will have a Scientist (B) and a Scientific Assistant. One of the groups will be headed by a Scientist (C), who will also be responsible for the working of the four groups.

These members are supposed to take also a major share of the training programme described earlier.

Nature of the Facilities needed:

The facilities required for this programme will be shared by the other group working on the R & D in instrumentation.

They are treated as combined services required for the Centre. It is, however, intended to state briefly their special features which would allow the Centre to fabricate successfully the listed instruments.

(1) Workshop:

The programme needs a support from a workshop having machines for precision machining. This is particularly so in the case of parts required for the instruments based on optics of electrons and ions. For the other programmes, semi-precision and fitting facilities are adequate. A carpentry shop will be useful for the first programme.

The workshop should also have capabilities to produce parts in enough numbers for the prototypes. There will be enough capacity on the semi-precision machines to allow for it.

(2) Glass Blowing Shop:

A good glass blowing shop with facilities to make the required glass apparatus should be available for the programme.

(3) Drawing and Photography Section:

It is intended that the information on details of design and assembling of the aids be made available to all teachers. It is, therefore, necessary to prepare simple engineering drawings with appropriate instructions. There is, therefore, a need for a section for preparing machine drawings.

FINANCIAL IMPLICATIONS:

The programme covers development of teaching aids of a very wide range of instruments. It would, therefore, be appropriate to estimate the cost of development on the basis of the amount of hardware and the type of technology used.

Modernisation(1) Modification of Old Laboratory Experiments:

The emphasis in this programme is on the use of the systems approach, which is possible due to the modern advances in electronics. Hence the proposed modules will have a large component of electronics. Under these conditions, it is estimated that it would cost about Rs. 5,000/- per module for development of a prototype. This cost will cover mainly consumables consisting of components and materials. Total financial outlay for this part of the programme is thus estimated at Rs. 1,00,000. The aids produced under this programme will have to be produced in enough number for demonstration to the teachers. It is necessary to make a provision of

Rs. 1,00,000 for this purpose. The budgetary details for utilization of these amounts are given in Annexure III.3.

(2) Translation of Complex Instruments:

In this programme, the cost involved per item for its development is a function of the technology involved and the price range of the components which go into it. It is estimated that the approximate cost of development per unit in each group will be as follows:

AVERAGE DEVELOPMENT COST PER INSTRUMENT

<u>Group</u>	<u>No. of Inst.</u>	<u>Consumables Rs.</u>	<u>Capital Rs.</u>	<u>Total Per Group Rs.</u>
1. Optical	3	15,000	-	45,000
2. Analytical	4	10,000	2,500	50,000
3. Electron & Ion Optical	4	25,000	15,000	1,60,000
4. Electronics	3	15,000	-	45,000
<u>Total:</u>				<u>2,50,000</u>

The budgetary details for this programme are given in Annexure III.4.

Programmes for Visiting Teachers:

Under this programme, teachers from the colleges will be given opportunities to develop teaching aids of their choice at the RIC. It will be possible to accommodate not more than 10 teachers during the vacation periods without disturbing the other programmes of the centre. A consolidated provision of Rs. 50,000/- towards materials and components for their work is made. The budgetary statement for utilization of this amount for the programme is given in Annexure III.5.

Phasing of the Programme:

The programme of Teaching Aid Development is proposed to be phased evenly over the period of five years.

IX. RESEARCH AND DEVELOPMENT

Instrumentation is basically an interdisciplinary area with very wide application in society. It is, therefore, hardly surprising that the nature of R & D in instrumentation is often dictated by the immediate and the future needs of the society. These needs are of a varied nature and are decided mainly by the local conditions. It is obvious that there is an unlimited scope for R & D in instrumentation.

In choosing the area of R & D for the RIC, the following criteria could be applied:

- 1) Instruments to be developed should be sophisticated employing the modern technologies.
- 2) The programme should draw upon the expertise existing with its own staff and that available with the neighbouring laboratories.
- 3) As far as possible, the R & D efforts should directly benefit the educational system.

However, it may be pointed out that in the initial stages of development of the infrastructure, the RIC will not be in a position to involve itself in major research activities. Nevertheless, it is necessary at this stage to provide proper guidelines for the future research programmes so that when the RIC finds itself in a position to increase the pace of this activity, say in the early eighties, it will not have to look around for experts in the selected areas but will find them ready at hand. The following R & D programme satisfying the above conditions and criteria is proposed.

1) Computer Compatible Instrumentation:

The Electronics Commission in its Perspective Report on Electronics in India has already identified the computer compatible instruments as an area of future importance. Instruments are expected to be increasingly used with the digital systems for easy link-up with computers. The present advances in the development of integrated circuits (ICs) and microprocessors have made it possible to incorporate simple digital interfaces in major instruments like gas chromatographs, NMR etc. It is expected that the universities will acquire in due course a set of sophisticated instruments as a central facility for their research programmes. It would be of great advantage if these instruments are provided with computer interfaces which will increase their usage many fold.

The RIC being located in Bombay has a particular advantage of drawing upon the expertise on computer technology readily available at TIFR and BARC and hence can successfully implement the proposed programme. This programme is to be undertaken in the latter half of the five year period. It is proposed to build computer interfaces for a) Spectrophotometer and b) Gas chromatograph.

2) Advanced Instrumentation for Particle Size Analysis:

The knowledge about the size of particles of a material is of great importance in ceramic and pharmaceutical industry. The present modernisation taking place in these industries demands accurate measurement of sub-micron particle distribution. It is possible to use optical and X-ray techniques for this purpose.

It is proposed that the programme for developing such advanced instruments be undertaken at the RIC.

Personnel:

- 1) Scientists (B) - 2
- 2) Scientific Assistant (B) - 1

It is felt that this staff will be sufficient to carry out these two programmes.

Financial Implications:1) Computer Compatible Instrumentation:

Microprocessors and the allied large scale integration are required for building the interfaces. In some cases, programmed mechanical drives will also be developed. Total consumables needed for the programme will cost about Rs.50,000/- (Rs.30,000 in foreign exchange).

Input output devices such as teleprinters, tape readers, keyboards are also needed for which an allocation of Rs.50,000/- in capital expenditure is required of which Rs.20,000/- will be in foreign exchange.

2) Advanced Instrumentation for Particle Size Analysis:

The principle used here is that of sedimentation of particles according to the Stoke's Law. Sedimentation rate of sub-micron particles is so small that the conventional technique of measurement takes as long as 3 to 4 days for a measurement. It is possible that by a proper programming of the detection system, the time of measurement can be reduced to 4 hours. This feature makes it attractive for industrial applications.

A total provision of Rs.1,00,000 (Rs. 50,000 towards capital and the remaining for consumables) is necessary for this programme. About Rs.25,000/- out of the consumable expenditure would be in foreign exchange.

The budgetary allocation of funds for these programmes are shown in Annexure III.6.

X. PROGRAMME PHASING

In the previous chapters, while describing the individual programmes of the RIC, the anticipated level of activities are already indicated. This chapter on phasing of the programmes is meant to show at a glance relative efforts that will be necessary for the success of these programmes.

A close look at the programmes show that some of them are meant for taking care of the immediate problems of the educational system, some to improve the quality of the science education and the rest to strengthen the system for its future. The phasing of programmes is based on these considerations and the limitations imposed upon them due to the structural requirements.

Immediate programmes:

It is seen from the survey that an appreciable investment has been made in instruments in the educational system and a large fraction of it is lying idle. The immediate task of the RIC would be to devise methods to get them back in operation.

Considering the magnitude and the geographical extension of the problem it has been shown clearly that the best way to tackle it is to train teachers in colleges and establish a network of University Servicing and Instrumentation Centres (USIC) of minimum size and strength to provide technical back-up. The role of the RIC in this programme is (1) to train resource personnel, (2) to provide information on maintenance practices etc., and (3) to service complex instruments beyond the capacity of USIC.

These programmes will involve the RIC to the fullest extent in the initial three years, after which it is expected that the infrastructure will take the major share of this load and permit the RIC to shift its attention to the other long term programmes such as R & D etc. Servicing of complex instruments, however, will still remain a long term responsibility of the RIC.

Structure - Limited Immediate Programmes:

Development of teaching aids for laboratory and class-room instructions has been identified earlier as an important and immediate programme that should be taken up in the interest of quality of the science education. However, such a programme being hardware oriented has to depend upon minimum structure, such as workshop etc., at the RIC and hence will be run at full pace only after the second year. In any case most of the staff members will be engaged in training, and servicing and maintenance activity in the first two years and hence will not be available for this developmental programme. It is also hoped that the regional infrastructure will be ready to initiate dispersal of the teaching aids developed at the RIC.

Out of the two programmes on the development of teaching aids, programme of modernisation of old experiments will be given priority over that of translation of complex instruments. It is hoped that the former will eventually be taken up by USICs who would be in a better position to understand the curricular needs. The latter, being technology oriented, will remain as the responsibility of the RIC all the time.

R & D Programme:

It must be recognised that the R & D activity is an essential activity of a technology oriented organisation like the proposed RIC. The purpose of having R & D programme, of course, is to strengthen the RIC to gain leadership in the science of instrumentation in the near future. Since the staff of the RIC will be fully engaged in the immediate programmes discussed earlier, this programme has been deferred to the third year.

Information and Documentation:

In view of the requirements of the infrastructure in relation to the technical information on instrumentation, the publication of the Information Bulletin will commence in the second year. This will be a continuing activity of the RIC.

The level of activity and phasing of the programme is given in Fig. 1. Figure 2 is a bar-chart describing the programme activities of the RIC in relation to the establishment of the central facilities and the construction of the building.

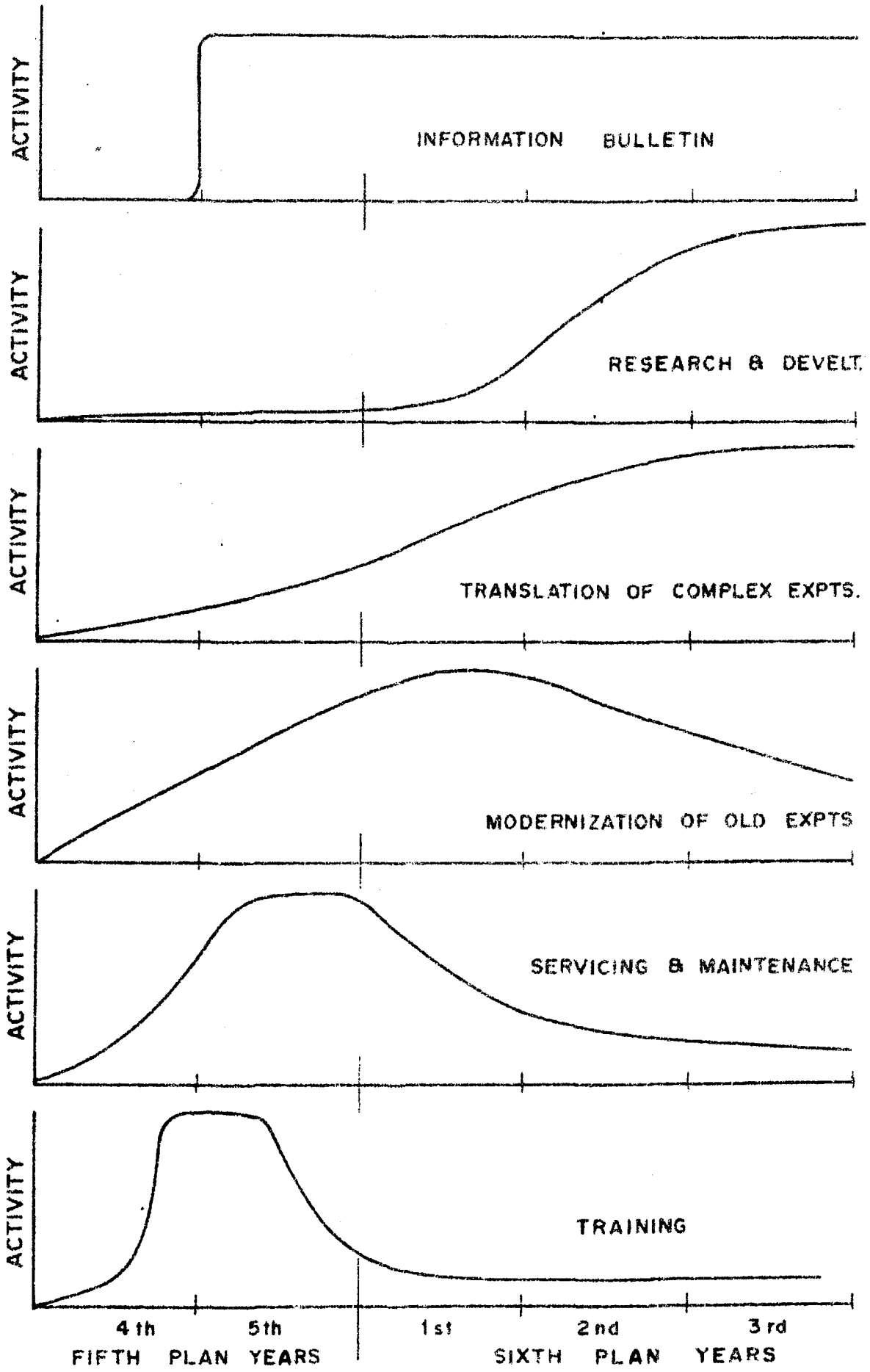


FIG.1 PHASING OF ACTIVITIES OF THE RIC

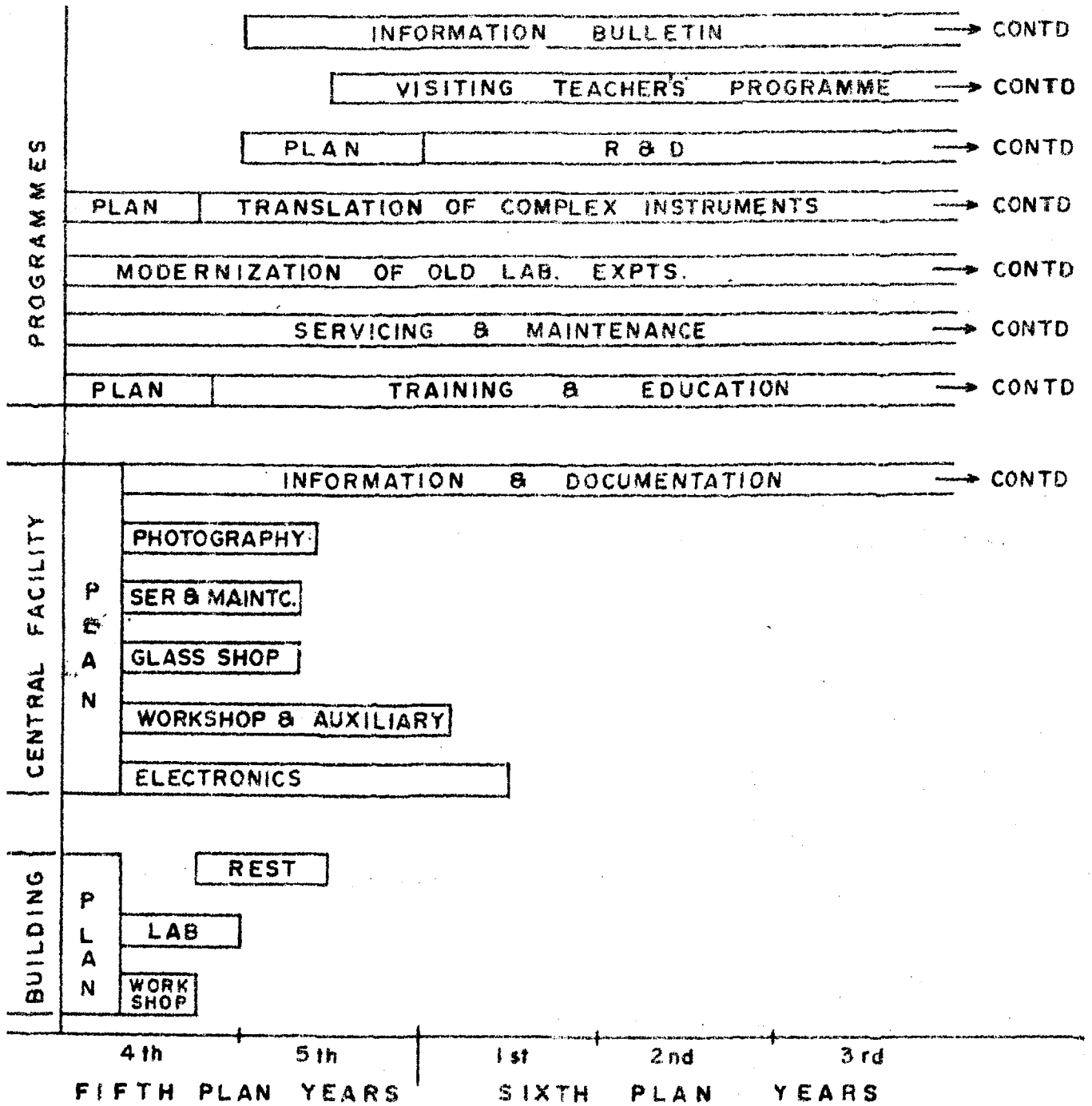


FIG. 2. BAR-CHART FOR ACTIVITIES OF THE RIC

ANNEXURE II.1Industrial structure (Large & Medium scale) of the Western Region

INDUSTRIAL SECTOR	Number of Industries			
	Maharashtra	Madhya Pradesh	Gujarat	Rajasthan
1. Metallurgical	162	8	34	16
2. Boilers and Steam Generating Plants	5	-	2	-
3. Prime Movers (Other than Electrical Generators)	12	-	9	-
4. Electrical Equipment	86	7	22	4
5. Telecommunications	24	-	3	1
6. Transportation	81	6	14	3
7. Industrial Machinery	139	3	28	4
8. Machine Tools	13	-	10	1
9. Agricultural Machinery	15	-	5	-
10. Earth Moving Machinery	1	-	2	-
11. Miscellaneous Mechanical & Engineering Industries	40	1	8	2
12. Commercial, Office & Household Equipment	5	-	-	-
13. Medical & Surgical Appliances	4	-	1	1
14. Industrial Instruments	8	-	4	4
15. Scientific Instruments	2	-	1	1

..contd.

ANNEXURE II.1

(Contd.)

16. Mathematical, Surveying & Drawing instruments	2	-	1	-
17. Fertilisers	8	2	5	1
18. Chemicals (other than Fertilisers)	168	11	49	8
19. Photographic Raw Film & Papers	1	-	-	-
20. Dye-stuffs	15	-	5	-
21. Drugs & Pharmaceuticals	53	-	10	-
22. Textiles	107	23	117	21
23. Paper & Pulp Including paper products	13	7	14	1
24. Sugar	45	6	8	3
25. Fermentation Industries	13	4	2	2
26. Food Processing Industries	43	7	14	8
27. Vegetable Oils	29	7	30	1
28. Soaps, Cosmetics & Toilet preparation	36	1	5	-
29. Rubber Goods	23	-	3	-
30. Leather, Leather Goods & Pickers	8	-	1	-

..contd.

ANNEXURE II.1

(Condt.)

31. Glue and Glazing	1	1	-	-
32. Glass	16	-	4	-
33. Ceramics	8	6	6	-
34. Cement & Gypsum Products	9	6	7	4
35. Timber Products	4	1	-	-
36. Miscellaneous Industries	6	-	1	-
37. Non-scheduled Industries	58	-	16	-
	<hr/>			
Total :	1263	107	441	85

ANNEXURE II.2

Instruments Manufacturers in the Western Region

1. Adept Laboratories,
POONA-411 004.
2. Applied Electronics Pvt. Ltd.,
BOMBAY-400 604.
3. Associated Instruments Mfrers.(I)
Private Limited,
BOMBAY-400 001.
4. Automatic Electric Pvt. Ltd.,
BOMBAY-400 031.
5. Batliboi & Co. Pvt. Ltd.,
BOMBAY-400 001.
6. Bombay Burma Trading Corpn.Ltd.,
BOMBAY-400 013.
7. C.Z. Instruments (I) Pvt. Ltd.,
BOMBAY-400 020.
8. Digital Electronics Pvt. Ltd.,
BOMBAY-400 016.
9. The Educational Scientific Stores,
BOMBAY-400 001.
10. Electronic Enterprises,
BOMBAY-400 004.
11. Electronics Industrial Aids,
BOMBAY-400 004.
12. Electronic Instrument Co.,
BOMBAY-400 001.
13. Forbes Forbes Cambell & Co.Ltd.,
BOMBAY-400 001.
14. Sansons Pvt. Ltd.,
BOMBAY-400 018.
15. Hakotronics Pvt. Ltd.,
BOMBAY-400 027.
16. Indo-Burma Petroleum Co. Ltd.,
BOMBAY-400 001.
17. International Electronics,
BOMBAY-400 002.
18. J.N. Marshall Pvt. Ltd.,
POONA.
19. Khadelwal Herrmann
Electronics Ltd.,
BOMBAY-400 078.
20. Krishna Instruments &
Appliances Co.,
BOMBAY-400 034.
21. Labequip Corporation,
BOMBAY-400 020.
22. Larson & Toubro Ltd.,
BOMBAY-400 001.

ANNEXURE II.2

- | | |
|---|---|
| 23. Lawrence & Mayo (I) Pvt. Limited,
BOMBAY-400 001. | 34. Scientific Apparatus Manufacturing Co.,
BOMBAY-400 002. |
| 24. Lektrolab Equipment Co.,
BOMBAY-400 013. | 35. Scientific & Industrial Inst., Company,
INDORE-452003. |
| 25. Mahlo-Star Electronic Equipment Pvt. Ltd.,
BOMBAY-400 011. | 36. The Scientific Instrument Co.,
BOMBAY-400 001. |
| 26. Martin & Harris Pvt. Ltd.,
BOMBAY-400 001. | 37. SYSTRONICS,
Division of Sarabhai Sons Pvt. Ltd.,
AHMEDABAD-380 001. |
| 27. Metzger (India) Optical Inst. Company,
BOMBAY-400 001. | 38. Techno Electro Pvt. Ltd.,
BOMBAY-400 020. |
| 28. The National Radio & Electronic Co. Ltd.,
BOMBAY-400 004. | 39. Toshniwal Bros. Pvt. Ltd.,
BOMBAY-400 020. |
| 29. Philips India Ltd.,
BOMBAY-400 018. | 40. Toshniwal Instruments,
BOMBAY-400 018. |
| 30. Pla Electro Appliances,
BOMBAY-400 086. | 41. Vibronics Pvt. Ltd.,
BOMBAY-400 077. |
| 31. Polyzronic Corporation,
BOMBAY-400 062. | 42. X-Ray & Electromedicals,
BOMBAY-400 007. |
| 32. REMI UDYOG,
BOMBAY-400 002. | |
| 33. Ruttonsha Simpson Pvt. Ltd.,
BOMBAY-400 083. | |

ANNEXURE II.3

Major Research Institutions
in the Western Region

1. National Chemical Laboratory, Poona, Maharashtra.
2. Central Salt & Marine Chemicals Research Institute, Bhavnagar, Gujarat.
3. National Environmental Engineering Research Institute, Nagpur, Maharashtra.
4. National Institute of Oceanography, Panaji, Goa.
5. Ahmedabad Textile Industries Research Association, Ahmedabad, Gujarat.
6. Silk & Art Silk Mills Research Association, Bombay, Maharashtra.
7. Bombay Textile Research Association, Bombay, Maharashtra.
8. Wool Research Association, Bombay, Maharashtra.
9. Indian Rubber Manufacturers' Research Association, Bombay, Maharashtra.
10. Armaments Research & Development Establishment, Poona, Maharashtra.
11. Explosive Research & Development Laboratory, Poona, Maharashtra.
12. Research & Development Establishment (Engineers), Poona, Maharashtra.
13. Vehicles Research & Development Establishment, Avadi, Maharashtra.
14. Defence Laboratory, Jodhpur, Rajasthan.
15. Naval Chemical & Metallurgical Laboratory, Bombay, Maharashtra.
16. Institute of Armament Technology, Poona, Maharashtra.
17. Central Arid Zone Research Institute, Jodhpur, Rajasthan.
18. Indian Grass-Land & Fodder Research Institute, Jhansi, Rajasthan.

ANNEXURE II.3

19. Central Sheep & Wool Research Institute, Avikanagar, Rajasthan.
20. Cotton Technological Research Laboratory, Bombay, Maharashtra.
21. Soil Conservation, Research, Demonstration & Training Centre, Kotah, Rajasthan.
22. Soil Conservation, Research, Demonstration & Training Centre, Vasad, Gujarat.
23. Viras Research Centre, Poona, Maharashtra.
24. Occupational Health Research Institute, Ahmedabad, Gujarat.
25. Bhabha Atomic Research Centre, Bombay, Maharashtra.
26. Experimental Satellite Communication Earth Station, Ahmedabad, Gujarat.
27. Space Application Centre (ISRO), Ahmedabad, Gujarat.
28. Physical Research Laboratory, Ahmedabad, Gujarat.
29. Tata Institute of Fundamental Research, Bombay, Maharashtra.
30. Tata Memorial Centre, Bombay, Maharashtra.
31. Maharashtra Association for the Cultivation of Science, Poona, Maharashtra.
32. Indian Institute of Technology, Bombay, Maharashtra.
33. Research Laboratory, Hindustan Antibiotics Ltd., Poona, Maharashtra.
34. Indian Bureau of Mines, Nagpur, Maharashtra.
35. Research Laboratory, Hindustan Zinc Ltd., Udaipur, Rajasthan.
36. Indian Institute of Tropical Meteorology, Poona, Maharashtra.
37. Central Water & Power Research Station, Poona, Maharashtra.

ANNEXURE II.4

Higher Educational Structure in Western Region
(Basic Sciences Only)

State and Name of the University	No. of P.G. Departments	No. of Colleges at Univ.			No. of Colleges away from Univ. - Town.			TOTAL
		U.G.	U.G.& P.G.	Total	U.G.	U.G.& P.G.	Total	
<u>MAHARASHTRA:</u>								
1. Bombay University	3	3	29	32	7	4	11	46
2. Poona University	7	6	3	9	17	6	23	39
3. Nagpur University	7	7	2	9	23	2	25	41
4. Shivaji University	4	2	0	2	21	0	21	27
5. Marathwada University	4	6	0	6	29	0	29	39
	25	24	34	58	97	12	109	192
<u>GUJARAT:</u>								
6. South Gujarat University	2	1	1	2	5	3	8	12
7. Maharaja S. University	8	6	0	6	1	0	1	15
8. Gujarat University	5	8	0	8	25	0	25	38
9. Sardar Patel University	3	3	0	3	0	0	0	6
10. Saurashtra University	2	2	1	3	5	3	8	13
	20	20	2	22	36	6	42	84

ANNEXURE II.4

State and Name of the University	No. of P.G. Departments	No. of Colleges at Univ Town			No. of Colleges away from Univ. - Town			TOTAL
		U.G.	U.G. & P.G.	Total	U.G.	U.G.& P.C.	Total	
<u>RAJASTHAN:</u>								
11. Rajasthan University	5	5	0	5	44	8	52	62
12. Jodhpur University	6	2	0	2	0	0	0	8
13. Udaipur University	6	0	0	6	3	0	3	9
	17	7	0	7	47	8	55	79
<u>MADHYA PRADESH:</u>								
14. Jiwaji University	5	1	2	3	4	5	9	17
15. Jabalpur University	5	3	2	5	1	1	2	12
16. Indore University	2	2	3	5	0	0	0	7
17. Ravishankar University	3	0	2	2	5	7	12	17
18. Saugar University	6	0	0	0	7	11	18	24
19. A.P.V. University	0	3	1	4	8	6	14	18
20. Bhopal University	0	3	3	6	1	3	4	10
21. Vikram University	5	26	2	4	7	11	18	27
		24	15	29	33	44	77	132
Total	88	65	51	116	213	70	283	187
Percentage	18.1	13.3	10.5	23.9	43.7	14.4	58.1	100.00

ANNEXURE II,5

Budget Estimates for University Servicing and Instrumentation
Centre (USIC) over the 5 year programme of the RIC.

Budget Head	<u>Fifth-Plan Period</u>		<u>Sixth-Plan Period</u>			Total Rs.
	4 th year	5 th year	1 st year	2 nd year	3 rd year	
1) Capital	-	27,500	-	-	-	27,500
2) Consumables	-	11,000	10,500	10,500	11,500	42,500
3) Salaries						
i) Scientific Officer (B)	-	12,000	12,500	13,000	13,500	51,000
ii) Scientific Assistant (C)	-	10,000	10,500	11,000	11,500	43,000
4) CONTINGENCIES : @ 5% of the total		3,000	1,600	1,700	1,700	8,000
						<u>Total Rs.....1,72,000</u>

Note — For the last two years of the Sixth-Plan Period the recurring expenditure calculated for 5% increase per year is as follows :-

4th year — Rs. 39,000

5th year — Rs. 41,000

ANNEXURE II 5 a -- List of tools and equipments for USIC

A)	List of Capital Equipment	Estimated price Rs.
	1) General Purpose Oscilloscopes (2)	15,000.00
	2) Multimeters (2)	1,500.00
	3) V.T.V.M. (1)	3,000.00
	4) Signal Generator (1)	3,000.00
	5) Regulated Power supply (2) (0-30V, 1A max)	5,000.00
		<hr style="width: 20%; margin-left: auto; margin-right: 0;"/>
		27,500.00
B)	Tool Set	
	i) Side Cutter 2	
	ii) Nose Plier 2	
	iii) Electricians Plier 2	
	iv) Wire Stripper 2	
	v) Soldering Iron-25W 2	
	vi) Soldering Iron-60W 2	
	vii) Screw-driver set 1	
	viii) Set of Phillips Screw Drivers 1	
	ix) Set of Allen keys 1	
	x) Power Drill ($\frac{1}{4}$ ") 1	
	xi) Set of High Speed Drills 1	
	xii) Adjustable Wrench 1	
	xiii) Set of Spanners 1	

ANNEXURE II.6

Suggested Syllabus for Readers

- 1) Principles of instrumentation (120 hrs.)
 - a) Vacuum Techniques
 - b) Nuclear Instrumentation
 - c) Analytical Instrumentation
 - d) Test & Measuring Instruments
 - e) General laboratory practices
 - i) Photography
 - ii) Audio-visual aids
 - iii) Materials & Components
- 2) Workshop Practices (60 hrs.)
 - a) Selection & use of materials
 - b) Adhesives, preservatives, protective coatings, lubricants and insulating materials.
 - c) Hard & soft soldering, brazing.
 - d) Use of simple hand & power operated tools.
 - e) Introduction to functions and simple operation of bench drills, lathes and grinders.
 - f) Interpretation of simple sectional drawings, plans and elevations.
 - g) Simple glass-blowing technique using hard glass.
- 3) Formulation of teaching strategy for training of college teachers and laboratory assistants based on the material prepared by RIC for the purpose (60 hrs.)
- 4) Visits to the research laboratories and industries.

ANNEXURE II.7

Suggested Syllabus for Scientific Officers

- 1) Combined course in Basic Science (60 hrs.)
 - a) Ionising Radiations and Detection.
 - b) Basic Measurements.
 - c) Basic Concepts in Chemistry.
 - d) Elementary Biology and Bio-Chemistry.
- 2) Principles of Instrumentation (120 hrs.)
 - a) Vacuum Techniques.
 - b) Nuclear Instrumentation.
 - c) Analytical Instrumentation.
 - d) Test and Measuring Instruments.
 - e) General Laboratory Practices
 - i) Photography
 - ii) Audio-visual aids
 - f) Materials.
- 3) Laboratory Practices (60 hrs.)
 - a) Radiological Techniques and Handling of Sources.
 - b) Separation and Purification Techniques.
 - c) Vacuum Techniques.
 - d) Analytical Techniques (Optical & electro-chemical)
- 4) Workshop Practices (60 hrs.)
 - a) Selection and Use of Materials.
 - b) Adhesives, Preservatives, Protective Coatings, Lubricants and Insulating Materials.

ANNEXURE II.7
(Contd.)

- c) Hard and soft Soldering, Brazing and Welding.
 - d) Use of simple hand and power operated tools.
 - e) Introduction to functions and simple operations of Bench Drills, Lathes and Grinders.
 - f) Drawing and sketching
 - i) Use of drawing instruments and materials.
 - ii) Interpretation of simple sectional drawings, plans and Elevations.
 - g) Simple glass-blowing technique using the hard and soft glass.
- 5) Project Work (60 hrs.)
Development of a Teaching Aid.

ANNEXURE II.8

Suggested Syllabus for College Teachers

- a) Introduction to instrumentation (45 hrs.)
 - 1) Nuclear Instrumentation
 - 2) Analytical Instrumentation
 - 3) Test and measurement Instrumentation
 - 4) Simple everyday materials for building aids
 - 5) Audio-visual aids.

- b) Workshop Practices (30 hrs.)
 - 1) Selection and use of simple materials
 - 2) Adhesives, lubricants and insulating materials
 - 3) Hard and soft soldering - using electrical and conventional tools.
 - 4) Use of simple hand and power operated tools for metal and wood work.
 - 5) Interpretation of simple sectional drawings, plans and elevations.
 - 6) Elementary glass-blowing, simple joints, bends, drawing of tubes, capillaries etc.

- c) Maintenance and Servicing (45 hrs.)
 - 1) Preventive maintenance:
Electrical, electronics, mechanical and glass apparatus.
 - 2) Maintenance techniques for equipment used in the physical and the biological sciences.

ANNEXURE II.9

A short list of laboratory experiments
for Modernisation

1. Post-Office Box
2. Galvanometer
3. Resistance Box
4. Wheatstone's Wire Bridge
5. Sound Experiments like Kundt's Tube, Sonometer etc.
6. Induction Coil for gas discharge tubes
7. Kymograph
8. Monochromators
9. Recording devices
10. Optical Experiments
11. Electronics Experiments
12. Photometry and Radiometry
13. Operating or dissection Tables
14. Measurement of 'g'
15. Heat Experiments
16. Stroboscopy Experiments
17. Determination of Planck's Constant
18. Measurement of e/m
19. Rutherford Scattering
20. Gaussmeter
21. Potentiometry
22. Polarography
23. C. lometry

ANNEXURE II.10

A short list of complex instruments
for translation to teaching aids

Instrument	Know-how Available At
1. Laser	BARC
2. Mass Spectrometer	BARC/Poona University
3. Nuclear Magnetic Resonance	BARC/TIFR
4. Electron Spin Resonance	BARC/TIFR
5. Transmission Electron Microscope	BARC
6. Scanning Electron Microscope	BARC
7. Field Ion Microscope	BARC
8. X-ray Spectrometer	BARC/TIFR/Poona University
9. Gas Chromatograph	BARC
10. Spectrophotometer	NCL
11. Flash Photolysis	TIFR
12. Nuclear Instrumentation	BARC
13. Holography	BARC
14. Digital Instrumentation	BARC/TIFR
15. Microwave Instrumentation for wave phenomena	TIFR
16. Oscilloscope	TIFR
17. Mossbaur Apparatus	BARC/TIFR
18. Vacuum System for Thin Film Deposition	BARC
19. Crystal Growth Apparatus	BARC

ANNEXURE II.11

Some representative complex techniques worthy of translation into simplified instruments as teaching aids are given below.

(a) A sealed off Field Emission Microscope as a Teaching Aid:

Field emission is the third mode of extraction of electrons from metals, not as widely understood as thermionic or photoemission. But the study of field emission is particularly important as its basis lies in understanding the theory of quantum mechanical tunneling. More important, the image techniques enable to probe the surface properties of the emitter by investigating the interaction of the surface with molecules, atoms, electrons and ions and interpreting the complex reactions at the surface in atomistic terms.

It is possible with a sealed off microscope to do some interesting experiments at the post graduate level. A few of the experiments are

1. Fowler-Northeim plots for the emission characteristics of different emitters.
2. Imaging of different metals having different crystallographic structures, indexing the high Miller index planes that are visible using the image interpretation formulae.
3. Work function change with adsorption could be followed by depositing films of different metals on known emitters by measuring the altered emission characteristics. Phase-transformations in the evaporated metal could also be studied.

4. The temperature dependence of the rate of migration of the adsorption edge on the emitter can be used to investigate the kinetics of surface migration under atomically clean conditions.

(b) Some experiments for demonstrations of Low Pressure Phenomena:

A small vacuum system consisting of single stage rotary pump, a small diffusion pump and a chamber is capable of giving a vacuum 10^{-5} Torr. With this arrangement students can perform the following experiments:

1. Diode experiment - verification of basic laws of thermionic emission.
2. Boyle's Law and McLeod Gauge - A Modified compact form of McLeod Gauge enables to verify Boyle's Law and use it as a pressure measuring device.
3. Direct observation of molecular impact.
4. Straight line motion of molecular beams.
5. Vacuum deposition - Thin films of metals could be made and its properties studied.

These experiments will also make the students conversant with the different types of vacuum components and their functioning.

(c) Mass Spectrometer:

The Mass Spectrometer will have a 5 cm ion radius and will be incorporated with an electron-bombardment type of ion source for gases. It will have electrostatic or electromagnetic scanning of the entire

mass-range, i.e. from mass No. 2 to 80. It will have a resolution of about 50 a.m.u. The required vacuum can be obtained with any standard high vacuum pumping module. The detector system contains a simple Faraday Collector with a.d.c. electrometer amplifier. The ion currents can be measured on a digital meter. The electronic circuits include (i) Source voltage power supply, (ii) emission regulator and (iii) a.d.c. amplifier. All the supplies will be well regulated and stabilized.

The possible applications are

1. Understanding the basic mass spectrometer principle
2. Analysis of residual gases in a vacuum system
3. Partial pressure measurements of gases.
4. Principle of isotope separation
5. Leak detection using H₂, He and Argon as probe gases
6. Study of cracking patterns of gases
7. Study of ionization phenomena w.r.t. electron voltage
8. Isotopic analysis etc.

(d) Nuclear Magnetic Resonance Spectrometer:

The nuclear magnetic resonance (NMR) spectrometer will detect different resonance signals in most liquids commonly found in Chemistry laboratory. This remarkably high sensitivity is achieved by immersing the detector coil in the nuclear resonant material, so that the volume normally occupied by the glass sample holder is replaced by the nuclear material itself. This arrangement also allows the coil size to be reduced without loss of sensitivity.

This experiment gives a theoretical introduction to NMR and measurement could be made to determine a number of fundamental physical properties of substances. This include the gyromagnetic ratio of a nucleus from which the nuclear magnetic moment can be determined The effect of dipoles, and quadrupole interaction etc.can also be studied.

The NMR experiment can be performed with a detector head consisting of a marginal oscillator, and small Watson type permanent magnet. Dry cells are used to power the oscillator. The NMR equipment can also be used to measure the magnetic fields with high accuracy.

The experiment with some modifications can also be used for measurement of small magnetic fields and can be used in geosciences and archeology.

(e) Electron Spin Resonance Spectrometer:

The electron spin resonance (ESR) spectrometer will be useful to students to determine the fundamental constants such as g value, gyromagnetic ratio with a high degree of accuracy. Use of the apparatus will also demonstrate the significance of magnetic field homogeneity, marginal oscillation, frequency and magnetic field dependence of the signal, relaxation processes etc.

The equipment for EPR is the same as that for NMR with slight modification. When used with a free radical sample as DPPH a signal of 5 volts is obtained at the output of the ESR apparatus. The use of low magnetic fields makes the apparatus work at VHF.

The system can be extended to microwave frequencies with marginal additional cost. Besides exposing students to the important field of electron spin resonance, it will give them a chance to familiarise themselves with the modern microwave techniques.

PART III : STRUCTURE AND FINANCE

STRUCTURE AND FINANCE

In the early part of its existence, the RIC has the major tasks of developing the infrastructure in the region through purposeful training and of helping it to strengthen through introduction of innovative teaching aids and instruments developed within. It is, therefore, necessary to structure the RIC with a focus on these objectives and the immediate and long-term programmes arising out of them. It is easy to visualise that these objectives will continue to influence the working of the RIC even in the distant future, since the educational system will continually need new aids and newly trained people for the infrastructure.

STRUCTURE OF SERVICES

Programmes arising out of such objectives will obviously have a large technological content, requiring many interrelated techniques in instrumentation, and would, therefore, need a strong technical structure to support them. The nature and the magnitude of the individual programme hardly calls for independent build-up of facilities around each one of them. It is, therefore, possible to have common facilities for operational convenience. Such an approach ensures cohesiveness of purpose within the groups and easy transfer of expertise among them, and undoubtedly, would effect appreciable financial savings. Hence this approach is employed in this report for designing the physical facilities of the RIC. This part of the report discusses the details of the functioning and financial requirements of the following facilities:

1. Central Technical Services.
2. Administrative and Auxiliary Services.
3. Information and Documentation Service.

STAFFING STRUCTURE:

The programmes and the common facilities mentioned above demand manpower support in the following three categories:

1. Scientific Staff.
2. Technical Staff.
3. Administrative and Auxiliary Staff.

In designing the staff structure full advantage is taken of overlapping of roles, wherever permitted, and of phasing to effect financial savings. Annexures III.15, III.16, III.17 give the details of the phasing and the annual salaries for each member over a period of five years.

ACCOMMODATION:

The RIC will need a building designed suitably to accommodate the various laboratories and services. The estimated area of such a building is about 15,000 sq. ft. Its utilization is explained in Section 4.

TOTAL COST OF THE RIC

The total cost of implementation of the programmes of the RIC and its supporting structure is as shown below:-

Fifth Plan Period (1977-79)	-	Rs. 38, 56, 380
Sixth Plan Period (1979-82)	-	Rs. 31, 94, 690
Sixth Plan Period (1982-84)	-	Rs. 22, 00, 350

The detailed financial statement is given on the next page. The financial statement for 1982-84 is a rough estimate based on annual increase of 5% only and merely gives an approximate running cost of the centre.

FINANCIAL STATEMENT

The financial requirements of the Regional Instrumentation Centre for the Fifth Plan and Sixth Plan periods are as follows:

I		(Rs.)		
I. CAPITAL				
A. Laboratory and Workshop Equipment		Vth plan period (1977-79)	Vith plan period 1979-1982	Vith plan period 1982-84
a) Laboratory Equipment				
1) Central Electronic Equipment	2,70,000/-	67,000/-	-	-
2) Servicing and Maintenance	27,500/-	-	-	-
3) Special equipment for programmes	32,500/-	1,07,500/-	50,000/-	-
b) Mechanical Workshop and Auxiliary services	5,84,200/-	-	-	-
c) Glass-blowing shop	1,35,000/-	-	-	-
d) Photography	15,000/-	-	-	-
B. <u>Information and Documentation</u>				
a) Reprographic Equipment	40,000/-	-	-	-
b) Books, periodicals, Manuals etc.	1,70,000/-	2,30,000/-	1,50,000/-	-
C. <u>Administration and Auxiliary Services</u>	84,000/-	-	-	-
D. <u>Building</u>				
a) Cost of Building	10,36,335/-	-	-	-
b) Air-conditioning	1,00,000/-	-	-	-
c) Furniture	1,13,495/-	-	-	-
II. <u>REVENUE</u>				
a) Salaries	7,77,200/-	18,25,400/-	13,40,530/-	-
b) Consumables	2,85,500/-	6,91,500/-	5,17,680/-	-
c) Travel & incidental expenses	80,300/-	76,900/-	3,300/-	-
d) Contingencies	1,25,300/-	1,46,590/-	1,02,000/-	-
Total	38,56,330/-	31,94,690/-	22,00,350/-	-

BUDGET ESTIMATES FOR FIVE YEARS

(Yearwise Break up)

(Rs. in thousands)

Budget Head	Vth Plan Years		Vith Plan Period			Total
	4th Year	5th Year	1st Year	2nd Year	3rd Year	
<u>A. BUILDING, FURNITURE & FIXTURES</u>	12,49,880		-	-	-	12,49,880
<u>B CAPITAL</u>						
Equipment	7,34.60	6,48.70	2,11.20	1,17.50	82.50	17,94.50
(F.E.)	(10.00)	(50.00)	(87.00)	(30.00)	(0.00)	(1,77.00)
<u>C. RECURRING</u>						
1. Consumables	91.00	1,94.50	2,10.50	2,40.50	2,40.50	9,77.00
(F.E.)	(0.00)	(10.00)	(25.00)	(35.00)	(25.00)	(95.00)
2. Salaries	2,72.75	5,04.45	5,90.90	6,11.70	6,22.80	26,02.60
3. TA/DA	30.00	50.30	30.30	23.30	23.30	1,57.20
<u>D. CONTINGENCIES</u>	55.25	68.05	50.74	48.50	47.35	2,69.89
Total	11,83.60	14,66.00	10,90.94	10,41.50	10,16.45	70,51.07
(F.E)	(10.00)	(60.00)	(1,12.00)	(65.00)	(25.00)	(2,72.00)

Note: Figures in brackets indicate Foreign Exchange Components.

BUDGET ESTIMATES FOR REMAINING YEARS OF WITH PLAN

(Calculated at 5% increase per annum: Base year - 3rd Year With
Plan Period)

(Rs. in Thousands)

Budget Head	<u>With PLAN YEARS</u>		Total
	4th Year	5th Year	
A. CAPITAL	86.60	90.90	1,77.50
B. RECURRING			
1. Consumable	2,52.50	2,65.20	5,17.70
2. Salaries	6,53.90	6,86.60	13,40.50
3. TA/Da	24.50	25.70	50.20
C. CONTINGENCIES	49.70	52.20	1,01.90
	10,67.20	11,20.60	21,87.80

SECTION 1 : CENTRAL-TECHNICAL SERVICES

The proposed programme of the RIC, as delineated in Part II, covers a wide range of activities in training, development of aids and research in advanced instrumentation. Such a programme would naturally need a very wide spectrum of technologies to support it. However, it is not always possible to have all the possible technologies on the site, and hence the need to optimise the facilities with respect to its cost and the desired pace of achievements. In defining these requirements for the RIC, care has been taken to choose only those which are absolutely essential to fulfil the major needs of the programme. In the case of some special techniques that are needed but are too costly to include at this juncture, the RIC should seek help from the facilities available at the BARC, TIFR, and the other laboratories and, if possible, the industries. The optimization of facilities has been done by applying the following criteria:

1. To identify the irreducible number of skills necessary to fulfil the objectives.
2. To provide adequate support in the role defined by the skills.
3. To allow for an overlap with the other roles within the technically permissible limits.

The RIC, needs the following supporting facilities:

1. Electronics Instrument Facilities.
2. Mechanical Workshop and its auxiliary services.
3. Glass Blowing Facility.
4. Servicing and Maintenance Facility.
5. Photography Facility.

The details of their functioning and the financial requirements are discussed below:-

1. Electronic Equipment Facility

The requirements of the electronic equipment as dictated by the programmes are diverse and cover test and measuring equipment based on digital, analogue and, in some cases, electro-mechanical systems.

Excepting for some inexpensive instruments like multimeters etc., the facility will have the major part of the expensive equipment like Oscilloscopes, digital multimeters etc., accessible to all members of the scientific staff.

Annexure III.7 gives the list of equipment, their required number, the cost and the probable year of acquisition.

The requirements of the electronic equipment for the servicing and maintenance programme is considered separately in view of the demand for servicing the large number of instruments from the colleges of the University of Bombay and also those referred to it from the Region by USICs. However, for servicing of the sophisticated instruments, special test and measuring equipment under this facility will be made available whenever required.

Financial Requirements:

In order to acquire these equipment for this facility a sum of Rs.3,68,000/- is required.

2. Mechanical Workshop and Auxiliary Services:

Since the programmes are centred around the development of hardware and imparting technical skills to teachers, it is obvious that the RIC should have minimum in-house facility consisting of a mechanical workshop and its auxiliary units such as welding, carpentry, design and drawing section and a paint shop. For such a self-contained facility, the basic trades such as turning, machining, fitting, welding, carpentry and painting are required with a support from a competent designer. In designing the facility, care must be taken to ensure that each of these trades have a minimum number of machines and manpower support. The materials to be processed by this facility will depend on the programme requirements and hence are included in the consumables for the individual programmes. However, a nominal provision for oils, lubricants, tools etc. need to be made separately.

The type of basic machines required for these trades and the auxiliary machines for their effective use are given in Annexure III.8. In selecting them, the following three factors were taken into account:

- i) Minimum need for precision machining for the R & D and Teaching Aid development programmes.
- ii) Adequate number of semi-precision machines for general purpose requirements.
- iii) General purpose machines suitable for training programmes.

The workshop trades are often very well defined in terms of the technical skills associated with them. This restricts the use of an individual tradesman for the trades other than his own trade. However,

maximum advantage is taken wherever the overlap is possible. For example, a machinist can effectively function as a turner, but not vice versa. In structuring the staff for this facility, such factors are fully taken into consideration.

The total staff for this facility consists of Nine tradesmen and Six helpers to assist them. The facility will be headed by a technically qualified workshop superintendent (See Annexure III.16).

Financial requirements:

Annexure III.8 shows price of the individual machine and the probable year of acquisition. The total cost works out to be Rs.5,32,000/-. A provision of Rs.50,000/- is made towards the running expenses.

3. Glass-Blowing Shop:

Glass is still used as a working material for instruments in undergraduate and post-graduate instructions. It is also used for fabrication of complex instruments in research.

The RIC will need an in-house facility for fabrication of glass components for its own programmes. This facility will include glass-blowing equipment, and lapping and polishing equipment for optical components.

Personnel:

A skilled glass-blower assisted by a junior glass-blower will man this facility.

Financial requirements:

Annexure III.11 shows price of the individual machine and probable year of acquisition. The total cost of the facility works out to be Rs.1,35,000/-.

A provision of Rs.50,000/- for a period of five years has been made to cover the consumable expenses such as the tools, LPG gas, oxygen etc. (see Annexure III.10).

4. Photography:

The survey of colleges in Bombay and those in the region shows that the major hurdle for full utilization of the audio-visual aids is the non-availability of software. The training programme of the RIC, therefore, envisages imparting the skills of preparing software, in particular, slides needed for projection. It is expected that this facility will be fully utilized for instructions in the biological sciences.

This facility will need a good camera and arrangements for printing, developing and enlargement of pictures.

Personnel:

The facility will be manned by a trained photographer.

Financial Requirements:

An amount of Rs.15,000 has been provided towards the capital equipment and Rs.11,000 towards the purchase of raw stock and chemicals. The details are given in Annexure III.12.

5. Servicing and Maintenance:

Detailed analysis of the justification for this facility has been given in part II.

Personnel:

In view of the work-load from the Bombay colleges and the region, this facility will be manned by one Scientist and two Scientific Assistants.

Financial Requirements:

The financial requirements are given in Annexure III.2. This includes Rs.27,500/- towards capital equipment and Rs.45,000/- to cover components and materials required for this programme.

SECTION 2 : ADMINISTRATIVE AND AUXILIARY SERVICES

A sound administrative support is essential to carry out the programmes of the RIC, which will involve such wide range of peripheral activities as the purchase of materials and equipment, accounting of stores and inventory and establishment. It will also assist the scientists in establishing a strong liaison with the infrastructure spread over the region.

The programmes of teaching aid development and R & D will take advantage of the neighbouring research laboratories by personal visits and through transfer of hardware. It is, therefore, necessary to have a fast mode of transport belonging to the RIC. A station wagon is provided for this purpose.

The auxiliary services of the RIC will cover cosmetic and civil maintenance, transport and security. The manpower provided for these services is the minimum required for effective functioning.

Personnel:

The administrative and auxiliary services will be headed by an Administrative Officer, who will be assisted by an Accountant, Assistant Accountant, Administrative Assistant and a Storekeeper. Three Steno-typists are provided for as a back-up for the entire RIC.

The auxiliary services will include one driver, two sweepers and four attendant-cum-watchmen. The latter will provide round the clock security for the RIC.

Financial Requirements:

A provision of Rs. 84,000/- is made for the purchase of typewriters desk calculator and vehicle.

The reprographic facility of the Information and Documentation Services will be used by the Administration.

A provision of Rs.1,80,000/- is made towards expenses on stationary, office materials, postage and cosmetic requirements. A sum of Rs.40,000/- has been provided for the running expenses on the vehicle which include taxes, insurance and fuel.

The details of these budget provisions are given in Annexure III.14.

SECTION 3 : DOCUMENTATION AND INFORMATION SERVICES

In order to fulfil the programme objectives, it is necessary that a versatile and a fully updated documentation and information service be provided within the Centre with the following specific objectives:

- 1) To provide documentation facilities for the research and development staff to keep themselves abreast with the latest information on instrumentation so that they are in a position to remain in the forefront in the field;
- 2) To provide adequate information on instrumentation to the trainees and students in instrumentation so as to make them aware of and appreciate the importance of the field;
- 3) To help bring about the desired changes in the outlook and attitudes of those involved in the educational system by a periodic exposure to the developments in the field of instrumentation in general;
- 4) To highlight for the benefit of the teaching community the work done in the region in the areas of education and training and in the other services related to instrumentation.

A. INFORMATION BASE ON INSTRUMENTATION:

1. Background information:

- a) Books and journals covering a wide variety of literature on the basic sciences, multidisciplinary sciences and technology are required for the programmes and to sustain high grade work in instrumentation. However, library facilities in the University

of Bombay are inadequate in this respect. The books on multi-disciplinary subjects, life sciences and technology, other than the chemical technology, are not available.

- b) The local institution like the BARC and TIFR have some of the best libraries in the country today. However, the emphasis in the choice of journals and books in these institutions is laid more on the subjects of relevance to their main interests. Hence it will not be possible to rely totally on their libraries. It is necessary to have at least, one library in the region with a strong orientation towards instrumentation and related subjects. Besides, a multi-purpose centre with responsibilities to develop instrumentation on one hand and to provide training to the teachers, and technical staff on the other, cannot depend totally on the institutions located 25 to 30 kilometers away from it. Nevertheless, care should be taken to avoid as far as possible the obvious duplication of very expensive books.
- c) In order to provide service in instrumentation to the various university centres and the individual colleges, it is necessary to establish strong channels of communication among them. It is essential that the information related to the science and technology of instrumentation and the various developments in the areas of specific interest to the teachers and the students of the universities should be periodically made available. There ought to be some channels of communication between all those involved in the programme and efforts should be made to keep them open to encourage communications.

A monthly bulletin, which would provide communication channels between the centre and the individual institution and also between the institution and its members, is absolutely necessary.

2. Suggested Action:

- a) The Centre should have a library having books and reference literature on instrumentation, multi-disciplinary subjects, and related technologies. A representative list of reference literature suitable for instrumentation is given in Annexure III.18.

It should also have an adequate number of high standard journals on instrumentation and related technologies. Annexure III.19 gives a representative list of journals on the subjects.

There should also be a good collection of technical material such as manuals, catalogues, application notes etc. relevant to instrumentation in general, and R & D programmes of the Centre, in particular.

- b) A monthly bulletin, on instrumentation, of about 10 to 20 pages to cover information on maintenance and fabrication techniques, recent developments in teaching aids, and other technical matters of direct interest to the staff of the educational institutions and students, should be published by the Centre.

B. REQUIREMENTS OF THE FACILITY:

(a) Personnel

- i) Librarian: A full time Librarian is needed to look after the library services. He will deal with the purchases of books and periodicals, maintenance of library, editing of the information bulletin and relevant communication with outside agencies.
- ii) Library Attendant: A full time attendant would assist the Librarian in the day-to-day functions of the Library. He would also operate the reprographic equipment in the possession of the Library.

(b) Accommodation:

For the full development of the library over a period of five years, provision has to be made for sufficient accommodation. This includes space for book stacks, display of periodicals, reading room, library staff and the capital equipment. Total area required for this purpose would be of the order of 800 Sq. ft.

(c) Reprographic Facilities:

In order to provide information service to all the colleges and the university departments in the region it is necessary to circulate approximately 500 copies of the Information Bulletin of 10-20 pages. Considering the nature of the technical matter to be published, which will include a number of technical diagrams, it is felt that

this job could be usefully and economically done using an Electronic Stencil Cutter and Duplicator.

The total capital investment on this reprographic equipment is expected to be approximately Rs. 40,000/-.

This equipment would also be utilized for the other administrative jobs of the Centre. A nominal provision for consumables such as paper, ink, stencils etc. is required.

C. FINANCIAL IMPLICATIONS:

The structure of Documentation and Information Services contemplated here needs sufficient provisions of finance to reach its desirable level. It is estimated to cost Rs. 5,55,550/- over a period of five years as detailed out in the Annexure III.13. These figures have been worked out at constant prices. However, it may be pointed out that during the last couple of years, a considerable price escalation has been observed in the case of books (about 20% last year), and periodicals (about 33% last year). If the same trend continues, it would become necessary to revise the budget estimates appropriately at later stages.

D. POSSIBLE PROBLEM AREAS:

- (a) The high humidity of the Bombay weather is detrimental to the books. It is necessary to have the library stacks space airconditioned in due course for a better storage and minimum spoilage of books.
- (b) Since publication of a bulletin on a single subject vitally affecting the academic community will be undertaken for the first time in the region, it is expected that the demand may come from places other than the colleges and the university departments. In that case, we may have to expand this programme by changing over to the other methods such as printing etc.

SECTION 4: BUILDING, FIXTURES & FURNITURE

The Regional Instrumentation Centre as envisaged in this report is a multipurpose institution encompassing the activities of training of teachers, development of teaching aids of varying degree of sophistication and R & D in instrumentation. Since it is a part and parcel of the educational system it is also expected to host teachers willing to contribute to its objectives. The building of such an institution should, therefore, have the following features:

1. The building and its interior should provide appreciable degree of flexibility of arrangement.
2. It should also be in a position to allow for future expansion without loss of aesthetic appearance.
3. Since the RIC is expected to use expensive materials for electronics and other technologies, the building should facilitate security.
4. These services, such as workshop, are generally noisy and electrically disturbing and hence should be reasonably separated from the R & D and other activities.

The area requirements for the RIC are as follows:

I. The Building & Fixtures:

A. Teaching Aid Development Programme:

- | | | | |
|--|-----|-------|---------|
| 1. Laboratory space & office-cum-study area for 11 staff members | ... | 2,400 | Sq. ft. |
| 2. Office-cum-study place for the visiting teachers & seminar room | ... | 300 | Sq. ft. |

3. Teaching aid assembly shop and servicing and maintenance ... 450 Sq. ft.

B. Training:

A lecture theatre with audio-visual facility ... 1,500 Sq. ft.

The same area will be converted into a teaching lab. during the training programmes.

C. Research & Development:

Laboratory space for R & D ... 1,350 Sq. ft.

This area will have sophisticated equipment and hence needs air-conditioning for a stringent control of humidity and temperature.

D. Facilities

1. Mechanical Workshop	...	1,800	Sq. ft.
2. Workshop Superintendent and Workshop Administration	...	250	"
3. Drawing & Design office	...	250	"
4. Carpentry Shop	...	400	"
5. Paint Shop	...	250	"
6. Workshop Stores	...	250	"
7. General Stores	...	150	"
8. Glass-Blowing Shop	...	650	"
9. Library & documentation	...	750	"
10. Photography	...	300	"

E. Administration:

Director's Office & General Administration ... 1,200 "

Total carpet area ... 12,250 Sq. ft.

25% for corridors, wall thickness and utilities ... 3,056 "

Total built up area .. 15,306 Sq. ft.

Say 15,300 Sq. ft.

The cost of such a building according to the norms set by the UGC has been worked out on the following page.

II. Furniture:

(a) General furniture:

As per the norms for general furnishing set by the UGC, an amount of 8.3% of the construction cost of the building excluding the mechanical workshop, carpentry, welder's shop and painter's shop, will be needed providing general furniture like desks, chairs, storewells, filing cabinets etc. The total amount works out to be Rs. 63,490/-.

(b) Special furniture:

The laboratories, mechanical workshop, carpenter's shop, the library, glass-blowing shop and the drawing section need special furniture to suit their requirements. For example, the work table for the Workshop should be heavy while those used for the glass-blowing need thick asbestos tops.

A provision of Rs. 50,000/- is made towards these furniture pieces.

COSTING OF BUILDING & FURNITURE

Cost of the building:

The land required for the building is expected to be given by the University of Bombay at the Kalina Campus. For estimating the cost, the UGC norms have been used:

		<u>(Rs. in thousands)</u>
1.	Civil Construction Cost : ...	7,65.00
	The ruling rate of construction in Bombay is Rs. 50/- per sq. ft. of the built up area	
2.	Internal Water Supply & Sanitary Installation: ..	38.25
	@5% of 1.	
3.	Internal Electrification Including Fittings and Fans ...	95.625
	@ 12.5% of 1.	
4.	External Services & Drainage: ...	38.25
	@ 5% of 1.	
5.	Contingencies: ...	28.115
	@ 3% of 1 + 2 + 3 + 4.	
		9,65.24
	Air-conditioning Plant for R & D Laboratory ...	1,00.00
 <u>Professional Charges:</u>		
	@ 9.3% of 1. ...	71.145
 <u>Furniture:</u>		
1.	General furniture such as desks, chairs racks, storewells, filing cabinets etc. ...	63.495
2.	Special furniture for laboratories, library and workshop ...	50.000
	TOTAL: ...	12,49.880

Section 5: COST BENEFIT ANALYSIS

It is customary to end a feasibility report with a cost benefit analysis of the project proposed therein. We find ourselves in a difficult position in making such an analysis, because the main purpose of instrumentation in the educational system is basically to provide modalities for generation and use of hardware as tools to improve the quality of science education. We, therefore, have a task of connecting quantitative character of hardware with the qualitative aspects of educational improvements. The analysis given here is an attempt not to specify precisely the visible outputs as is done in any feasibility report of an industrial enterprise, but to clearly indicate the lower permissible limits of achievements needed to justify the proposed investment.

Quantitative Benefits :

One area of activity of the RIC and its supporting infrastructure, in which benefits can be quantified with less difficulties, is that of servicing and maintenance of instruments. The tangible results obtainable from this activity through improved utilization~~se~~of the instruments could be reasonably assessed.

The computer based survey of the region has made it possible to estimate the status of instruments in the higher education system. These estimates presented in Chapter II give the lower limits in view of the following factors.

- 1) The lists of instruments considered for survey do not include all the instruments being used.
- 2) The computer card sets limit to the maximum number of each item that can be specified.
- 3) The average current price considered for each category of instruments is estimated towards the conservative side.
- 4) The costly instruments used for research activities have not been covered in the survey.

In spite of these compromises, it is observed that the capital investment in instruments is of the order of Rs.9 07 Crores of which as much as Rs.2.84 Crores is unutilized, being locked-up in those instruments which are out of order. The details of these estimates are shown below:-

Category	Average Cost/Unit	Total No.	Total cost in lakhs.	No. out of order	Cost of faulty Inst. in lakhs.
A. <u>POST-GRADUATE</u>					
(30% return)					
1. Electrical	Rs.1,000	2,736	27.66	786	7.86
2. Electronics	Rs.5,000	3,729	136.45	1,104	55.20
3. Optical	Rs.2,000	2,478	49.56	429	8.58
4. Misc.	Rs.2,000	2,835	56.70	702	14.04
B. <u>UNDER-GRADUATE</u>					
(31% return)					
1. Electrical	Rs. 500	50,829	254.15	16,430	82.15
2. Electronics	Rs.1,000	7,526	75.26	2,038	20.38
3. Optical	Rs. 500	29,730	148.65	8,490	42.45
4. Misc.	Rs.1,000	10,874	108.74	3,310	33.10
Total			907.17		2,63.76

The recurring annual expenditure for servicing and maintenance alone by the entire infrastructure, as given in the report, will be Rs.12.16 lakhs only. The analysis of this expenditure is shown below:-

Estimated annual Average Cost for Servicing and Maintenance in the Region:

	Rs. (Lakha)
1) Cost at USICs inclusive of consumables, salaries etc.	5.65
2) Cost of Training	1.22
3) Cost at RIC	
i) Recurring expenditure on consumables, salaries etc.	3.25
ii) Depreciation on Assets	
a) Building @ 2% p.a.	0.25
b) Capital equipment @ 10% p.a.	1.79
Total ..	12.16

It could be seen that even a 1.5% rise in the utilization of the existing instruments, through servicing and maintenance and training programmes would justify the expenditure. This improvement in utilization is well within the capacity of the proposed infrastructure, and perhaps with proper efforts in organization, monitoring and evaluation, it should be possible to improve utilization many more times.

Qualitative Benefits :

The proposed programmes, as has been stressed earlier, are mainly for improvement in the quality of science education. This will be achieved on one hand through the well laid out infrastructure and, on the other hand, by rapid generation of new hardware by the RIC.

a) Hardware derived benefits.

The immeasurable benefits in terms of hardware generation will be:

- 1) Development of teaching aids with a view to reduce the overall cost of instruments and also to provide flexibility in their use. This will help to modernise the experimental programmes and will improve the class room and laboratory teaching. The educational system will have more than 40 well tested teaching aids for future exploitation. Out of these, about 15, aids will be of high technical complexity. Their induction in the system will be of immense value.
- 2) R & D programmes would help in generating internal capabilities for future benefits.

b) Infrastructure derived benefits:

A well organised infrastructure will be available for the system at the end of the five years. The benefits that can be derived from it are discussed earlier. Some of the important benefits are recapitulated below for completeness.

- 1) Speedy servicing and maintenance of faulty instrument which would considerably reduce their down time. The infrastructure will also take care of more complex instruments which will in future be put into the system.
- 2) During the course of five years about 1500 teachers, i.e. one teacher per department in the colleges of the region, will be trained. They will not only provide maintenance but will also motivate others to look after their instruments.

- 5) The availability of structural support would provide encouragement for motivated teachers in the region to contribute to the development of instruments of their choice.
- 4) The system will have a well tested group of technologists trained to visualise the problems of technological nature in the field of education and tackle them efficiently. It is needless to stress that the system will have capabilities of training such people whenever needed.

ANNEXURE III.1 : PROGRAMME BUDGET ESTIMATES

A. PROGRAMME - TRAINING

Proposed Phase - To be started in second half of the first year
of the RIC

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL	
	4th year	5th year	1st year	2nd year	3rd year		
1. CAPITAL		Central facilities to be used for the programme.					
2. CONSUMABLES	20.00	24.00	4.00	4.00	4.00	56.00	
3. PERSONNEL		No special provision is made.					
4. T.A. AND D.A.	18.00	25.30	2.30	2.30	2.30	50.20	
5. CONTINGENCIES	1.90	2.50	0.30	0.30	0.30	5.30	
	39.90	51.80	6.60	6.60	6.60	1,11.50	

ANNEXURE III.2 : PROGRAMME BUDGET ESTIMATES

E. PROGRAMME - SERVICING AND MAINTENANCE

Proposed Phase - To be started in first half of the first year of the RIC

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL	27.50	-	-	-	-	27.50
2. CONSUMABLES	5.00	10.00	10.00	10.00	10.00	45.00
3. PERSONNEL	24.00	37.50	39.60	40.50	41.40	1,83.00
4. T.A. AND D.A. FOR TRAVEL	10.00	15.00	15.00	5.00	5.00	50.00
5. CONTINGENCIES	2.80	2.40	2.50	2.50	2.50	12.70
	69.30	64.90	67.10	58.00	58.90	3,18.20

ANNEXURE III.3 : PROGRAMME BUDGET ESTIMATES

B. PROGRAMME - MODERNISATION OF OLD LABORATORY EXPERIMENTS

Proposed Phase - To be started in first half of the first year of the RIC.

Budget Head	Estimated Amount (Rs. in Thousands)					TOTAL
	FIFTH PLAN YEARS		SIXTH PLAN YEARS			
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL			Central facilities to be used for the programme			
2. CONSUMABLES	10.00	45.00	45.00	50.00	50.00	2,00.00
3. PERSONNEL	27.30	48.95	61.80	64.30	65.60	2,67.95
4. T.A. AND D.A. FOR TRAVEL	2.00	5.00	6.00	6.00	6.00	25.00
5. CONTINGENCIES	2.00	4.95	5.64	6.00	6.10	24.69
	41.30	1,03.90	1,18.44	1,26.30	1,27.70	5.17.64

ANNEXURE III.4a : PROGRAMME BUDGET ESTIMATES (LOCAL CURRENCY)

C. PROGRAMME - TRANSLATION OF COMPLEX INSTRUMENTATION

Proposed Phase - To be started in first half of the first year of the RIC.

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL	-	32.50	12.50	12.50	12.50	70.00
2. CONSUMABLES	20.00	30.00	30.00	30.00	30.00	1,40.00
3. PERSONNEL	63.70	1,13.10	1,20.80	1,23.70	1,26.60	5,47.90
4. T.A. AND D.A. FOR TRAVEL	-	5.00	5.00	5.00	5.00	20.00
5. CONTINGENCIES	4.20	9.50	9.00	9.00	9.20	40.90
	87.90	1,90.10	1,77.30	1,80.20	1,83.30	8,18.80

ANNEXURE III.4b : PROGRAMME BUDGET ESTIMATES (FOREIGN EXCHANGE)

C. PROGRAMME - TRANSLATION OF COMPLEX INSTRUMENTATION

Proposed Phase - To be started in first half of the first year of the RIC.

Budget Head	Estimated Amount (Rs. in Thousands)					TOTAL
	FIFTH PLAN YEARS		SIXTH PLAN YEARS			
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL	-	-	-	-	-	-
2. CONSUMABLES	-	10.00	10.00	10.00	10.00	40.00
3. PERSONNEL	-	-	-	-	-	-
4. T.A. AND D.A. FOR TRAVEL	-	-	-	-	-	-
5. CONTINGENCIES	-	-	-	-	-	-
		10.00	10.00	10.00	10.00	40.00

ANNEXURE III.5 : PROGRAMME BUDGET ESTIMATES

F. PROGRAMME - VISITING TEACHERS PROGRAMME

Proposed Phase - To be started in the second year of the RIC.

Estimated Amount (Rs. in Thousand)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
CONSUMABLES	-	10.00	10.00	15.00	15.00	50.00

- Note : 1. Central facilities to be used for this programme.
Hence no need for capital expenditure.
2. No provision is made for other heads.

ANNEXURE III.6a : PROGRAMME BUDGET ESTIMATES (LOCAL CURRENCY)

D. PROGRAMME - RESEARCH AND DEVELOPMENT IN INSTRUMENTATION

Proposed Phase - To be started in first half of the third year of the RIC.

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL	-	-	20.00	-	-	20.00
2. CONSUMABLES	-	-	15.00	15.00	15.00	45.00
3. PERSONNEL	35.00	36.50	76.30	84.50	85.70	3,18.00
4. T.A. AND D.A. FOR TRAVEL	-	-	2.00	5.00	5.00	12.00
5. CONTINGENCIES	1.75	1.80	7.40	8.00	6.00	24.95
	36.75	38.30	1,20.70	1,12.50	1,11.70	4,19.95

ANNEXURE III.6b : PROGRAMME BUDGET ESTIMATES (FOREIGN EXCHANGE)

D. PROGRAMME - RESEARCH AND DEVELOPMENT IN INSTRUMENTATION

Proposed Phase - To be started in first half of the third year of the RIC.

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL	-	-	20.00	30.00	-	50.00
2. CONSUMABLES	-	-	15.00	25.00	15.00	55.00
3. PERSONNEL	-	-	-	-	-	-
4. T.A. AND D.A. FOR TRAVEL	-	-	-	-	-	-
5. CONTINGENCIES	-	-	-	-	-	-
			35.00	55.00	15.00	1,05.00

ANNEXURE III.7 : CAPITAL BUDGET

I. ELECTRONICS EQUIPMENT FACILITY

Type of Equipment	No.	Cost (Rs.)	Programmes for which intended (see Note below)	Expected year of Purchase
<u>I. EQUIPMENT</u>				
1) Fast Oscilloscope (100 MHz)*	1	60,000	C4, D1, D2, E	3rd
2) Oscilloscope - Double Beam (25 MHz)	2	50,000	B1, B2, C4, D1, D2, E	2nd
3) Oscilloscope - General Purpose (5MHz)	3	25,000	All	1st
4) V.T.V.M.	2	7,000	All	1st
5) Digital Multimeter *	2	20,000	B to E	2nd
6) Regulated Power Supply	6	10,000	All	1st
7) Pulse Generator	2	20,000	B, C4, D1, D2, E	2nd
8) L.F. Oscillator	1	3,000	A, B, E.	1st
9) LCR Bridge *	1	10,000	A, B, E.	1st
10) Transistor Tester	1	3,000	All	1st
11) Transformer winding Machine	1	4,000	A, B, E.	1st
12) Multimeters	8	6,000	All	1st

Contd...

ANNEXURE III.7 : Contd.

1	2	3	4	5
13) Frequency Meter *	1	20,000	B, C2, C4, D1, D2, E.	2nd
14) Electrometer *	2	10,000	C1, C2, C3, E.	2nd
15) High Current D.C. Power Supply	1	10,000	All	1st
16) High Vacuum Coating Unit	1	70,000	A, B, C1, E.	1st
17) Logic Tester *	2	7,000	C4, D1, D2.	3rd
II. TAXES : @ 10%				
III. CONTINGENCY : @ 5% of the total				
3,85,000				

Note : The letters in the 4th column indicate the following programmes.

A) Training.

B) Modernisation of old laboratory experiments.

C) Translation of Complex Instrumentation.

1) Optical Instrumentation.

2) Analytical Instrumentation.

3) Optics of electrons and ions.

4) Electronics Instrumentation.

D) Research and development.

1) Computer compatible instrumentation.

2) Advanced instrumentation for particles size analysis.

E) Servicing and maintenance of complex instruments. * To be imported

ANNEXURE III.8 : CAPITAL BUDGET

II. Mechanical Workshop and its Auxiliary Services.

Type of Machine	No.	Cost (Rs.)	Programmes for which intended (See Note Below)	Expected year of Purchase
<u>TURNING</u>				
1. All geared Head Precision Centre Lathe and Accessories	1	1,04,000	C, D	2nd
2. Heavy Duty Centre Lathe and Accessories	2	70,000	A, B, C, E	1st
<u>MACHINING</u>				
3. Radial Drilling Machine and Accessories	1	80,000	B, C, D, E	2nd
4. Geared Shaping Machine and Accessories	1	40,000	B, C, D, E	2nd
5. Universal Milling Machine and Accessories	1	63,000	A, B, C, D	1st
6. Horizontal Spindle Precision surface Grinding Machine	1	50,000	B, C, D, E	2nd

Contd....

ANNEXURE III.8 : (Contd.)

1	2	3	4	5
<u>FITTING</u>				
7. High speed Hacksaw Machine	1	10,000	All	1st
8. Bend Roller	1	8,000	All	1st
9. Folding Machine	1	10,000	All	1st
10. Fly Press	1	8,500	All	1st
11. Band Saw	1	11,500	All	1st
12. Shearing Machine	1	12,000	All	1st
<u>GENERAL PURPOSE</u>				
13. Surface Plate	1	1,500	All	1st
14. Tool Grinder	1	2,000	All	1st
15. Grinders	3	5,000	All	1st
16. Amonnia Printing Machine	1	10,000	All	1st
<u>WELDING</u>				
17. Welding Generator and Accessories	1	20,000	All	1st

Contd...

ANNEXURE III.8 : (Contd.)

1	2	3	4	5
<u>PAINTING</u>				
18. Air Compressor for Painting and Accessaries	1	9,500	All	1st
<u>CARPENTRY</u>				
19. Circular Saw for Wood Cutting	1	9,000	All	1st
20. Thickness Planner (Carpentry)	1	8,000	All	1st
TAXES AND INSTALLATION CHARGES : @ 10%		53,000		
CONTINGENCY : @ of 5% of the Total		27,000		
		6,12,000		

Note : The letters in the 4th column indicate the following ,
programmes .

A) Training

B) Modernisation of old laboratory experiments.

Contd...

ANNEXURE III.8 : (Contd.)

C) Translation of Complex Instrumentation.

1) Optical Instrumentation,

2) Analytical Instrumentation.

3) Optics of electrons and ions.

4) Electronics Instrumentation.

D) Research and Development.

1) Computer compatible instrumentation.

2) Advanced instrumentation for particle size analysis.

E) Servicing and maintenance of complex instruments.

ANNEXURE III.9 : CENTRAL FACILITY BUDGET ESTIMATES

FACILITY : MECHANICAL WORKSHOP AND AUXILIARY SERVICES

Proposed Phase - To be started in second half of the first year of the RIC.

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL	2,83.80	3,01.20	-	-	-	5,85.00
2. CONSUMABLES	5.00	10.00	10.00	12.50	12.50	50.00
3. PERSONNEL	43.40	1,08.20	1,24.80	1,28.25	1,30.20	5,34.85
4. T.A. AND D.A. FOR TRAVEL	-	-	-	-	-	-
5. CONTINGENCIES	16.60	21.00	6.70	7.00	7.10	58.40
	3,48.80	4,40.40	1,41.50	1,47.75	1,49.80	12,28.25

ANNEXURE III.10 : CAPITAL BUDGET

III. GLASS-BLOWING FACILITIES

Type of Equipment	No. of Units	Cost	Programmes for which intended	Expected year of Purchase
I. EQUIPMENT				
1. Glass Blowers Lathe for 4"-6" dia. tubes.	1	40,000	A, B, C1, C2, D2, E.	1s
2. Grinding Machine for glass - 12" wheel.	1	10,000	All	1s
3. Glass cutting machine	1	8,000	All	1s
4. Annealing Furnaces:				
a) 1 cubic ft.-max. temp. 1100°C. (for long parts)	1	15,000	All	1s
b) 2 cubic ft.-max. temp. 1100°C. (for long parts)	1	20,000	C, D, E.	2n
5. Air Compressor	1	8,000	All	1s
6. Strain Viewer	1	500	All	1s
7. Gas regulators	2	1,500	All	1s
8. Lapping machine	1	10,000	A, B, C, E.	1s
9. Polishing machine	1	10,000	All	1s
II. TAXES AND INSTALLATION:				
@ 10%		12,000		
III. CONTINGENCIES :				
@ 5%		6,000		
		1,41,000		

ANNEXURE III.11 : CENTRAL FACILITY BUDGET ESTIMATES

II. FACILITY - GLASS-BLOWING SHOP

Proposed Phase - To be started in second half of the first year of the RIC.

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL	1,13.00	22.00	-	-	-	1,35.00
2. CONSUMABLES	5.00	10.00	10.00	12.50	12.50	50.00
3. PERSONNEL	4.50	18.25	19.70	20.05	20.40	82.90
4. T.A. AND D.A.	-	-	-	-	-	-
5. CONTINGENCIES	6.10	2.50	1.50	1.60	1.65	13.35
	1,28.60	50.75	31.20	34.15	34.55	2,81.25

ANNEXURE III.12 ; CENTRAL FACILITY BUDGET ESTIMATES

III. FACILITY - PHOTOGRAPHY

Proposed Phase - To be started in second half of the first year of the RIC.

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL	15.00	-	-	-	-	15.00
2. CONSUMABLES	1.00	2.50	2.50	2.50	2.50	11.00
3. PERSONNEL	4.50	10.50	10.70	10.90	11.10	47.70
4. T.A. AND D.A.	-	-	-	-	-	-
5. CONTINGENCIES	1.00	0.65	0.65	0.65	0.70	3.65
	21.50	13.65	13.85	14.05	14.30	77.35

ANNEXURE III.13 : CENTRAL FACILITY BUDGET ESTIMATES

IV. FACILITY - INFORMATION AND DOCUMENTATION

Proposed Phase - To be started in second half of the first year of the RIC.

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL						
a) Reprographic equipments	40.00	-	-	-	-	40.00
b) Book, Periodicals etc.	85.00	85.00	85.00	75.00	70.00	4,00.00
2. CONSUMABLES	-	3.00	4.00	4.00	4.00	15.00
3. PERSONNEL	4.50	16.50	17.40	17.70	18.00	74.10
4. T.A. AND D.A.	-	-	-	-	-	-
5. CONTINGENCIES	6.50	5.20	5.30	4.85	4.60	26.45
	1,36.00	1,09.70	1,11.70	1,01.55	96.60	5,55.55

ANNEXURE III.14 : CENTRAL FACILITY BUDGET ESTIMATES

V. FACILITY - ADMINISTRATION AND AUXILIARY SERVICES

Proposed Phase - To be started in first half of the first year of the RIC.

Estimated Amount (Rs. in Thousands)

Budget Head	FIFTH PLAN YEARS		SIXTH PLAN YEARS			TOTAL
	4th year	5th year	1st year	2nd year	3rd year	
1. CAPITAL	8.00	76.00	-	-	-	84.00
2. CONSUMABLES						
a) Office Expenses	25.00	30.00	35.00	40.00	50.00	1,80.00
b) Running expenses on Vehicle	-	10.00	10.00	10.00	10.00	40.00
3. PERSONNEL	65.85	1,14.95	1,19.80	1,21.80	1,23.80	5,46.20
4. T.A. AND I.A.	-	-	-	-	-	-
5. CONTINGENCIES	4.90	11.55	8.25	8.60	9.20	42.50
	1,03.75	2,42.50	1,73.05	1,80.40	1,93.00	8,92.70

ANNEXURE III.15 : MANPOWER REQUIREMENTS (SCIENTIFIC)

(NOTE : Salaries include basic pay, admissible allowances, provident fund contribution and leave salary)
Salaries (Rs. in Thousands)

Job Description	Programme for which intended	Suggested Grade	5th Plan		6th Plan			TOTAL
			1st Year	5th Year	1st Year	2nd Year	3rd Year	
1. Director	All	1800-100-2000-125/ 2-2500	35.00	36.50	38.00	40.00	40.00	1,89.50
2. Scientist C No. 1	A, B	1100-50-1600	20.80	24.20	24.80	25.40	26.00	1,21.20
3. Scientist C No. 2	A, C	1100-50-1600	20.80	24.20	24.80	25.40	26.00	1,21.20
4. Scientist B No. 1	A, C1	700-40-900-EB-4C- 1100-50-1300	14.30	16.70	17.20	17.70	18.20	84.10
5. Scientist B No. 2	A, C2	"	14.30	16.70	17.20	17.70	18.20	84.10
6. Scientist B. No. 3	A, C4	"	14.30	16.70	17.20	17.70	18.20	84.10
7. Scientist B. No. 4	D1	"	-	-	14.30	16.70	17.20	48.20
8. Scientist B. No. 5	D2	"	-	-	14.30	16.70	17.20	48.20
9. Scientist B. No. 6	A, C	"	14.30	16.70	17.20	17.70	18.20	84.10
10. Scientist Assistant C No. 1	B	550-25-750-EB-30- -900	-	11.25	13.00	13.30	13.60	51.15

Contd...

ANNEXURE III.15 : Contd.

1	2	3	4	5	6	7	8	9
11. Scientific Assistant- B No. 1	B	470-15-530-EB-20- -650-EB-25-750	-	-	9.70	11.10	11.30	32.10
12. Scientific Assistant- B No. 2	C1	"	-	9.70	11.10	11.30	11.50	43.60
13. " " B No. 3	C2	"	-	9.70	11.10	11.30	11.50	43.60
14. " " B No. 4	C3	"	-	9.70	11.10	11.30	11.50	43.60
15. Scientific Assistant B No. 5	C4	470-15-530-EB-20- -650-EB-25-750	-	9.70	11.10	11.30	11.50	43.60
16. " " B No. 6	D	"	-	-	9.70	11.10	11.30	32.10
17. " " B No. 7	E	2	9.70	11.10	11.30	11.50	11.70	
18. " " B No. 8	E	"	-	9.70	11.10	11.30	11.50	43.60
19. Laboratory Assistant B	B	320-6-326-8-390- -10-400	6.50	7.50	7.60	7.70	7.80	37.10
20. Laboratory Assistant A	B	260-6-326-EB-8- -350	-	6.00	6.70	6.80	6.90	26.40
			1,50.00	236.05	298.50	313.00	319.30	13,16.85

ANNEXURE III.16 : MANPOWER REQUIREMENTS (TECHNICAL)

Job Description	Suggested Grade	Salaries (Rs. in Thousands)					TOTAL
		5th Plan Period		6th Plan Period			
		4th year	5th year	1st year	2nd year	3rd year	
1. Workshop Superintendent	700-40-900-EB-40-1100-50-1300	14.30	16.70	17.20	17.70	18.20	84.10
2. Turner No. 1	320-6-326-8-390-10-400	3.00 *	7.50	7.60	7.70	7.80	33.60
3. Turner No. 2	260-6-326-EB-8-350	-	6.00	6.70	6.80	6.90	26.40
4. Helper (for Turners)	196-3-220-EB-3-232	2.20 *	5.00	5.05	5.10	5.15	22.50
5. Machinist	320-6-326-8-390-10-400	3.00 *	7.50	7.60	7.70	7.80	33.60
6. Helper (for Machinist)	196-3-220-EB-3-232	2.20 *	5.00	5.05	5.10	5.15	22.50
7. Fitter No. 1	320-6-326-8-390-10-400	3.00 *	7.50	7.60	7.70	7.80	33.60
8. Fitter No. 2	260-6-326-EB-8-350	-	6.00	6.70	6.80	6.90	26.40
9. Helper (For Fitters)	196-3-220-EB-3-232	-	4.50	5.00	5.05	5.10	19.65
10. Carpenter	320-6-326-8-390-10-400	3.00 *	7.50	7.60	7.70	7.80	33.60
11. Helper (for Carpenter)	196-3-220-EB-3-232	2.20 *	5.00	5.05	5.10	5.15	22.50
12. Painter	260-6-326-EB-8-350	-	-	6.00	6.70	6.80	19.50

Contd.....

ANNEXURE III.16 : Contd.

1	2	3	4	5	6	7	8
13. Welder	320-6-326-8-390-10-400	3.00 *	7.50	7.60	7.70	7.80	33.60
14. Helper (for Welder)	196-3-220-EB-3-232	-	4.50	5.00	5.05	5.10	19.65
15. Draftsman	425-15-500-EB-15-560-20-700	4.50 *	10.50	10.70	10.90	11.10	47.70
16. Tracer	330-8-370-10-400-EB-10-480	-	-	6.75	7.75	7.85	22.35
17. Glass Blower	425-15-500-EB-15-560-20-700	4.50 *	10.50	10.70	10.90	11.10	47.70
18. Assistant Glass Blower	380-12-500-EB-15-560	-	7.75	9.00	9.15	9.30	35.20
19. Photographer	425-15-500-EB-15-560-20-700	4.50 *	10.50	10.70	10.90	11.10	47.70
20. Electrician (Maintenance)	320-6-326-8-390-10-400	3.00 *	7.50	7.60	7.70	7.80	33.60
		52.40	1,36.95	1,55.20	1,59.20	1,61.70	6,65.45

* Appointments expected in the second half.

ANNEXURE III.17 : MANPOWER REQUIREMENTS (ADMINISTRATION & AUXILIARY SERVICES)

(NOTE : Salaries include basic pay, admissible allowances, P.F. Contribution & leave salary according to the 3rd Pay Commission Award.)

Job Description	Suggested Grade	Salaries (Rs. in Thousands)					TOTAL
		5th Plan Period		6th Plan Period			
		4th year	5th year	1st year	2nd year	3rd year	
1. Administrative Officer	700-40-900-EB-40-1100-50-1300	14.30	16.70	17.20	17.70	18.20	84.10
2. Accountant	650-30-740-35-880-EB-40-960	13.50	15.50	15.90	16.30	16.70	77.90
3. Assistant Accountant	425-15-500-EB-15-560-20-640-EB-20-700	4.50 *	10.50	10.70	10.90	11.10	47.70
4. Administrative Assistant	330-10-380-12-500-EB-15-560	-	6.75	7.75	7.85	7.95	30.30
5. Stores Keeper	"	6.75	7.75	7.85	7.95	8.05	38.35
6. Steno-typist No. 1	"	6.75	7.75	7.85	7.95	8.05	38.35
7. Steno-typist No. 2	"	6.75	7.75	7.85	7.95	8.05	38.35
8. Steno-typist No. 3	"	-	6.75	7.75	7.85	7.95	30.30
9. Librarian	425-15-500-EB-15-560-20-640-EB-20-700	4.50 *	10.50	10.70	10.90	11.10	47.70
10. Library Attendent	260-6-326-EB-8-350	-	6.00	6.70	6.80	6.90	26.40

Contd.....

ANNEXURE III.17 : Contd.

1	2	3	4	5	6	7	8
11. Driver	260-6-326-EB-8-350	-	6.00	6.70	6.80	6.90	26.40
12. Attendent cum Watchman No. 1	196-3-220-EB-3-232	2.20 *	5.00	5.05	5.10	5.15	22.50
13. Attendent cum Watchman No. 2	"	2.20 *	5.00	5.05	5.10	5.15	22.50
14. Attendent cum Watchman No. 3	"	2.20	5.00	5.05	5.10	5.15	22.50
15. Attendent cum Watchman No. 4	"	2.20	5.00	5.05	5.10	5.15	22.50
16. Sweeper No. 1	"	4.50	5.00	5.05	5.10	5.15	24.80
17. Sweeper No. 2	"	-	4.50	5.00	5.05	5.10	19.65
		70.35	1,31.45	1,37.20	1,39.50	1,41.80	6,20.30

* Appointment expected in the second half.

ANNEXURE III.18

REFERENCE MATERIAL FOR THE LIBRARY

<u>Sr. No.</u>	<u>Title</u>	<u>Price \$</u>
1.	Laboratory Manual of Agricultural Chemistry by Sankaram A.	5.50
2.	Instrumentation in Agriculture by Cox., S.W. & Filby, D.E.	7.95
3.	Advances in Biomedical Engineering and Medical Physics (4 vols.) by Levine, S Nose Y.	82.75
4.	Biomedical Instrumentation By Weiss, Marris D.	15.00
5.	Chemical Process Principles (3 pts.) by Hougen	48.00
6.	Applied Instrumentation in the Chemical Processing Industry, by Andrew	24.95
7.	Corrosion and Protection of Materials Used in Industrial Equipment	25.00
8.	Safety & Accident Prevention in Chemical Operations by Fowcett & Wood	32.50
9.	Pollution Control in the Organic Chemical Industry by Sittz	36.00
10.	Maintenance Supervisors' Handbook by Evans	18.50
11.	Chemical Process Control : Theory & Application by Gould	16.95
12.	Handbook of Laboratory Unit - Preparations by Pinkava	42.50
13.	Handbook of Thermionic Properties : Electronic Work Functions & Richardson Constants of Elements & Compounds by Pomento & Samsonov	22.50
14.	Ultrapurity : Methods & Techniques by Zef & Speights	47.00
15.	Techniques of Chemistry (6 vols.) by Weissberger	650.00

16.	Advances in Analytical Chemistry and Instrumentation (8 vols.)	164.20
17.	Entertaining & Educational Chemical Demonstrations	4.95
18.	Techniques of Organic Chemistry (14 vols.) by Weissberger	355.50
19.	Electrical Engineering Materials by Dekker	14.95
20.	Magnetic Materials in the Electrical Industry by Bardell	12.00
21.	Advances in Electrochemistry & Electrochemical Engineering (8 vols.) by Delahay and Tobias	169.00
22.	Handbook of Electron Beam Welding by Bakish & White	29.50
23.	Processes for Air Pollution Control by Nonhebel	37.50
24.	Handbook of Geochemistry (2 vols.) by Wedepohl	176.20
25.	Principles of Geology (3 vols.) By Lyell	91.00
26.	Advances in Geophysics by Landsberg	399.00
27.	Ion Exchange Resin by Placek	35.00
28.	Research Techniques for High Pressure & High Temperature by Ulmar	10.00
29.	Handbook of Techniques in High Pressure Research & Engineering by Tsiklis	35.00
30.	India's Foreign Trade	16.50
31.	Benefits & Costs of Import Substitution in India by Krueger	12.50
32.	A dictionary of Economic Products of India by Watt	450.00

33.	Wealth of India : Industrial Products CSIR	37.50
34.	Estimators Handbook: Tool, Disc, Industrial, Engineering & Manufacturing Costs by Gobis	24.00
35.	Handbook of Thermophysical properties of High Temperature Solid Materials (6 vols.) by Purdue University Thermophysical Properties Research Centres	250.00
36.	Insulating Materials for Design & Engineering Practice by Clark	50.00
37.	A User Handbook of Integrated Circuits by Hnatch	27.50
38.	Laser Parameter Measurements Handbook by Heard	21.00
39.	CRG Handbook of Lasers by Pressley	29.50
40.	International Handbook of Liquid Crystal Displays by Omiscience Ltd., & Tobias, Martin	75.00
41.	Introduction to Magnetic Materials (8 vols.)	80.00
42.	Magnetism-A Treatise on Modern Theory & Materials by Rado & Suhl	149.00
43.	Materials Handbook by Brady	24.00
44.	Encyclopaedia of Engineering Materials & Processes by Clauser	32.00
45.	Growth and Characterisation of Electronic Materials (2 Vols.) by Haide Menakis	52.00
46.	Modern Materials : Advances in Development & Applications (7 vols.) by Hausner	161.50
47.	Engineering Materials Handbook by Montell	37.50
48.	Chemical Materials for Construction by Marlano	32.50
49.	Materials Specifications by ASME	94.00

ANNEXURE III.17 : Contd.

1	2	3	4	5	6	7	8	
11. Driver	260-6-326-EB-8-350	-	6.00	6.70	6.80	6.90	26.40	
12. Attendent cum Watchman No. 1	196-3-220-EB-3-232	2.20 *	5.00	5.05	5.10	5.15	22.50	
13. Attendent cum Watchman No. 2	"	2.20 *	5.00	5.05	5.10	5.15	22.50	
14. Attendent cum Watchman No. 3	"	2.20	5.00	5.05	5.10	5.15	22.50	
15. Attendent cum Watchman No. 4	"	2.20	5.00	5.05	5.10	5.15	22.50	
16. Sweeper No. 1	"	4.50	5.00	5.05	5.10	5.15	24.80	
17. Sweeper No. 2	"	-	4.50	5.00	5.05	5.10	19.65	
			70.35	1, 31.45	1, 37.20	1, 39.50	1, 41.80	6, 20.30

* Appointment expected in the second half.

50.	Instrument Engineers Handbook (2 vols.) by Liptak	75.00
51.	Instrumentation in the Processing Industries by Liptak	35.00
52.	Mechanical Engineers' Handbook by Kent	45.00
53.	Ingenious Mechanisms for Designers & Inventions by Jones	44.00
54.	Rare Metal Handbook by Hampel	31.50
55.	Methods of Microbiology (8 vols.) by Norris	283.50
56.	Methods of Microanalysis (6 vols.) by Kuck	250.00
57.	Handbook of Electronic Materials by Milek	12.50
58.	Handbook of Noise Control by Harris	29.50
59.	Physics of Non-destructive Testing (3 vols.) by McConnagle	118.25
60.	Non-destructive Testing Handbook (2 vols.) by Mc Master	30.00
61.	Applied Optics & Optical Engineering - A Comprehensive Treatise (5 vols.)	102.50
62.	CRC Handbook of Tables of Functions for Applied Optics by Levi	59.95
63.	High Temperature Oxides 9 (5 vols.) by Alper	105.00
64.	Equipment Design Handbook for Refineries & Chemical Plants	23.95

ANNEXURE III.19

PERIODICALS

<u>Sr. No.</u>	<u>Title</u>	<u>Price \$</u>
1.	Bioresearch Today : Bioengineering & Instru- mentation : Environmental Pollution : Food Additives & Residues : Industrial Health & Toxicology	25.00 25.00 25.00 25.00
2.	Medical Electronics & Communications Abstracts	£ 17.50
3.	R & D Abstracts Journal	£ 12.00
4.	Agricultural Engineering	12.00
5.	Glass Technology	£ 13.75
6.	Instrumentation Index	20.00
7.	Current papers in Electrical & Electronics Engg.	28.00
8.	Directory of Published Proceedings series SEMT- Science, Engineering, Medicine & Technology	75.00
9.	Biomedical Engineering	18.00
10.	Innovation World	6.00
11.	CGCRI Bulletin	Rs. 12.00
12.	Chemical Instrumentation	37.50
13.	Computer	30.00
14.	Computer Aided Design	£ 12.00
15.	Computer & Information Systems	150.00
16.	Computer Design	18.00
17.	Computer Digest	36.00
18.	Computer Programmes in Sciences & Technology	95.00
19.	Computer Society of India Journal	Rs. 10.00
20.	Computer in Biology & Medicine	35.00

21.	International Journal of Control	£	53.00
22.	Science Teaching Equipment	£	3.00
23.	Circuits Manufacturing		15.00
24.	Electromechanical Design		15.00
25.	Electronic Application News	Rs.	20.00
26.	Electronic Components	£	10.00
27.	Electronic Engineering	£	10.00
28.	Electronics		8.00
29.	Electronics Letters	£	27.50
30.	IEEE Transactions		600.00
31.	Institution of Engineers (India) Journal : Electronics & Telecommunication Engg. Division	Rs.	15.00
32.	Institution of Engineers (India) Journal : Electrical Engineering Division	Rs.	15.00
33.	Composites	£	12.00
34.	Current Engineering Practice	Rs.	40.00
35.	Institution of Engineers (India) Bulletin	Rs	30.00
36.	Materials Digest		22.00
37.	International Journal of Machine Tool Design & Research		45.00
38.	Machine & Tool Blue Book		20.00
39.	Production Equipment		5.00
40.	Biomedical Electronics		60.00
41.	Biomedical Engineering	£	7.50
42.	Alloy Digest		20.00
43.	Anticorrosion Methods & Materials	£	4.00
44.	Metals & Materials	£	11.00

45.	Modern Applications News for Design & Manufacturing		10.00	
46.	Wire & Wire Products		8.00	
47.	Welding & Metal Fabrication	£	8.00	
48.	International Mining Equipment	£	2.50	
49.	Invention Intelligence	Rs.	10.00	
50.	Ultrasonics	£	10.00	
51.	Optics & Laser Technology	£	12.00	
52.	Industrial Research		14.00	
53.	Science & Technology		15.00	
54.	Design News		20.00	
55.	Industrial Design		12.00	
56.	Materials Engineering	£	18.00	
57.	New Equipment News		5.00	
58.	Quality		14.00	
59.	Textile Equipment		5.00	
60.	Audio & Video News	£	4.00	
<u>Total :</u>		\$	1,591.50	£ 217.75 Rs.152.00

IAVP/mds/20.12.'76

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

226

Meeting:
Date : 31st January, 1977
Place : UGC Office

Item No. 27 : To receive a note regarding assessment of work of Junior Research Fellows for the purpose of enhancing the value of fellowship from Rs.400/- to Rs.500/- per month.

Junior Research Fellowship is tenable for a period of four years of which first two years is to be paid at the rate of Rs.400/- per month and at the end of two years period the work of the Research Scholars is to be assessed in accordance with the procedure recommended by the Committee and accepted by the Commission at its meeting held on 2nd June, 1975 (Item No.13). As per the procedure recommended by the Committee the progress report alongwith confidential assessment by the Supervisor of Junior Research Fellow and the Head of the Department are to be referred to the concerned subject panels of the Commission to recommend (a) whether in the light of the work already done by the candidate he may be given the increased amount of the fellowship at Rs.500/- or (b) may be allowed to continue on the existing basis (Rs.400/- per month) for another year when his progress report would again be evaluated by the panel or (c) the fellowship may be discontinued because of the unsatisfactory report. A junior research fellow who has completed M.Phil in the course of his two years of Junior Research Fellowship and has obtained M.Phil and has been registered for Ph.D. will be eligible automatically to enhanced value of Rs.500/- per month without being subjected to any further evaluation. The increased value of the fellowship from Rs.400/- to Rs.500/- per month would be effective from 1st of July, 1975.

In pursuance of the above decision of the Commission, comprehensive report of 343 Research Scholars (280 in Science and 63 in Humanities including Social Sciences) were referred to various subject panels. The panels recommended increased value in respect of 255 (200 in Science and 55 in Humanities and Social Sciences) and suggested continuation with the existing value in case of 9 research/(2 in Science, 7 in Humanities including Social Sciences). The panel also suggested that further progress reports may be obtained in respect of one scholar for reassessment. The panel did not recommend discontinuation of the fellowship in respect of any scholars. The detailed information is given in Annexure-I*and II.②

The matter is placed before the Commission.

J.S.(II)/A.S.(R.F.)

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

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MEETING:

Dated: January 31, 1977

229

Item No.28: To consider the recommendations of the Committee appointed by the U.G.C. to consider a proposal to declare Manipal Educational Complex as a deemed to be University under Section 3 of the UGC Act.

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The University Grants Commission at its meeting held on 29th September, 1975 (Item No.37) considered the recommendations of its Standing Committee on a proposal of the Mysore University forwarded by the Government of India in the Ministry of Education and Social Welfare for granting deemed to be university status under Section 3 of the UGC Act to the Manipal Educational Complex comprising its professional colleges and agreed "that there was a prima-facie case for consideration of this proposal for conferring deemed to be university status under the UGC Act". It was also agreed that the UGC should appoint a Committee to examine the proposal in detail and make recommendations either with regard to granting deemed university status to the Manipal Educational Complex of university status to the Manipal Educational Complex of university level institutions or granting autonomous status to some of these institutions under the Mysore University.

Accordingly, the Committee constituted by the Commission which included Dr. Malcolm S. Adiseshiah, Vice-Chancellor, Madras University, Dr. P.P. Gool, Director General of the Health Services, Professor M.R.N. Prasad, Delhi University and Secretary, University Grants Commission visited the various institutions run by the Manipal Academy during September, 1976 held discussions with students, teachers and authorities of the Academy and also with the Vice-Chancellor of the Mysore University. A copy of the report is attached (Annexure)*

234

Recommendations/Important observations in the report

(1) The Committee was impressed by the facilities provided in these institutions and by the variety of activities and programmes organised by them with such facilities. The Committee also noted the views of the Medical Council of India and the assessment made in June 1975 by an Expert Committee appointed by the Mysore University in respect of the Manipal Educational Complex of the Academy (para 10 & 11 of Report).

p.t.o.

The Committee has highlighted the distinctive features of the Medical College, its teaching hospital, its Dental College and the College of Pharmacy and the Manipal Institute of Technology and the efforts made by these institutions to relate their programmes to the needs of the region with significant and positive community orientation and dominant rural bias. The instructional programmes and services offered by these institutions have integrated intensive field work with clinical/workshop activities of the students and a number of innovations in the studies and methods of teaching have also been introduced by them. These institutions have also demonstrated their capacity to design and develop new courses on the basis of experience actually gained in participating in the running of the hospital and production units as also teaching related subjects and undertaking research in relevant areas.

(2) The Committee has observed that these institutions have been provided with adequate facilities and competent academic staff and are engaged in teaching and research in selected fields, have maintained high standards and are making a distinct contribution to university system with their rural Orientation and application-bias in all programmes. The Committee has, therefore, recommended that deemed university status be accorded to the professional colleges of the Manipal Academy in terms of the guidelines laid down by the UGC as the granting of such a status to these institutions would further enrich the university system. The Committee has also stated that these institutions are managed by separate trusts or Governing Bodies and have a management capable of contributing to the university ideals and traditions.

The Committee has observed that a university status to these institutions would give them the required authority and freedom to have a clearly formulated policy to chalk out and implement programmes related and relevant to contemporary needs that would reflect the application of the most relevant principles of educational science.

The Committee has also stated that these institutions have already demonstrated their capacity to bring about changes and enrich the university system and they would not be in a position to bring about changes and innovations if they are given only autonomous status within the framework of the Mysore University Act even if the present Act were to be amended by incorporating a provision to grant autonomous status to any such institution affiliated to it.

The Committee has further recommended that on attaining university status, the Manipal Academy should accord priority for development of Postgraduate studies in selected areas in Engineering and Technology and Basic Sciences. It would also be necessary for the university to start Postgraduate departments in Humanities and Social Sciences as imparting

correct social vision is an essential part of true education. While graduates in Engineering, medicine and other professional courses acquire specialised information and technical skill they need the insights of behavioural sciences as they are dealing with men as workers or patients and should also be inspired by high social aims as no groups can pursue their private ends without regard to the social consequences of their activities. The Committee has also recommended that at an appropriate stage the question of merging institutions like M.G.M. College, and College of Education etc., with the deemed university be also considered.

(3) The Committee has recommended that on attaining a university status the separate trust, or the governing body of the institutions constituting the university should give up their link with the Academy and form an independent body registered under the Indian Societies Registration Act before it starts functioning as a deemed to be university and all the assets in the form of buildings, equipments, books, landed property, cash deposits, shares etc., belonging to these institutions constituting the deemed to be university, should be declared and handed over to the new society thereby ensuring the continuance of the existing level of funding to the deemed university. It has been estimated that apart from nearly 380 acres of land, the assets in the form of buildings, books and equipment costing nearly Rs.5.5 crores would be required to be handed over to the new Society.

(4) The Committee has also recommended that the deemed university should have Senate, Executive Committee, Academic Council, Finance Committee, Faculties and Planning Board as its authorities and have also made recommendations regarding the powers, functions and composition of these bodies. The Committee has recommended that the Chancellor of the deemed university shall be appointed by the Government of India and the Vice-Chancellor who shall be a whole time officer will be appointed by the Chancellor from a panel of three names recommended by a Committee consisting of three members of which one shall be nominated by the Senate, one by the Chancellor and the third by the Government of India, and the Vice-Chancellor shall be appointed with the approval of the Government of India. The Committee has also recommended that the first Vice-Chancellor shall be appointed by the Government of India for a period of three years.

(5) The Committee has noted that the institutions of the Manipal Academy were started in 1953 as a comparative venture on the principle that the parents pay the cost of education of their children and has therefore been collecting capitation fee for providing admissions to various professional courses in accordance with the details prescribed by the Karnataka State Government. These institutions are not receiving any grant at present either from the State Government or the Central Government. The Committee has recommended that the institutions constituting the deemed university be advised to do away with the practice of collecting capitation fee from the academic year 1977-78. The Committee has further observed that the authorities of the Academy have been meeting their deficit as

well as the requirements of development and improvement of its institutions from the capitation fees and the Government of India will be required to meet such deficits with the abolition of collection of capitation fees. It would be necessary for the institutions to follow an All India pattern of admissions' policy pursued by the Delhi University or the All India Institute of Medical Sciences.

The pattern of enrolment allocating clearly the number of seats to be reserved for Scheduled Castes and Scheduled Tribes and students from overseas should be notified in advance and selection made on merits. The institutions may, however, be permitted to honour its present commitments, as based on a contingent contract, capitation fees have been collected in advance from pre-medical students securing a minimum of 60% marks for admission in 1976-77 or 1977-78. The Institute would be required to give the details of such commitments and no further commitments should be made with regard to future admissions.

The number of students to be admitted from other countries every year may not exceed 40% of the intake capacity and the Government may also consider the desirability of permitting the institute to charge higher tuition fee with provision of a number of scholarships and free-ships to be awarded to students who are poor and deserving.

It will also be necessary for the UGC to appoint an expert committee to visit the Manipal Institute of Engineering and to make recommendations regarding the new postgraduate course to be started by it in line with the guidelines suggested by All India Council for Technical Education.

(6) Income and Expenditure of the Institutions constituting deemed to be university.

The Committee took note of the present level of income and expenditure of the Medical College, its teaching hospitals, the Dental College, The College of Pharmacy and the Manipal Institute of Technology and has noted that these institutions and their development and maintenance requirements are at present met from the annual income from fees and services rendered and regular annual collection made by way of capitation fees. As and when these institutions are admitted to, financial assistance from the Central Government, the immediate liability of the Government of India will be in relation to increase of salary bill of the staff and the deficit that will follow from dispensing with the collection of capitation fee. In this connection an analysis of the income and expenditure for the last five years was made by the Committee and it was observed that in the case of the income and expenditure (both development and maintenance) of the Medical College, Dental College and College of Pharmacy, the management has been able to make up the deficit from capitation fee and other donations received.

The average annual capitation fee works to more than Rs.22 lakhs per annum at present though including donations and other receipts a sum of Rs.47.7 lakhs was collected from this source in 1975-76. The Medical Relief Society of South Canara was looking after the maintenance of the hospital till 1975. From 1975-76, the Academy is meeting this expenditure also. A big construction programme for the new block to the hospital and medical college is at present being undertaken and will be completed before March 1977. A sum of nearly Rs.55 lakhs was spent in 1975-76 by the management on this construction work. From the hospital accounts the committee observed that in 1974-75 on services alone, the hospital had an income of Rs.16.4 lakhs and by sales of medicines at medical stores including hospital consumption there was an income of nearly Rs.12.14 lakhs. However, the hospital had also an annual deficit of Rs.12.5 lakhs.

As regards the Manipal Institute of Technology which has a separate budget, the annual income comes to over Rs.25.7 lakhs including Rs.7.8 lakhs by way of capitation fee and income from services. The expenditure, on both development and maintenance comes to a little more than Rs.22.6 lakhs and as such there is no deficit for the present level of activities of the Institute of Technology. However, on starting Post-graduate courses, it will be necessary to find finances for development purposes.

The Committee has also recommended that the deemed university should be admitted to the same pattern of financial assistance for development and maintenance by the UGC as in the case of Indian Institute of Science, Bangalore and the fixation of pay of the existing staff members teaching and non-teaching would have to be on the present scale of pay as applicable to either the Indian Institute of Science, Bangalore or the Medical College of Banaras Hindū University.

The Director-General Health **S**ervices, Govt. of India, could not joint the Committee. He had, however, visited the Medical College earlier and has agreed to send a note indicating his views in the matter. A copy of his note will be circulated separately as soon as received.

The matter is placed before the Commission for its consideration.

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

Meeting :

Dated : 31st January, 1977.

ADDENDA TO ITEM NO. 28

Item No. 28 : To consider the recommendations of the Committee appointed by the University Grants Commission to consider a proposal to declare Manipal Educational Complex as a deemed to be University under Section 3 of the University Grants Commission Act.

A reference is invited to penultimate para of agenda note Item No. 28 page 233.

The Director General of Health Services has since informed as below :-

"I have gone through the report of the Committee appointed by the University Grants Commission and I generally agree with the report. You are aware of the circumstances due to which I could not accompany the Committee.

However, Kasturba Medical College, Manipal/ Mangalore has been recognised by the Medical Council of India as a single medical complex for admitting 150 medical students and this aspect may be kept in mind."

The matter is placed before the Commission as indicated therein.

SLK

C O N T E N T

	<u>P a g e</u>
1. Main Report ...	1 - 23
2. Appendix-I - Detailed Report on Kasturba Medical College and Hospital ...	24 - 79
3. Appendix-II - Detailed Report on Manipal Institute of Technology. ...	80 -103
4. Appendix-III - Detailed Report on College of Pharmacy. ...	104 - 110
5. Appendix-IV - Detailed Report on College of Dental Surgery. ...	111 - 117
6. Appendix-V - Detailed Report on M.G.M. College, Udipi. ...	118 - 121
7. Appendix-VI - Detailed Report on Manipal College of Education, Udipi. ...	122 - 127
8. Appendix-VII - Detailed Report on Udipi Law College. ...	128 - 130
9. Appendix-VIII - Scales of pay of teaching staff of Manipal Educational Complex. ...	131 - 133
10. Appendix-IX - List of non-teaching staff in professional colleges of Manipal. ...	134 - 136
11. Appendix-X - Objectives of the Deemed to be university proposed by the Academy. ...	137 - 138
12. Appendix-XI - Proposed future Plan of the new university. ...	139 - 140
13. Appendix-XII - Trustees and Trust Deed of Kasturba Medical College, Dental College and College of Pharmacy. ...	141 - 144
14. Appendix-XIII - Trustees and Trust Deed of Manipal Institute of Technology. ...	145 - 147
15. Appendix-XIV - Trustees and Trust Deed of M.G.M. College. ...	148 - 149
16. Appendix-XV - Trustees and Trust Deed of Law College ...	150 - 152
17. Appendix-XVI - Trustees of Manipal College of Education. ...	153

(ii)

C O N T E N T S

		<u>P a g e</u>
1. Annexure-I	Report of the expert committee of Mysore University which assessed the Kasturba Medical College in June 1965.	25-43
2. Annexure-II	Report of other facilities in the Kasturba Medical College not covered in the Expert Committee's report.	44-79
3. Annexure-III	Floor area of Manipal Institute of Technology.	95
4. Annexure-IV	Teaching staff of Manipal Institute of Technology with qualifications.	96-99
5. Annexure-V	List of periodicals subscribed by the Institute of Technology.	100-103
6. Annexure-VI	Names and qualifications of staff members of College of Pharmacy.	110
7. Annexure-VII	Names and qualifications of staff members of College of Dental Surgery.	115-116
8. Annexure-VIII	Details of service rendered by Dental College.	117
9. Annexure-IX	Details of names and qualifications of staff members of M.G.M. College.	125-126
10. Annexure-X	Details of names and qualifications of staff members of Manipal College of Education.	127
11. Annexure-XI	Details of names and qualifications of staff members of Udupi Law College.	130

(iii)

C O N T E N T S

(TABLES)

P a g e

1.	Table-I	Statawise students enrolment ... in Kasturba Medical College	49-50
2.	Table-II	Staff position with qualifi- ... cations in the Kasturba Medical College.	51-55
3.	Table-III	Courses of study in the Medical.. College.	56
4.	Table-IV	Examination results of the ... Medical College.	57-58
5.	Table-V	Current research work in the ... Medical College.	59-61
6.	Table-VI	List of journals of the Medical.. College.	62-65
7.	Table-VIa.	Subjectwise number of books in... the Medical College.	67
8.	Table-VII	List of Out-patient visits 1971-75	68
9.	Table-VIII	List of In-patient visits 1971-75 of Medical College.	69-70
10.	Table-IX	Bed cost per patient per annum... in the Hospital.	71
11.	Table-X	Yearly income and expenditure of Kasturba Hospital for the year ending 31.12.1974.	72-73
12.	Table-XI	Yearly income and expenditure of Kasturba Medical College, Dental College and College of Pharmacy during 1971-76.	74
13.	Table-XII	Yearly excess of expenditure over income, Manipal Institute of Technology during 1970-75.	75-76
14.	Table-XIII	Comprehensive Medical and Dental Health care in the Kasturba Medical Hospital.	77-78
15.	Table-XIV	Departmentwise beds available at the Medical College Hospital and vehicles available.	79

Report of the Committee appointed by the UGC to consider a proposal to declare Manipal Educational Complex as a deemed to be University under Section 3 of the UGC Act.

The Government of India, in the Ministry of Education and Social Welfare had referred to the UGC in July, 1975 for its consideration a proposal of the Mysore University for granting 'deemed to be university' status under Section 3 of the UGC Act to the professional colleges of the Academy of General Education at Manipal. The Mysore University, while forwarding the proposal to the Government had also indicated that it had no objection for granting 'deemed to be university' to the "Manipal Educational Complex comprising of professional colleges".

2. The Academy of General Education in its modified proposal, however, had sought 'deemed to be university' status to the following seven institutions of higher education run by them.

1. Mahatma Gandhi Memorial College (1949).
2. Kasturba Medical College (1953).
3. Manipal Institute of Technology (1957).
4. Udipi Law College (1957).
5. Manipal College of Education (1965).
6. Dental College (1965).
7. College of Pharmacy. (1965).

The University Grants Commission referred this proposal for advice to its Standing Committee on New Universities and University Centres at its meeting held on 6th August, 1975.

3. The Standing Committee felt that there was a prima-facie case for consideration of this proposal for conferring "deemed to be university status" under the UGC Act. The Committee, therefore, suggested that the University Grants Commission may appoint a Committee to examine the proposal in detail and make recommendations either with regard to (a) granting deemed to be university status to the Manipal Academy Complex of university level institutions or (b) granting autonomous status to some of these institutions under the Mysore University.

4. The University Grants Commission considered the recommendations of the Standing Committee at its meeting held on 29th September, 1975 and accepted the above recommendation. The following Committee was accordingly

constituted to examine the proposal and make recommendations regarding the Academy of General Education:-

1. Dr. Malcolm S. Adisheshaiah,
Vice-Chancellor,
Madras University,
Madras.
2. Professor M.V. Mathur,
Director,
National Staff College for Educational
Planners & Administrators,
New Delhi.
3. Dr. P.P. Goel,
Director-General,
Health Services,
Ministry of Health & Family Planning,
New Delhi.
4. Professor Y.B. Damle,
Department of Sociology,
Poona University,
Poona.
5. Professor M.R.N. Prasad,
Professor of Zoology,
Delhi University,
Delhi.
6. Shri R.K. Chhabra,
Secretary,
University Grants Commission,
New Delhi.

5. The Committee visited Manipal on 12-14th September, 1976 (Professor MV Mathur and Professor Y.B. Damle could not join the Committee due to indisposition). The Director-General, Health Services could not also join but he had just visited Manipal three weeks earlier, in connection with the visit of Medical Council of India. Shri M.P. Balakrishnan of the UGC also accompanied the Committee to Manipal.

6. The Committee visited the seven institutions run by the Academy as indicated above, held discussions with students, teachers, authorities of the Academy including trustees of these institutions and also with the Vice-Chancellor of Mysore University.

7. The Committee was greatly impressed by the tremendous intellectual and spiritual efforts put in by the authorities of the Academy of General Education under

the presidency of Dr. T.M.A. Pai in building up the Manipal Educational Complex in a rural area and the great progress accomplished by it so far.

8. 1. Kasturba Medical College & Hospital:
(including the Dental College and the College of Pharmacy).

Among the institutions run by the Academy, the Kasturba Medical College together with its teaching hospital, the Dental College and the College of Pharmacy stand out as its outstanding institution, which the Committee is happy to note, has been rated by Experts as one of the finest institutions of the kind functioning in the country today. Started in 1953, as a cooperative venture, on the principle that parents pay the cost of education of their children, this institution has already grown into a full-fledged centre for medical education and health services in the country.

9. Courses of Studies:

The Committee noted that till 1965 the various undergraduate and postgraduate degree as well as diploma courses in medicine, dentistry and pharmacy alongwith a number of paramedical courses were organised in the Kasturba Medical College itself and thereafter courses in dentistry & College of Pharmacy were taken over by the College of Dentistry and Pharmacy started by the Academy in the same campus each under a separate Director but within the overall supervision of the Dean of the Medical College thereby paving the way for the distinctive academic growth of each of the three areas ensuring at the same time the needed interaction and collaboration among themselves.

At present, the MBBs, Postgraduate degree and diploma courses in various specialities of Medicine, postgraduate degree courses in non-medical subjects and para-medical courses are organised in the medical college. The B.D.S., M.D.S., and Ph.D. courses in dentistry are organised in the Dental College and D. Pharm., S. Pharm and M. Pharm courses in the College of Pharmacy. In addition, research facilities for Ph.D. in Bio-Chemistry and Microbiology are also available in the medical college (Appendix-I).

10. Facilities and Standards:

The Committee was impressed by the facilities provided in these institutions and by the variety of activities and programmes organised by the college and hospital with such facilities. It has been possible for the college to fulfil all the terms and conditions prescribed by the Medical Council of India for the various courses of study run by it and due recognition has also been accorded to it

not only by the Medical Council of India but also by the General Medical Council of U.K. The President of the Medical Council of India after his visit to this institution has recorded that all its departments are fully and adequately equipped and staffed and it shall be the pride and honour of this district (South Kanara) and of the whole country".

11. The Committee had also the benefit of the assessment made by the level of functioning of these institutions in June, 1975 by an Expert Committee appointed by the Mysore University.

This Committee has reported that "This college and hospital at Manipal is one of the finest institutions in the country and it is well organised and well designed and planned and provides every facility for patient care, teaching and research in all specialities. The manifest enthusiasm and vigour of the staff and management which have enabled them to work as a single team has contributed to the increase of patient attendance and enhanced the annual admission intake of medical students. The College & Hospital have abundant physical and equipment facilities and the management does not stint or spare pains in providing the best for the students' teaching purposes and patient care. All the departments are well organised, adequately staffed and fully equipped. The library is very well organised with 17208 books and 240 journals regularly subscribed and is one of the very few well maintained libraries of medical colleges in the country, getting all the relevant and up-to-date literature from all available parts of the world for the use of students and teachers.

Among the facilities provided are the Anatomy Museum which is one of the best of its kind in the country which has one of the finest collections of anatomical prosections even according to Experts from abroad. An atmosphere to learn by doing has been meticulously developed in all departments e.g. the facilities for dissection and maintenance of dissection hall are of an exemplary nature. The experimental laboratory of the Department of Pharmacology trains students individually to carry out experiments in Pharmacology. An air-conditioned instruments rooms is functioning for pooling various instruments to be used by students with a Research Laboratory in close proximity. The clinical biochemistry section provides 24 hours service to the hospital and carries out all types of investigations including those required by the Department of Psychiatry.

The Medical College hospital with 700 beds besides being a well-equipped teaching hospital to provide clinical training to the students is also providing medical relief to the public and serving as a consultation

centre in various specialities. It offers the most modern treatment facilities in all the fields of medicine, surgery, obstetrics and Gynaecology. It has a cobalt Therapy Unit, Renal Dialysis Unit and a good blood bank as well as corneal bank. It also runs 7 maternity and child welfare centres. The hospital has organised a diagnostic centre to which any medical practitioner can refer his patient and get the benefit of all the necessary examination and consultation, as it is not within the means of an average practitioner to have the facilities for various kinds of diagnosis. The out-patients services are well organised and cater to a daily attendance of 450 patients including 100 new cases. The medical out-patient services are brought to the notice of the neighbouring rural folk by social workers of the hospital thus increasing the number of patients. The lecture-demonstrations, didactic lectures, and clinical instructions in the wards and laboratories are done to small groups and are found to be very effective.

12. The Committee noted that the facilities provided over a period of 2 decades in these institutions which are located in a rural area have helped them to reach the level of excellence in their instructional programmes as well as programmes of health services.

13. Faculty:

Apart from providing facilities in terms of accommodation, books and journals and equipment, these institutions have also been able to build up a very good team of competent, qualified, experienced and devoted teachers. The authorities believe that good teaching and education can be done only in an atmosphere of research and have given all possible encouragement to the furtherance of research. Many of the staff members are thus actively engaged in research, on problems and projects which are relevant and related to the contemporary needs.

The teachers and students are frequently engaged in trying different methods of teaching and learning. Workshops are regularly conducted to train the teachers on new methods and techniques of teaching, on the use of audio visual aids, psychology of teaching and evaluation. The medical college has introduced 'The Prosetor System' under which selected students are engaged to teach junior students wherever feasible on the basis of the principle that a person learn best when he teaches. All the postgraduate students are involved in teaching the undergraduates. In view of the quality and competence of the teachers and their rich research experience, the college is in a position to introduce innovations in teaching methods and in modernising courses. Even within the University system, a number of reforms like semester system, internal assessment, enrichment

and modernisation of courses etc. have already been introduced in these institutions (Details in Appendix-I).

14. Enrolment Policy:

The medical college and the dental college admit a large number of overseas students who are mostly children of Indians settled abroad. In the year 1975-76 out of 506 students enrolled for MBBS course as many as 217 were from abroad. In the courses in dentistry out of a student enrolment of 246 nearly 2/3rd of them came from abroad particularly from Malaysia.

Medical seats are allotted to 3 categories of students viz. (1) Karnataka students; (2) from States of India other than Karnataka and (3) foreign students, Selection of Karnataka students is based on merit as determined by their performance at 2 years' Pre-University course conducted by Karnataka PUC Board or any other equivalent examination. Candidates from other Indian States are selected on the basis of merit as determined by a competitive written test and interview held annually in the month of June.

Foreign students are given commitment of seats provided they have passed G.C.E.(A) level examination with Minimum 'B' grades in Physics, Chemistry and Biology. In the case of American and Canadian students, the minimum prescribed qualification is a Bachelor's degree with an average grade points of 3.0 in all the courses in Physics, Chemistry and Biology taken by them at degree level. In the event of a foreign student not satisfying the above conditions he will be allowed to take up qualifying examinations in India and a seat is guaranteed to him on condition of his obtaining a minimum of 60% marks in the first attempt (65% in the second attempt) in Physics, Chemistry and Biology at the said examination. In the case of all students who seek admission on qualifications acquired in India the minimum percentage required in Physics, Chemistry and Biology is 60% in the first attempt and 65% in the second attempt. No student who has taken more than two attempts to pass the qualifying examination is considered for admission to the medical course. The same qualifications are applicable for admission to the dental course.

For pharmacy course candidates are admitted if they satisfy the conditions laid down by the Pharmacy Council of India and the University of Mysore. Preference is also given to those students who have passed the qualifying examination in the first attempt with more than 60% marks in the science subjects.

15. The Committee noted that the college was admitting students on the basis of contributions made by the

parents in the form of capitation fees in terms of the instructions issued by the Government of Karnataka in their letter No.HMA41 MME 75 dated 25.6.1976:

- (1) The seats reserved for members of the society (10% of the total seats) in each of the private medical colleges shall be deducted out of the total number of seats available after providing for PPC students seeking admission during this year and after reserving 50% of the balance of seats for students to be admitted on payment of a minimum capitation fee of Rs.35,000/-.
- (2) The 50% of the balance seats is to be given on payment of a minimum capitation fee of Rs.35,000/- and will be open to both students from other States and students from Karnataka who might be willing to take advantage of this.
- (3) The selection of candidates for each category in respect of reserved seats for Karnataka students shall be made purely on the basis of merit.
- (4) The selection of students should be made by the Governing Body subject to the conditions that the Additional Director of Health & Family Planning, Government of Karnataka who is the Chairman of Selection Committee for Government Medical Colleges and who is a member of the Governing Board is present at the meetings when selections are made.
- (5) In the quota for Karnataka students the percentage for Scheduled Castes/Tribes/Backward Classes/Socially & educationally backward class be observed. The Karnataka Government is also committed to reimburse the capitation fee collected from candidates belonging to Scheduled Castes and Tribes. The percentage of minimum marks for their admission is 45% as laid down by the State Government.

The Committee was also informed by the Authorities that the rate of capitation fees charged by the Medical College accordingly were:

Medical: Karnataka students Rs.10,000/-,
Non-Karnataka Students Rs.44,000/-,
Overseas students 6250US dollars
initial payment plus 1900 US dollars
each of the four years including
tuition fees or 3000 US dollars p.a.
for 5 years.

Dental: Indian students Rs.25,000/-, Overseas students 3250 US dollars.

Pharmacy: For all categories Rs.10,000/-.

15. The Committee had a discussion on this question with the authorities of the Academy: The present assets of the Medical College, teaching hospital, College of Pharmacy and Dental College work out to about Rs.400 lakhs. Besides, out of the 373.50 acres of landed property owned by the Academy only 195.96 acres have been used by the existing buildings and other facilities and the remaining land will also be available for future expansion. The Academy has built up these resources over a period of years from public donations and contributions made by the parents for the education of their children. No grants have so far been received from the Central Government or State Government towards the development and maintenance of these institutions. These have thus been built up at great cost and at great effort, and every pie collected has been used up for building up this educational complex which has a rural orientation, in its attempts to telescope development. Nevertheless, the Committee pointed out to the Management the clean opposition against the capitation fee collection both at Government level and at public level as the general practice followed by colleges collecting capitation fees has not been satisfactory. The management indicated its readiness to do away with the capitation fee collection altogether if the Government could give equivalent grant in lieu thereof or accord permission for enhancement of tuition fees with a proviso for adequate number of scholarships and fellowships for poor and needy students including those belonging to the weaker sections of the society. The management also expected that the goodwill generated by offering admission facilities to students from other countries would continue to be retained as it has been beneficial for the growth of these institutions. Their actual numbers should, however, be reviewed in the light of the grants from the Government/UGC that will be made to the institution. A number of countries has donated or made available sophisticated equipment and accessories useful for the programmes of these institutions.

17. Examination Results:

The Committee noted that the College has maintained a uniformly high standard throughout the years and its examination results had also always been very good with the students securing a large number of merit positions in the university in relation to other similar institutions in the State of Karnataka. As a result, these institutions at present enjoy a high reputation for their standards of efficiency.

18. The distinguishing features:

(a) Medical College/Teaching Hospital:

It is common knowledge that in the existing system of medical education, the entire programme of health services has been built up with cities and towns as centres and it tries to spread out in the rural areas through intermediate institutions like regional, districts or Taluk hospitals and primary health centres. Very naturally the quantum and quality of the services are at their best in the centre, gradually diminishing in intensity as one moves away from the centre and admittedly fail at the periphery where the bulk of the people live and which should really be the focus of all development efforts. The Manipal Medical College and Hospital complex is unique in this respect as it gives a different model where the health services have been established within the community. This educational complex has been able to build up over a period of years programmes and facilities to serve the rural area within a radius of 20 kilometers and health services have thus been built, with the community itself as the centre focus with facilities, even to deal with complicated cases without having any need for referral services. It has thus been made possible for health services and education to grow together to mutual advantage at Manipal where an attempt has also been made to remove the present day aloofness of medicine from the basic health needs of the people as the medical education as organised in Manipal gives a better preparation to a doctor for practice of medicine in the community. The present day vacuum between the health centre and the doctor and the village and its critical health needs will soon cease to exist in Manipal as the need to train physicians in whom an interest is generated to work in the community is already recognised there in the programmes and left to themselves the programmes would be related to all local health problems as well, as the medical students are already linked with local families for getting their health needs identified. It is also possible in such a situation to equip the medical students with the qualities and competence for functioning in the community in an effective manner. It will also be possible for this excellent institution to give a positive community orientation to the entire programme and to equip the system adequately for the purpose.

(b) A rural orientation has naturally been brought about in the health services made available at the College and hospital due to the very location of these institutions in a rural area.

(c) It has been possible for the Medical College within the framework of the university system to lay

adequate, though not of equal emphasis on preventive and promotional aspects of community health as on curative methods and sophisticated diagnostic aids.

(d) Emphasis is laid by the Medical College to develop programmes of training in the fields of nutrition, family welfare planning and maternity and child health immunology and infectious diseases and reproductive biology and family planning to subserve the total needs of the community. A nutrition and health education programme covering 23 villages in Udipi Taluk involving one lakh population is at present under implementation under the auspices of the hospital with a view to making the rural people aware of the various problems of nutrition, sanitation, hygiene and the like and also teaching them means and methods of achieving good health within their means. A team of health educators and a nutrition expert live with the villagers under this project.

(e) Community needs are finding a prominent place in the undergraduate medical education programmes of the College besides hospital care. Arrangements have been made by the College for the students to serve the rural community thus preventing deprivation of medical aid to the rural people. A medical insurance programme has been introduced by the medical faculty under which a family is ensured full medical care and attention, the premium for the insurance being 2 pints of blood of blood donated annually in two instalments. A comprehensive medical and dental health care programme called Medicare has also been introduced for the benefit of the public and employees of various institutions in and around Manipal for receiving the benefits of hospital services at pre-paid nominal rates. This scheme is the first of its kind in India and it has been introduced only in a limited number of other countries in the world.

Medical students are required to work in the 7 maternity and child welfare centres within a radius of 20 K.M. from Manipal and thus acquire first hand knowledge of rural conditions and problems. Each final year medical student is allotted fixed number of rural families to his/her care. Medical care is carried to the doors of the people by organising regularly free eye, dental, family planning, detection and treatment of deafness camps in the neighbouring areas from time to time. A health club attached to the hospital provides thorough medical check up by specialists at a nominal rate to persons who stay for 4-7 days for which lodging is also arranged by the hospital authorities.

An attempt has also been made to integrate various aspects of family planning with the medical education curriculum, showing thereby that the college is ready to modify the structure of medical education to meet the changing needs of the rural community.

The hospital and the college have already jointly improved the delivery of health services by organising such services with the involvement of fully equipped medical doctors. Within the framework of the university system, total aspects of health services have been taken into account to provide an environment for helping each individual to be healthy and also to ensure avoidance of pollution, control of communicable diseases and availability of safe drinking water. For this, the location of the institute at Manipal has been ideal with availability of power and water in abundance. With the Mahatma Gandhi Hydro-elective scheme within 100 miles and Hiriadka Sub-station only 6 miles away adequate supply of electricity is available to the campus. The proposed Kalinadi Hydroelectric project is also very close to Manipal. A generator has been provided to the hospital in addition to this. The campus has its own water supply scheme with the help of bore-wells at the rate of 3 lakh gallons a day. Moreover, the Udipi Water Supply scheme and Municipality is in a position to supply 5 lakhs gallons of water a day.

The Department of Psychiatry of the college has undertaken a rural mental health programme as a pilot project which is solving many problems confronted by the rural people.

(f) The College and hospital have taken up a large number of research projects in areas relevant to the community and a scientific journal of health sciences called Arogya is also published with partial financial support from the Department of Science and Technology, Government of India.

(g) A specialised burns centre is functioning in the hospital since 1967 which undertakes research and rehabilitation of persons disabled from burns. This is the only centre of its kind along the West Coast which attracts large number of patients from the whole of South India.

19. The instructional programmes and services offered by the medical college and hospital are thus distinct and different from other medical colleges and they help the medical graduates and other para medical personnel qualified from this institute to be among the best medical men in the country. A detailed report of the Medical College and Hospital may be seen at Appendix-I.

20. The Dental College as would be seen from Appendix-IV is rated as one of the best dental colleges in the country. Some notable achievements of the College are in the area of manufacturing dental equipments and instruments at a time when such materials were in short supply in the country. Extensive use of audio-visual

aids is made by the college in its teaching programmes and the college has integrated intensive field work with the clinical activities of the students. Camps in rural areas are held regularly helping a large number of patients in rural areas to derive benefits out of such camps. Intensive dental care of all school going children within a radius of 20 k.m. from Maripal is undertaken by the College students. A dominant rural bias has been given to the training programmes of the dental students, which has been acknowledged as the only college which has achieved this distinction in a rural area in the country.

21. The college of Pharmacy has been able to introduce a number of innovations in the courses of studies and methods of teaching (Appendix-III). It has pioneered in offering hospital pharmacy as an elective course at the undergraduate level.

It is the only college in the country which is offering pharmacy administration at the postgraduate level. The college has been able to orient and diversify its courses and relate them to the felt needs. The first batch of graduates in hospital pharmacy will come out of the college in 1977 and this course has been introduced for the first time in the country at the degree level and the course has been designed and developed on the basis of experience actually gained in participating in the running of the Kasturba Hospital Pharmacy Unit and teaching the same subject as part of the postgraduate pharmacy administration course. Other diversifications introduced to improve employability include elective in perfumes and cosmetics.

22. The college lays emphasis at the undergraduate level on instrumental pharmaceutical analysis. As a result of this practical bias, the students of the Pharmacy College are readily accepted by the Pharmaceutical industries in the country. In view of the quality and competence of the staff of the college, it has had no difficulty for introducing innovations in teaching methods and in modernising the content of courses. The semester system has already been introduced and the examination system is dominated by internal continuous assessment.

23. The college is functioning as a part of the medical college and hospital complex and is involved in the administration and technical development of the pharmacy manufacturing unit of the hospital. Several liquid orals, tablets and externals are also manufactured by this unit besides over 30 different types of injectables including intravenous glucose, Saline and dialysates. Work experience is thus an integral part of all the courses in the college which has also maintained close relation with the pharmaceutical industry. The

college is well equipped and has qualified, experienced and competent faculty members who are continuously and actively engaged in relevant research and are utilising the findings of the research for modernising the courses. This college has also the unique distinction of having ensured participation of all their students in the research activities of the college. This has helped the institution to grow as one of the best in pharmacy in the country.

24. The Manipal Institute of Technology started in 1957 (detailed report in Appendix-II) is now a large technical institution in the Karnataka State with a student strength of over 1250 and a staff strength of over 125 offering courses at the degree level in civil, mechanical, electrical power, electronics and communications and chemical engineering. The Institute is also running a postgraduate course in industrial chemistry besides offering instructions for post-graduate diploma courses in industrial engineering and instrumentation technology. Admission to engineering courses are made on the basis of merit with preference for students who have secured more than 60% in Physics, Chemistry and Mathematics at the qualifying examination. Admissions are done only after the candidates face an interview with the Committee after provisional selection on the basis of marks. Capitation fee of Rs.5,000/- - 10,000/- is collected from the students. The laboratories of the institute are well equipped to cater to the needs of undergraduate students and many of them have special equipment and facilities for training postgraduate and research students.

It has a good educational workshop and the Faculty have sound teaching and research experience, nearly half of them are postgraduate or research degree holders with 15 or more years of experience. It has set up a research cell to conduct applied research in building materials and construction techniques towards connected problems and their solutions peculiar to conditions of South Kanara district.

The Institute is at present engaged in active research on:

1. Envisaged Pilot Plant study for the treatment and disposal of Coffee Wastes.
2. Economic Design of Gobar Gas plant.
3. Roller Pump for pumping blood-design and construction involving the students.
4. Syringe Viscometer for Clinical use involving students.
5. Transport of Glucose across hydrophobic synthetic membranes.
6. Catalysis/Chemical Process Development.

7. Some investigations in Phase Locking Techniques for communication systems.
8. Replacement of Tetra-ethyl lead in petrol by other non-polluted chemicals.
9. Solar Refrigeration.

25. The Institute has also taken up a number of projects which have direct beneficial effects. The students in the final year are actually involved in the preparation of projects by conducting survey design and preparation of layout plans and unit operations. The Institute has also sponsored a few small scale industries like plastics surgical instruments manufacturing, manufacture of phenyle cartons, metal containers, etc., to promote and establish industrial development. Land, industrial site, water supply and electricity and consultancy services are provided by the Institute. Teaching aids like 16 mm projector, over-head projector, closed circuit T.V. Video tape recorder, tape recorder, slide projector, panel board and eipdiscope are used by the institute in its teaching programmes.

26. The Faculty members are actively engaged in the construction development and maintenance work of the entire establishment of the Academy of General Education. A Professor is Incharge of each of the following:-

Planning and Construction
Water and Sanitary Board
Research Cell,
Electrical Maintenance
Water Supply and Plumbing.

All structural fabrications required by the institutions of the Academy are done in the M.I.T. Workshops which undertake Prototype work and exploitation rights after manufacture are given to industries on agreed terms. The distinctiveness of the institute lies in its practical bias in all its programmes.

28. The Institute is giving adequate attention to the organisation of sports and games and have also provided adequate facilities for this purpose. Such facilities provided in the complex are used to the maximum by students of all the institutions of the Academy.

Assets of the professional institutions of the Academy at Manipal:

The Academy has reported that it has the following assets:

- I. Kasturba Medical College, Hospital, Dental College and College of Pharmacy:

Land used:	91.01 acres
Land available for further expansion	99.96 acres
Accommodation (Academic):	82,674 sq. ft. (*)
Accommodation (Hospital):	1,22,739 sq.ft.
Accommodation (Hostel for students):	998
Accommodation (Teachers):	127
Present value of building/books/equipment. (excluding land):	Rs.293 lakhs.

II. Manipal Institute of Technology:

Land used	104.95 acres
Land available for further expansion.	77.58 acres
Accommodation (Academic)	!
Accommodation (Hostel for 1200 students)	!
Accommodation (Teacher Quarters for 85).	!
Present value of buildings, books/equipment (excluding land).	!
	Rs.150 lakhs.

Detailed reports regarding the visit of the Committee to M.G.M. College, Manipal College of Education and Udipi Law College are given in Appendix-V-VII.

30. Recommendations of the Committee:

In the foregoing paragraphs the Committee has indicated that the professional colleges in Manipal viz., the Kasturba Medical College and Hospital (KMCH) Dental College (DC) College of Pharmacy (CP) and Manipal Institute of Technology (MIT) have been provided with adequate facilities and competent academic staff and they are engaged in teaching and research in selected fields, have maintained high standards and are making a distinct contribution to University system with their rural Orientation and application bias in all programmes.

30 (1) The Committee, therefore, recommend that 'deemed to be university' status be accorded to the above professional colleges of the Academy of General Education in Manipal

(*) Construction work costing about Rs.100 lakhs in progress not included. Value of play fields, sports material, swimming pool etc., not added.

in terms of the guidelines laid down by the UGC as the granting of such a status to these institutions would further enrich the university system. These institutions which are managed by separate Trusts or Governing Bodies of the Academy of General Education have a management capable of contributing to university ideals and traditions. These institutions have also the necessary financial resources and viability. A university status to these institutions would give them the required authority and freedom to have a clearly formulated policy to chalk out and implement programmes related and relevant to contemporary needs that would reflect the application of the most relevant principles of educational science like encouraging students to learn by themselves, introduction of a system of continuous assessment of students learning, objective methods of assessment, small group teaching, integrated inter-disciplinary teaching, accent on experimental method, production of effective teaching and learning material and appropriate orientation of teachers. Within the limitations of the existing system to which they belong a beginning has already been made by these institutions in this direction in one form or the other, demonstrating thereby their capacity to bring about changes and enrich the university system. The Committee is convinced that these institutions would not be in a position to achieve this if they are given autonomous status within the framework of the Mysore University system even if the present University Act were to be amended by incorporating a provision to grant autonomous status to any such institution affiliated to it.

The Committee further recommend that on attaining university status, the new university accords priority for development of Postgraduate studies in selected areas in Engineering and Technology and Basic Sciences. It would be necessary, for the university to start postgraduate departments in humanities and social sciences as "medicine is practised not in a world bounded by Science alone but in one in which economic and social influence play an important role. The Committee subscribes to the view that "to impart correct social vision is an essential part of true Education while graduates in Engineering, medicine and other professional courses acquire specialised information and technical skills they need the insight of behavioural sciences as they are dealing with men as workers or patients and should also be inspired by high social aims as no groups can pursue their private ends without regard to the social consequences of their activities". The Committee would further suggest that at an appropriate stage the question of merging institutions like M.G.M. College, College of Education etc., with the deemed university be also considered.

30. (2) The Committee recommend that the objectives of the deemed to be university should be clearly enunciated based on the principles of academic excellence, relevance, flexibility

and modernisation. The objectives formulated by the authorities is in the light of the discussions with the Committee are given in Appendix-X.

30. (3) The Committee notes that at present these institutes are managed by separate Trusts or Governing Bodies appointed by the Academy of General Education and it would be necessary for these institutions (KBMCH, MIT/CC/CP) to give up their link with the Academy and form an independent body registered under the Indian Societies Registration Act before it starts functioning as a deemed to be university under Section 3 of the UGC Act and a suitable name given to the deemed university. The name Manipal Academy was suggested in this connection.

30. (4) The deemed to be university may admit to its membership such number of persons as it consider suitable and qualified for the furtherance of its objectives.

30. (5) The deemed to be university shall be open to all persons irrespective of sex, race, creed, colour, religion nationality, State or citizenship. Required provisions for appointment/admission from the weaker sections of society including scheduled castes/tribes communities shall be made as per directions of the Government of India that may issue from time to time.

30. (6) All the assets in the form of buildings, equipments, books, landed property, cash deposits, shares, debentures, certificates etc., belonging to the institutions constituting the deemed to be university shall be declared by the Academy and handed over to the new society thereby ensuring the continuance of the existing level of funding to the deemed to be university.

30. (7) Review of the work of the deemed to be university:

The Government of India may appoint one or more persons to review the work and progress of the university periodically or hold enquiries thereof in such manner as would be intimated by it after giving due notice. The Government of India may take such appropriate action as it considers necessary on the reports of such reviews or enquiries and the university shall have to carry out such directions as would be issued by the Government of India in such matters.

30. (8) The authorities of the deemed to be university would be:

1. Sonate
2. Executive Committee
3. Academic Council
4. Finance Committee

5. Faculties.
6. Planning Board.
7. such other authorities as may be decided by the deemed to be university.

30. (9) The deemed university shall frame rules and regulations for carrying out its objects for which it has been registered.

30.(10) Senate:

The Senate shall consist of the following members of the society constituting the deemed to be university.

Ex-officio members:

- (i) The Chancellor
- (ii) Vice-Chancellor
- (iii) Dean, of the Faculties.

Members:

- (iv) Four nominees of Government of India.
- (v) Four persons to be nominated by the Academy of General Education.
- (vi) Four persons from among registered graduates of the deemed to be university.
- (vii) Four Representatives of the learned profession and special interests nominated by the Senate.
- (viii) Two Representatives to be nominated by the Vice-Chancellor from students' associations.
- (ix) Three distinguished academics from other universities to be nominated by the Academic Council.
- (x) All Professors
Readers - 4; one each from the four institutions by rotation.
Lecturers-4; one each from the four institutions by rotation.

The Registrar of the Institute will be the non-member Secretary of the Senate. The Senate may have the following powers:-

- (a) to review from time to time, the broad policies and programmes of the Institution, and to suggest measures for the improvement and development of the Institute.
- (b) to consider and pass resolutions on the annual reports and the annual accounts of the Institution and the audit reports on such accounts.
- (c) to prescribe such other functions as may be prescribed by Rules.

30.(11) The Executive Committee shall be the Principal Executive Body which shall, besides the Vice-Chancellor consist of:-

1. Heads of Institutes 4
2. Professors 2 (by rotation)
3. Nominees of the Government of India. 3
4. Persons elected by the Senate from amongst themselves excluding the employees and the students. 3

The elected/nominated members shall hold office for three years.

The powers and functions of the Executive Committee shall be prescribed by Rules generally on the lines of similar provisions in the Statutes of the Act of the Central Universities.

30.(12) Academic Council:

The Academic Council shall be the principal academic body of the Institute and shall subject to the provisions of the Memorandum of Association and the rules, bye-laws, coordinate and exercise general supervision over the academic policies of the Institution. The powers and functions of the Academic Council shall be prescribed by the Rules.

The Academic Council shall in addition to the Vice-Chancellor consist of the following persons:-

1. Ex-officio members:

- (a) Deans of Faculties.
- (b) Professors and Heads of Department of the Institute.
- (c) Librarian of the Institute.

Other Members:

- (a) Reader - 4 by rotation.
- (b) Lecturer - 4 by rotation.
- (c) Six members nominated by the Chancellor on the recommendation of the Vice-Chancellor to represent different fields with reference to the objectives of the Institute.

Registrar - Non-member Secretary.

30.(13) The planning Board of the Institute shall plan the programmes of the University and monitor the progress of their implementation. The Planning Board would engage itself in a continuous review of the various academic programmes and suggest measures to make these programmes relevant to local needs. Apart from the Vice-Chancellor it shall consist of 3 experts and 3 senior teachers of the University. The Planning Board will be constituted by the Vice-Chancellor on the advice of the Executive Committee.

30.(14) The Finance Committee shall consist of :

- (i) Vice-Chancellor (Chairman)
- (ii) Two nominees of Executive Committee including one Dean.
- (iii) Two representatives of Government of India including UGC.
- (iv) Finance Officer (Secretary)

The budget shall be prepared by the Finance Committee in accordance with the Systems and placed before the executive Committee which shall pass it after scrutiny and after it is satisfied that resources are available. It shall meet at least twice a year.

30.(15) Faculties and Board of Studies:

The Institute shall constitute faculties of Medicine, Engineering and Technology, Humanities, Social Sciences and Sciences and such other faculties as may be prescribed by rules.

30(16) Chancellor:

The deemed to be university shall have a Chancellor who will be its Head. He shall preside, when present over the convocation of the university. He shall be appointed by the Government of India and shall hold office for 3 years. The Chancellor shall be eligible for reappointment for one more term of 3 years.

30.(17) The Vice-Chancellor

The Vice-Chancellor shall be the whole-time officer of the deemed to be university. He shall be appointed by the Chancellor from a panel of 3 names recommended by a Committee consisting of 3 members of which one shall be nominated by the Senate, one by the Chancellor, and the third by the Government of India. The Member nominated by Government of India shall be the Convenor. The Vice-Chancellor shall be appointed by the Chancellor with the approval of the Government of India. He shall hold office for 3 years and shall be eligible for re-appointment for an other terms of 3 years. The person appointed as the Vice-Chancellor if he attains the age of 65 during the term of his office or in extension thereof shall retire from the office of Vice-Chancellor. Notwithstanding anything provided as above, the first Vice-Chancellor shall be appointed by Government of India, for a period of three years. He shall be entitled to such

emoluments and privileges as prescribed by rules. He shall exercise general control on all affairs of the university. He shall have power to incur expenditure as prescribed by the Executive Committee. He shall ensure that the provision in the rules/bye-laws/regulations of the universities are faithfully observed and carried out and strive his utmost to attain the objectives of the university.

30.(18) The Registrar and Finance Officer shall be full-time officers of the university whose duties and terms would be as prescribed by the Rules.

30.(19) Necessary provisions will also be made for constitution of Selection Committee for appointment to teaching and non-teaching posts as also for their service conditions.

30.(20) The existing teachers having the minimum prescribed qualifications should be retained and methods of future recruitment prescribed in line with the guidelines issued by the UGC for this purpose.

The Committee was happy to note that almost all teachers have been provided with residential accommodation and this has helped the authorities to retain the services of a number of outstanding teachers in Manipal. The Committee, however, noted that the existing scales of pay were not comparable to the pay scales in deemed to be universities and recommended that the pay scales as applicable to comparable deemed to be universities would be made applicable to the teaching and non-teaching staff of this institution when it starts functioning as a deemed to be university. Fixation of pay of existing staff members would have to be on the present scales of pay as applicable to either Indian Institute of Science, Bangalore or the Medical College of Banaras Hindu University. The deemed university should be admitted to the same pattern of financial assistance for development and maintenance by the UGC as in the case of Indian Institute of Science, Bangalore taking into account the present level of income and expenditure of the existing institutions constituting the university.

From the income and expenditure statement, it is seen that the four institutions and their development and maintenance requirements are met from the annual income from fees, and services rendered and the regular annual collections from capitation fees. As and when these, institutions are admitted to financial assistance from the Central Government, the immediate liability will be in relation to increased salary bill of the staff and the deficit that will follow from dispensing with the collection of capitation fee.

30.(21) Future Admission:

The Committee has observed that the Academy of General Education has been collecting capitation fees from the parents for providing admission to various professional courses and details thereof as prescribed by the Karnataka State Government have already been indicated in the report (Para 14). The Committee recommend that these institutions be advised to do away with the practice of collecting capitation fees from the next academic year itself. Since the authorities of the Academy have been meeting their deficit as well as requirements of development and improvement from the capitation fees, the Government of India will be required to meet such deficit and it would be necessary for the Institute to follow an All India pattern of admission followed by the Delhi University or the All India Institute of Medical Sciences. The pattern of enrolment allocating clearly the number of seats to be reserved for Scheduled Castes/Scheduled Tribes and other groups should be notified in advance and selection made on merit. The institution may, however, be permitted to honour the present commitments, as it has been indicated to the Committee that capitation fees have been collected in advance from a certain number of pre-medical students and overseas students on a contingent contract basis that if such students secured a minimum 60% marks for pre-medical they would be admitted in 1976-77 or 1977-78. The Institute would be required to give the details of such commitments and no such further commitment should be made with regard to future admissions. The Institute has been admitting upto nearly 50% of its intake capacity students from abroad who are mostly children of Indians settled there for years. In view of the goodwill generated in these countries and the mutual benefit of this association, the institute may be allowed to continue admitting such overseas students every year upto 4% of their intake capacity.

30.(22) The Government may also consider the desirability of permitting the Institute to charge higher tuition fees from the higher income groups with the provision of a number of scholarships and freeships to be awarded to those who are poor, needy and deserving.

30.(23) The Committee had the benefit of a detailed discussion regarding the future plan of the Manipal Institute of Technology with the Faculty of the Institute, the authorities of the Academy and Professor M.S. Thacker. The Institute on the basis of facilities available indicated that it would be in a position to start new postgraduate courses immediately in the following areas:-

1. Industrial Engineering.
2. Industrial Management.

3. Environmental Engineering.
4. Building Technology.
5. Applied Electronics.
6. Power and Control Systems.
7. Structural Engineering.

The Committee recommend that the UGC may appoint an Expert Committee to visit the Institute and make recommendations regarding the new postgraduate courses to be started by it in line with the guidelines suggested by the A.I.C.T.E. for the development of postgraduate education and research in the current plan.

30.(24) In the end, the Committee would like to express its appreciation of the tremendous efforts put in by the Academy of General Education in building up these excellent institutions in Manipal. The Committee was greatly impressed by the desire of Dr. T.M.A. Pai, the Founder and President of the Academy and others of ensuring the continuity of these institutions to have a perpetuity of the work begun. The recommendations of the Committee have been made towards this end.

Kapahi

APPENDIX-I

The Committee visited the Kasturba Medical College and Hospital on 12-13th September, 1976 and was impressed by the excellent facilities made available for the various courses of studies in medicine and related fields. The Committee was informed that an expert committee appointed by the Mysore University had visited the College in June, 1975 to make an assessment of the level of function of these institutions. This Committee has reported that this medical college and hospital is one of the finest institutions in the country. A copy of the report of this Committee is given in Annexure-1.

A report of the facilities available and other aspects or items not covered by the above report is given in Annexure-II.

KASTURBA MEDICAL COLLEGE, MANIPAL

- 29.0 The Kasturba Medical College and its affiliated hospitals at Manipal were visited by us on the 12th June, 1975. The College was established in 1953. The College and Hospital buildings are close together and is very convenient for the staff and students to move from the hospital to the college during working hours. The college and hospitals are kept scrupulously clean and are offering satisfactory services to the patients.
- 29.1 The departments in the college are located in three buildings. Departments of Anatomy is exclusively located in one of the buildings. The Departments of Pharmacology and Physiology are housed in an adjoining building. The Departments of Biochemistry, Microbiology, Pathology and Library and Auditorium are located in a building slightly away from the other buildings. Across the road to these buildings is an other building under construction with 4 floors. This would be commissioned in an other six month's time. The first two floors will house the Library and one floor will serve as the examination hall and another floor will serve as the house the Departments of Forensic Medicine and Social & Preventive Medicine. The space vacated by the library in the existing Pathology building will be utilised for extension of the Department of Microbiology. Each of the floors have a large lecture hall accommodating 250 students at a time and are provided with epidioscopes, kodo-projectors and other audio-visual aids.
- 29.2 The Kasturba Medical College at Manipal and the Kasturba Medical College at Manglore have admitted 100 students in 1974-75. In the earlier years this institution was taking admissions of increasing number of students ranging from 150 to 300.
- 29.3 The staff and students are adequately provided with residential accommodation. The post-graduates who work as residents are paid stipends and are also provided with residential accommodation. This provision is conducive to offer upgrading services by the staff and post-graduates in the hospital.
- 29.4 Department of Anatomy:
- This department is housed in a building of its own. It has a lecture-cum-demonstration hall that could accommodate 100 students at a time. In 1973, students studying in Anatomy were 250, and in 1974, 112 students.
- 29.5 Anatomy dissection hall is a large hall and has 30 dissection tables, and at any one time 250 to 300

students could dissect in the hall with comfort. But at the moment dissection is done in two batches, one in the morning and the other in the evening sessions. There are sufficient number of specimen tanks as well as cold storage for preservation of dead bodies. The area for maceration of dead bodies to prepare bones is well designed. The facilities available for dissection and the maintenance of the dissection hall are of an exemplary nature. There is a band saw for the preparation of bones and hard tissues. There is no dearth of dead bodies for dissection and at the moment there are 65 dead bodies for this purpose and in any year the Professors assures that he could have with ease 100 to 120 dead bodies. Some of these dead bodies are shared by the Department of Pathology for autopsy demonstration to the students and a small area is set out in the anatomy dissection hall for carrying out post-mortum for the Department of Pathology.

29.6 Space for autopsy services is allotted in the new surgical block under construction. This building is adjacent to Baliga Institute of Surgery and forms an extension to the Institute.

29.7 Histology Laboratory:

This is well designed and organised. At a time 60 students could work in one batch and there are adequate number of work benches and each student is provided with a microscope. The department has 76 microscopes. Many of these are of the oil immersion type. The students are provided with lockers. There is a rotating slide microscopes wherein microscopic anatomy could be viewed through a set of slides by the students.

29.8 Anatomy Museum:

This is one of the best of its kind probably in the country. The specimens are not only well mounted but every detail in the specimen is pointed out by using different colours through injection method and are also provided with appropriate descriptions either in the specimen itself or outside the specimen. This makes the students learn anatomy from the preserved specimens and offers life to the specimen and many students are seen using the museum.

29.9 The comparative anatomy section is an impressive area and offers much material for the under-graduates and post-graduates to profit by. There are five demonstration rooms.

29.10 Staff:

Professor	...	1
Addl. Professor	..	1
Asso. Professors	..	2
Lecturer	...	1
Medical Tutors	...	7
Non-medical Lecturers.	...	5

29.11 There is an Artist section in the Department. The artist helps in the description and preparation of anatomical specimens in the museum as well as the charts and kode-slides.

29.12 This department is extremely well organised and functionally effective. The Professor and his colleagues informed us that the Department has facilities to impart instruction for under-graduates for 100 or more annual admissions at Manipal, and for some time to come also train students for the Campus at Mangalore as a central institute in which case we could easily have an annual intake for imparting instruction in Anatomy for 150 to 200 students. at present the Department is imparting instruction for under-graduates admitted to Manipal and Mangalore Medical colleges.

29.13 Department of Pharmacology:

This is housed in a separate building and share space with the Department of Physiology. The Department offers instruction for students in the Pharmacology admitted for Manipal section of Kasturba Medical College.

29.14 It has a mega lecture hall which accommodates 250 students at a time. There are demonstration rooms. There is a well-organised museum. There is an experimental laboratory to train under-graduates and we are very much impressed to see students carrying out experiments in Pharmacology individually and the exercises were on the evaluation of the effects anaesthesia. The experiments in Pharmacy are carried out by the students in the College of Pharmacy.

29.15 There is a small animal house which has the required animals such as cats, dogs, guinea pigs and rabbits. There is also a frog bank shared by the Departments of Pharmacology & Physiology. There is a dog run. There will be in course of time a large central animal house for the college and hospital. This is being designed and will be in the close proximity to the college of Pharmacy.

29.16 There is an air-conditioned instrument room where most of the instruments are pooled and are being used by the post-graduates. There is also a research laboratory.

29.17 Staff:

Professors	...	2
Reader	...	1
Medical Tutors	...	2
Non-medical Lecturers	...	3
P.Gs.	...	2

29.18 At a time in the experimental pharmacology laboratory or in the pharmacy laboratory 50 students in one batch could work. Under the circumstances the Professor is of the view that 100 to 140 students could be trained in any one year in Pharmacology. At the moment students from Manipal Campus are undergoing instruction in Pharmacology.

29.19 Department of Physiology:

This department is well organised and has sufficient accommodation to train under-graduate students in experimental and human physiology. Each batch consists of 30 to 40 students at a time in experimental physiology and human physiology. There are two more practical halls. There are and there is a section of respiratory physiology. There is a mega lecture hall which accommodates 250 students with all the necessary equipments, sound system and audio-visual aids.

29.20 Staff:

Professor	...	1
Addl. Professor	...	1
Reader	...	1
Medical Tutors	...	5
Non-medical Tutors	...	5

29.21 Section of Radio-isotope:

A Biophysicist in the rank of Assistant Professor is incharge of the Radio-isotope laboratory. This section has scintillation counters and has radio-isotopes PBI 31 and chromium 51. These isotopes are used for estimation blood volume and survival of red blood cells and also undertakes hospital work in thyroid up-takes and also for treatment of thyroxyotic goitre and therapy for thyroid cancer. PBI in-blood is also estimated.

29.22 Students of Manipal and Mangalore Medical Colleges receive training in Physiology at this department in Manipal. Facilities are abundant for offering training for students for the both centres.

29.23 The department has a photo-artist. The Professor of Physiology who is also the Dean of the College informed us that the Central Photo-illustration Division will soon be established which would cater to the needs of the hospital and the college. The students could benefit by the number of charts and wall maps that are displayed in the laboratories.

29.24 Department of Biochemistry:

This occupies the ground floor of the building designated as 'Pathology'. This department is equally well organised.

29.25 The under-graduate practical hall has 8 work benches and at any one time could offer practical training to 64 to 80 students. By making use of the existing long row of benches now available adjoining the verandah wall more students could work. The practicals are now conducted twice a week. The department offers practical training to students admitted for both Manipal and Mangalore Campuses.

29.26 The clinical biochemistry section is very well organised and provides 24 hour service to the hospital. Investigations on blood electrolytes, enzymes, acidbase analysis, lipoprotein profile, and other blood elements are carried out in the department. Special investigations at the request of the Department of Psychiatry are also carried out. There is a refrigerating centrifuge and a ultra-centrifuge.

29.27 There is a mega lecture hall which accommodates 250 students with audio-visual aids. In addition there are 3 small lecture halls. Each one of which could take 80 students at a time.

29.28 There is an air-conditioned room which houses a number of instruments. There are 5 photo-electrical calorimeters. There is also a walking cooler and a post-graduate laboratory.

29.29 Staff:

Professor	...	1 (at the moment vacant)
Assistant Professors	...	4 (one medical & 3 non-medical)
Lecturers	...	3
Technicians	...	5

29.30 The work in the clinical biochemistry section is carried out by two Assistant Professors. The Assistant Professor who is incharge of the Department informed us that practical training for undergraduates at any time in biochemistry could be given for an annual intake in the 1st year from 150 to 200 students.

29.31 Department of Pathology:

This department has a lecture hall which accommodates 250 students. The under-graduate laboratory is shared by the Departments of Pathology and Bacteriology and has sufficient number of microscopes. This laboratory is well organised and is functionally effective.

29.32 There is a museum with a variety of morbid anatomical specimens covering all systems and Lesions.

29.33 There are a number of coloured photo-micrographs and are illuminated and these depict most of the lesions and students would benefit by this very much.

29.34 The Histopathology laboratory is spacious and has all the facilities. The Histopathology laboratory has the necessary equipment of microtomes and auto-technicen and facilities for preparing freezing sections are available.

29.35 The department receives 20 to 25 biopsy specimens a day from the hospital. 58 autopsies were done in 1974 out of which 18 were by adult post-mortume.

29.36 Staff:

Professor	...	1 (vacant)
Assistant Professors	...	2
Tutors	...	4

29.37 This Department offers training in Pathology for students of Manipal campus only. As such the facilities available are adequate and the department is well organised.

29.38 Department of Bacteriology:

This is equally well organised and has experimental bacteriology section inclusive or research. Under ICAR research projects are being carried out.

29.39 The diagnostic bacteriology division has the following sections:

1. Tuberculosis
2. Parasitology
3. DCI room
4. Phase contrast microscopes area
5. Virology
6. Mycology and
7. Serology.

29.40 The Professor with his ingenuity has been able to improvise and make use of the verandah in the building for an experimental animal house. The animal cages are made of plastic and area of UFA model. These are highly praiseworthy. There is also a small animal house adjoining to the building where mice, guinea pigs and rabbits are housed.

29.41 There is a departmental lecture hall which accommodates 60 students at a time. The department has an air-conditioned room housing a number of equipments including a deep-freeze at 20°C.

29.42 Staff:

Professor	...	1
Reader	...	1
Medical Tutors	...	2
Non-medical Tutors	...	2

29.43 The existing facilities, equipment and the staff are adequate to impart training for under-graduates and post-graduates in Micro-biology.

29.44 Department of Forensic Medicine:

This department shares accommodation with the department of pathology and there is a well organised museum. At the moment lecture-demonstrations are undertaken by the Department of Pathology. But the Dean informed us that efforts are being made to obtain the services of a duly qualified and experienced person to be incharge of teaching of Forensic Medicine who would be on the staff of the department of Pathology. This should be satisfactory.

29.45 Department of Social & Preventive Medicine:

This department is temporarily housed in a building across the road-side to the 'pathology' building. The department has a museum. There is a practical hall and number of charts.

29.46 This also has Rural Health Centre, 6 miles away from Manipal and two sub-centres. The R.H.C. has a Medical Officer, Paediatrician and Health Supervisor, Medico-social Worker and a Statistician. The department staff involved in the running of well baby clinics and 7 MCH centres. This department has a lecture hall.

29.47 Staff:

Professor	1
Assistant Professor	1
Statistician	1
Entomologist	1

29.48 This department caters to the needs of the undergraduates of Manipal Campus. This department undertakes morbidity survey such as helminthic investigations, immunisation programme of the students in the campus and also participate in the voluntary control programme for Manipal and immunisation for 10⁶ school children in Manipal by giving triple-antigen oral polio.

30.0 Library:

The library occupies one of the floors in the 'Pathology' building. It is 240' length and 34' wide and is well organised. The librarian is an efficient officer who is prompt in obtaining the journals as well as the books for the year. Students are seen using the library.

30.1 The library subscribes 240 journals a year and procured 1,117 books during 1974. The annual grant for 1974-75 was Rs.93,000/- for journals and Rs.73,500/- for books. For 1975-76 an amount of Rs.80,000/- is allotted for books and Rs.95,000/- for journals. These are adequate and it must be said to the credit of the management that very few colleges in the country receive such generous grant towards maintenance of the library. The notable feature of the working of the Library is that it functions from 8 A.M. to 1 A.M. in the morning and works with the principle of open access system. Cumulative index medicus is available from 1961 to 1972.

31.0 Another appreciable feature of the institution is that repairs of many of the equipments as well as many of the items of furniture either of wood or of steel are carried in the local industries at the Campus and the steel journal racks in the library are one of the items manufactured locally.

KASTURBA GENERAL HOSPITAL, MANIPAL

32.0 The Kasturba General Hospital consists of Baliga Institute of Surgery, Out-patient Department and other services and an other building housing operation theatres and patient services and wards for Obstetrics & Gynaecology. The total

bed strength of the hospital is 606 and the distribution of beds as per speciality is given below:

General Medicine	135
General Surgery	191
Obst. & Gynaecology	80
Paediatrics	50
Dermatology	20
Psychiatry	30
Ophthalmology	30
E.N.T.	30
Orthopaedics	40
<hr/>	
Total:	606 beds
<hr/>	

33.0 Baliga Institute of Surgery:

This Institute is extremely well designed, planned and organised. Each of the departments have a registration, examination, lecture-demonstration and investigational areas. The examination cubicles are commodious and furnished and equipped suitably and adequately for the comfort of the patients and also for the convenience of the doctors and students.

33.1 This Institute is in a large building with four floors and each floor accommodates 92 beds. Each one of the floors has two nursing stations around which are distributed ward areas under the categories of general, semi-private and private. The general ward accommodates charity beds. These accommodate 20 patients and the private and semi-private house about 36. Bed charges are nominal although the service charges may be slightly higher. Each half of the floor has a physician's or surgeon's room which contains his office, examination cubicles, a lecture-demonstration room with necessary equipment, treatment room, and with ward accessories.

33.2 Each one of the departments are provided with secretarial assistance by way of a Stenographer and sufficient stationery by way of forms and proforma from the Central Medical Records Division and close liaison and contact is maintained with each registration counter through the medical records division. Each ward area is supplied with a Bragna stamping machine.

33.3 Department of Physical Medicine and Rehabilitation:

This is in-charge of the Orthopaedic Surgeon and has all the components and equipments to rehabilitate physically handicapped patients either due to injury or due to morbid condition. It has also the services of a speech therapist and survey of deaf and dumb are undertaken. Orthopatics and prosthetics are functioning.

33.4 Hydrotherapy, wax therapy, electro-therapy and gymnasium equipments are available.

33.5 There is also an artificial limb centre which prepares not only the limbs and shoes but also crutches. There are cobbler, tailor and a carpenter.

33.6 Department of Accident Surgery:

This has 12 beds and also provide emergency services. Close to this is 4 bed coronary care unit with ECG monitoring facilities.

33.7 Department of Nephrology:

Adjacent to the coronary care unit, nephrology centre is located. This has one haemodialysis unit and coil type of artificial kidney is in use. All biochemical investigations for artificial kidney services are being carried out by the Department of Biochemistry.

33.8 Department of Radiology:

For want of experienced staff, this department at the moment could not be separated into radio-diagnosis and radio-therapy. This is now functioning under the title, 'Radiation Medicine and Oncology'. It has a section of diagnostic radiology and another section of radio-therapy. The following equipment are available:

- 750 MA plant computerised with a cine and T.V. attachment.
- 200 MA plant with vodalca camera.
- 100 MA plant with vodalca camera.

All the rooms in the department are air-conditioned.

The Radiologist informed us that all special investigations such as contrast studies are being carried out. There is a dark room for developing films. There is a lecture-demonstration room and the teaching in radiology the undergraduates are carried out here. The department has a cobalt unit and are likely to get caesium unit. Radiation Medicine department has been designed by the Atomic Energy Commission, Trombay and will form a part of the building under construction as extension to the Balig Institute of Surgery and this will house also 8 operation theatres.

Department of Orthopaedics:

This department has 79 beds and these beds are distributed as follows:-

Paediatrics	29
Female	10
Male	40

33.11 This is well organised and all the equipment necessary to treat traumatology and cold orthopaedics are available.

33.12 Staff:

Professor	1
Assistant Professor	1
Registrar	1

33.13 Department of Surgery:

This is housed in the second floor. There are two surgical units each with 40 beds. This is well organised and has pre and post-operative wards and female, male and paediatric surgical patients. There is a burns and a plastic surgical unit. There is a preparation room, an intensive care unit with gases and suction arrangement.

33.14 Staff:

Surgery Unit: 1:	Professor	1
	Associate Prof.	1 (on leave)
	Reader	1
Unit: II:	Professor	1
	Associate Prof.	1
	Asstt. Professor	1

33.15 Department of Medicine:

This has two medical units with 40 beds each and cardiac unit has 10 beds. It also houses the neurosurgery, cardiothoracic and isolation units. The isolation ward has tuberculosis patients.

33.16 Staff:

Professor	1
Associate Professor	1
Assistant Professor	1
Reader	1

33.17 Department of Obstetrics and Gynaecology:

This Department is housed in a separate building and is extremely well organised. It has 80 beds shared by the two units. There are labour wards with three beds each. 1,200 deliveries are carried out annually, out of which 400 are abnormal cases. Each ward is provided with all the equipment.

33.18 10 to 12 anti-natal cases attend the out-patient services daily and 30 to 35 patients attend gynaecological clinic. There are 7 peripheral rural MCH clinics within the range of 3 to 18 miles from Manipal. Each centre conducts 25 deliveries a month.

- 33.19 There is a post-operative ward. The antenatal ward got 10 beds and mother's unit has 10 beds. The Gynaecology ward has 20 pre-operative and 20 post-operative beds for cancer. The Gynaecology ward makes use of cobalt and caesium units. There are in addition 24 private beds. There is a pre-mature baby clinic with 2 to 3 babies at any time being looked after. There is a sterilisation ward with 12 beds and laproscopic sterilisations are undertaken by the unit. There is also a post-operative intensive care ward with 12 beds.
- 33.20 The Dean, Director of the Hospital and the Professor of Obst. and Gynaecology informed us that the Church of South India Hospital at Ulipi has 200 beds and conducts 1500 deliveries a year. Negotiations are under way by the Academy of General Education for availing the facilities of the hospital and obtain the permission of the Management to make it as one of the affiliated institutions of Kasturba Medical College, Manipal. They are confident to realise this soon.
- 33.21 Operation Theatres:
- There are two major operation theatres and 2 small theatres with 4 operating tables. This is air-conditioned and serves the departments of Surgery and Gynaecology. The entry to the operation theatres are through a corridor and there is a viewing place from which students could observe the operations. The operation theatres have also pre-medical areas. The anaesthetic services are covered by two Anaesthetists and 4 residents.
- 33.22 There is a post-operative ward closely with 2 beds to attend to more serious cases and these patients are shifted after 24 hours to the larger post-operative ward.
- 33.23 The nurse-patient ratio is extremely satisfactory in that there are 140 staff nurse to 400 beds giving the ratio of one nurse for 3 patients. In addition there are pupil-nurses.
- 33.24 As an extension to the Baliga Institute of Surgery, 8 operation theatres complex with a lecture hall and post-mortum rooms, sufficient space to house the Radiology Department, Blood Bank and Central Sterilisation Division is now under construction and is expected to be ready for occupation by June, 1976. On commissioning this building the existing operation theatres will be exclusively allotted for Obst. and Gynaecology.
- 33.25 Space allotted for the Department of Radiology would be adjacent to the Radio-isotopes area which has been designed by the Atomic Energy Commission and will house 2 cobalt units and a linear accelerator for radio-isotopes.

33.26: Blood Bank Services:

The blood bank is incharge of an Assistant Professor who is a M.Sc. in Bacteriology and had one year training at the Armed Forces Medical College, Poona. This department is extremely well organised and has blood grouping, sterilisation, bleeding and storage areas. There are also facilities for plasma separation. RH typing is carried out routinely and there is a large panel of blood donors and most of the blood is obtained from voluntary donors and few only are paid donors. The panel of donors is from the medical college staff and student community and there are at any time 44 to 50 bottles of blood are available for supply to the hospital.

33.27: The organisation and the excellent maintenance of the blood bank could be emulated by other institutions who more often procure blood through paid donors.

33.28: Department of Ear, Nose and Throat:

This department has 30 beds and like other departments has necessary equipment and other facilities.

Similarly Ophthalmology has 30 beds, Paediatrics has 40 beds and have all the facilities. There is a burns unit with 16 beds and urological service with 12 beds. There are beds for neurosurgical and cardio-thoracic patients. They have sufficient equipment with EEG and artificial kidney services.

34.0: Out-patient Services:

The Medical Records Division is housed in the basement. This is on the lines of Christian Medical College, Vellore and has a medical records division officer and assistant records division officer. Both are trained at the C.M.C. Hospital for one year. It has in addition 11 clerks. This in addition to the clerks provided for inpatient registration services and accounting section. Maintenance and stacking of records are extremely satisfactory with case sheet, forms for lab. x-ray and other investigations. Patients are provided with a summary of their case, at the time of discharge. Index cards are all maintained as per international code. There is also an area for review of case sheets by the concerned staff members of the department.

34.1: The daily attendance at the out-patient is about 450, of which 100 are new cases.

34.2: The out-patient laboratories are extremely well organised and carry out a variety of investigations and samples of specimens are collected and sent to the respective laboratories in the college. There are 9 technicians working in this area. Each lab. is provided with patient demonstration-cum-seminar room.

34.3: Medical out-patient services:

A social worker assists the out-patient service in making contacts with the neighbouring rural folk and publicising a variety of patient care programmes undertaken by the teaching hospital. This is likely to bring in more patients to the hospital in the future.

34.4: 100 old and new cases are attended to daily of which 30 are new cases. There are very well designed 5 examination cubicles with x-ray viewing lobbies and also magnifying glass to read MMR films. The Professor and other faculty members have examination rooms where they could also carry out private consultations.

34.5: Orthopaedic out-patient services:

This is well organised. In addition to teaching room there is a plaster room and there is also a lecture-demonstration room. 20 new cases are seen a day.

34.6: Staff:

Professor	...	1
Asstt. Professor	..	2
Registrar	...	2

34.7: E.N.T. out-patient services:

This has five examination cubicles and 15 students are posted at a time. 30 to 40 patients attend a day of which new patients are 10.

34.8: There is a well organised audio and speech hearing centre and a minor treatment room. This centre covers 50 primary school children. There is also an audiological research and rehabilitation centre attached to ENT which covers all the school children mentioned above.

34.9: Pharmacy:

This is very well organised and most of the infusion fluids are manufactured in the college of Pharmacy and accounting of the drugs and the noting of the expiry date of the drug is done by card index system, locating the availability of the drug and the cost of the drug are all indicated by multiple colour system. There is male and female dispensary sections.

34.10: Cardiothoracic Unit:

This is well equipped and has sufficient equipment to carry out pulmonary function tests and blood gas analysis. This has an intensive care section with four channel monitoring system.

34.11: Psychiatric Services:

This department is assisted with a clinical Psychologist, one Reader and a Professor. 15 to 20 patients attend the out-patient, out of which 10 are new cases. There is a sound proof room and this is used to avoid noise while examining the patients..

34.12: The Professor of Psychiatry is extremely enthusiastic and has collaborative programme with the Department of Medicine and other clinical departments and offers teaching programme for pre-clinical year students along with physiology and pathology and also during the final year clinical postings. Students are posted for 15 days in batches. The Professor has a variety of research programmes covering clinical psychology and clinical psychiatry.

34.13: College of Dentistry:

This offers training programme for B.D.S. and M.D.S. This is extremely well organised and probably one of the best in the country.

34.1: The daily attendance at the out-patient is about 450, of which 100 are new cases.

34.2: The out-patient laboratories are extremely well organised and carry out a variety of investigations and samples of specimens are collected and sent to the respective laboratories in the college. There are 9 technicians working in this area. Each lab. is provided with patient demonstration-cum-seminar room.

34.3: Medical out-patient services:

A social worker assists the out-patient services in making contacts with the neighbouring rural folk and publicising a variety of patient care programmes undertaken by the teaching hospital. This is likely to bring in more patients to the hospital in the future.

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34.5: Orthopaedic out-patient services:

This is well organised. In addition to teaching room there is a plaster room and there is also a lecture-demonstration room. 20 new cases are seen a day.

34.6: Staff:

Professor	...	1
Asstt. Professor	..	2
Registrar	...	2

34.7: E.N.T. out-patient services:

This has five examination cubicles and 15 students are posted at a time. 30 to 40 patients attend a day of which new patients are 10.

34.8: There is a well organised audio and speech hearing centre and a minor treatment room. This centre covers 50 primary school children. There is also an audiological research and rehabilitation centre attached to ENT which covers all the school children mentioned above.

34.9: Pharmacy:

This is very well organised and most of the infusion fluids are manufactured in the college of Pharmacy and accounting of the drugs and the noting of the expiry date of the drug is done by card index system, locating the availability of the drug and the cost of the drug are all indicated by multiple colour system. There is male and female dispensary sections.

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34.11: Psychiatric Services:

This department is assisted with a clinical Psychologist, one Reader and a Professor. 15 to 20 patients attend the out-patient, out of which 10 are new cases. There is a sound proof room and this is used to avoid noise while examining the patients..

34.12: The Professor of Psychiatry is extremely enthusiastic and has collaborative programme with the Department of Medicine and other clinical departments and offers teaching programme for pre-clinical year students along with physiology and pathology and also during the final year clinical postings. Students are posted for 15 days in batches. The Professor has a variety of research programmes covering clinical psychology and clinical psychiatry.

34.13: College of Dentistry:

This offers training programme for B.D.S. and M.D.S. This is extremely well organised and probably one of the best in the country.

34.14: Surgical out-patient services:

This is like the other departments has six examination cubicles and the patients come from the neighbouring area. About 20 patients attend the O.P. of which 10 are new cases. 4 ~~staff~~ members are working in each unit.

34.15: Department of Dermatology:

This is a combined department of Dermatology, Venereology and Leprosy. 20 cases are attending the O.P. of which 4 to 6 patients may be suffering from venereal disease. The students receive lecture-demonstrations.

34.16: Neurological services:

There are 20 beds for neurosurgery and neurology. 20% of the patients are those of traumatic nature.

34.17: Ophthalmology O.P. Services:

50 cases attend a day of which are new. There is a mobile ophthalmic unit which was gifted by Canada. This is highly popular and a large number of patients attend this service and the students greatly benefit by this.

34.18: Paediatric O.P. Services:

About 50 patients attend the O.P. of which 20 are new cases. There is a Well Baby Clinic and also a Rural Paediatric Unit. There is also a child guiding clinic.

34.19: Obst. & Gynas. O.P. Services:

40 patients attend the Gynaec. O.P. daily, of which 20 are new cases. There are 3 cubicles for Obst. and 3 similar cubicles for Gynae. There are 7 peripheral maternity centres and these are within a radius of 3 to 18 miles from the college.

35.^o: Steam Laundry:

This is located with the boiler section of the Engineering College. This is to save the machinery as well as power but supplies washed linen in adequate number.

- 36.0: Kitchen services are extremely well organised and cater to the needs of the patients as prescribed by the doctors. Kitchen services are supervised by two dieticians.
- 37.0: The unique feature of the institution is the functioning of the International Health Club in Valley View. This services as a centre for health check up and the students are benefitted a lot through this service.
- 38.0: The lecture-demonstrations, dialetic lectures, clinical instructions in the wards and laboratories are done to small groups and are found to be very effective.
- 39.0: Discussions:
At a meeting of the Heads of Departments, Dean, Medical Superintendent, Medical Director and Mr. Ramesh U. Pai, views were expressed that the clinical material available at the hospital now has a variety and is sufficient to impart clinical instruction to 50-65 students admitted annually.
- 39.1: They are also of the view that there has been a gradual and steady increase in the attendance of patients at the Kasturba General Hospital last few years and are of the firm belief that in case more non-paying patients are admitted and good percentage of them are exempted from payment of any fee for the patient care, the daily attendance of the patients in the hospital is bound to double or even triple in the course of couple of years.
- 39.2: At the moment there are two medical and two surgical and two obst. and units functioning and these could meet the needs of 50 or 60 students' admission in a year. In the event of any increase of students admissions in the coming years 3 or 4 units need be created in General Medicine and General Surgery and the staff members have categorically indicated that this would be possible in a couple of years time provided that at least 50% of the patients admitted are not charged.
- 39.3: It was also suggested by the Professor of Psychiatry and also by Mr. Ramesh U. Pai that if wide publicity is given regarding the activities of the hospital and the facilities available, and also use sufficient number of social workers in the area with the medicare programme and cover with a mobile dispensary, comprehensive primary health care

accompanied by senior staff members and students would in course of time raise the image of the hospital from the service point of view and considerably increase patients attendance at the hospital.

- 39.4: The staff are of the opinion that the Kasturba Medical College, Manipal could function as a separate medical centre and would now and in the coming years provide sufficient clinical material to train 50 annual admissions of last year, 65 admissions in 1975-76, 80 admissions in 1976-77 and 100 from 1977-78. They are also of the view that in case the Church of South India Hospital at Udipi is affiliated to K.M.C., Manipal, which has 200 beds and a large number of out patient attendance, it should be possible to make 80 annual admissions for undergraduates from 1975-76. This suggestion was made by the faculty members taking into account of the backlog of increased admission of students in the previous years.

40.0: Recommendations:

The Kasturba Medical College and its hospitals at Manipal are one of the finest institutions in the country. It is well organised and well designed, planned and provides every facility for patient care, teaching and research in all specialities.

- 40.1: In view of the fact that there is perceptible increase in the attendance of patients at the hospital during the years and since the management assures that 50% of the patients attending the hospital will not be charged and will be affiliating the Church of South India Hospital, Udipi as one of the teaching hospitals it should be possible to enlist 80 students admission in 1975-76. If for some reason the CSI Hospital, Udipi does not come under the purview of the medical college complex and that the management is not able to provide patient care without charging, the admissions for 1975-76 could be only 65 students.

- 40.2: As the students would receive clinical instruction $1\frac{1}{2}$ years later before contemplating on increasing further annual admission of students, the university may depute a two-Member Commission in April 1976 and if the attendance at the wards shows perceptible increase the annual admissions for 1976-77 could be made 100, provided the CSI Hospital at Udipi continues to be affiliated to the medical college.

- 40.3: Similarly any further increase to 120 students annual admission could be made on the receipt of a report of 2 Member Commission appointed, in April 1977 by the university.
- 40.4: It must be said to the credit of the staff as well as the management that the manifest enthusiasm and the vigour with which they are working as a single team would certainly increase the patient attendance at the hospital and the recommendations now made to enhance the students annual admission from 50 to 65/80, 80/100 and 100/120 in the next three years would be possible.
- 40.5: There are abundant physical and equipment facilities available both in the hospital and in the college and the management does not stint or spare pains in providing the best, both for the students teaching purposes and patient care. The building programme now taken up by the Management would be completed and commissioned by the middle of 1976. Under the circumstances it should be possible for any visiting committee in future to find further improvement by way of additional physical facilities, equipment, and corresponding increase in attendance of patients in the hospital.
- 40.6: Taking into consideration the suggestion made by the Management that Kasturba Medical College at Manipal may work as an independent medical centre, unrelated with the Kasturba Medical College at Mangalore which could also function as an independent medical centre. The establishment of two separate medical centres under the name of Kasturba Medical College at Manipal and Mangalore is desirable and may be given effect from 1975-76.
- 40.7: The Management is planning to organise the departments of Basic Medical Sciences at Mangalore and these will be housed in a new building by 1977 and in the meantime be housed in the available space at the college. Till June 1976 the students admitted in the Kasturba Medical College, Mangalore will have instruction in basic medical sciences at the Manipal Campus where sufficient facilities are available for both the students and institution.
- 41.0: We wish to thank Drs. A. Krishna Rao, Dean, K.Ramesh Pai, Medical Superintendent, Ramdas Pai, Director and Mr. Ramesh Pai at Manipal and D.M.O. at Mangalore who have spared no pains in presenting a realistic picture of the working of the college and hospital and for the courtsey and hospitality extended to us during our stay.

Sd/- A.Venugopal
Member.

Sd/- D.Jaganatha Reddy
Chairman

KASTURBA MEDICAL COLLEGE

Kasturba Medical College started in 1953 as a cooperative venture, on the principle that the parents of the students pay the cost of the education of their children, has grown into a fullfledged Centre for medical education and health services offering undergraduate and postgraduate courses, para-medical courses, research facilities for Ph.D. and medicare for the population.

STUDENTS AND STAFF :

The enrolment for 1975-76 for MBBS degree was 506 students. Out of 506 students, 217 are from foreign countries. The strength of the students, country-wise and State-wise is given in Table I (out of the 506 students, 104 are girls). (80 students are registered for post-graduate degree or diploma courses. 93 students are enrolled for para medical courses). There are 174 staff members coming from different parts of the country as shown in table II. 68 of them are from other states.

ACCOMMODATION :

Most of the staff and students are provided with accommodation in the Hostels and Quarters. College of Pharmacy and College of Dental Surgery Staff and students also are accommodated in the Hostels and Quarters :

Hostels for boys to accommodate	..	778
Hostels for Girls	..	200
Three bed room quarters	..	29
Two bed room quarters	..	69
Single bed room quarters	..	40
Bachelor Teacher's quarters	..	48 rooms

Four Messes are attached to the hostels. They are run by the Students themselves.

Courses :

Besides the under-graduate M.B.B.S. course, 14 postgraduate degree courses and 11 diploma courses in various specialities of medicine are run. In addition, M.Sc. course in 4 subjects, are conducted. There is provision for research, leading to Ph.D. in the subjects of Biochemistry and Microbiology. Six para-medical courses are also conducted. The details of the courses are given in Table III.

EXAMINATIONS :

The College has maintained a uniformly high standard throughout the years. The results in the last 3 years are shown in table IV. The students have secured a number of ranks in the University. In January, 1975 all the 10 ranks of the University in the first M.B.B.S. examination were won by the students of this Course.

INNOVATIONS IN TEACHING :

The staff and students together have tried different methods of teaching and learning. Five workshops have been conducted to train the teachers on the use of Audio visual aids, Psychology of learning, evaluation etc.

On the principle that a person learns best when he teaches, selected students are made to teach junior students wherever possible. In anatomy department a senior I M.B.B.S., student is required to demonstrate and teach to the junior students in the dissection hall. Usually, they do this on two days a week and each student is paid Rs.3/- per session. There is very keen competition for selection for this type of work. All postgraduate students are involved in teaching the under-graduates.

EXAMINATION REFORM :

The pattern of examinations also has been changed so that a paper consists of two sections of $1\frac{1}{2}$ hrs duration each. There is one essay question to be answered in half an hour and a number of short answer questions, not less than 10 to be answered in one hour. An attempt is being made to draw questions which would test the understanding and application of knowledge instead of just recall.

The students run a clinical society of their own wherein interesting cases are presented by them and discussed. There is usually one staff member only to guide them.

RESEARCH ACTIVITIES :

The College gives all possible encouragement to the furtherance of research as good teaching and education can be done only in an atmosphere of research. Staff members are deputed on study leave to participate in workshops and seminars. 14 senior staff were awarded Commonwealth Fellowships. 22 staff members took part in various workshops. The details of research at present being carried on are given in Table V.

LIBRARY

The Library facility is a very important component for any research activity. As such college has been spending nearly 1-1/3 lakhs of rupees every year. It subscribes for 240 journals. The expenditure on the Library during the last 3 years is shown below :

Year	Books Rs.	Journals Rs.	Total Rs.
1972-73	79,384	61,380	140,764
1973-74	76,367	86,252	162,619
1974-75	76,087	93,504	174,591

Library is kept open from 8.00 a.m. to 1.00 a.m. (night) on all working days. On Holidays, it is kept open from 9.00 a.m. to 12.30 p.m. and 3.00 p.m. to 11.00 p.m. It provides reference services, photocopying facility and has a microfilm reader. At present the library has 17294 volumes of books (Table VI).

KASTURBA MEDICAL COLLEGE, HOSPITAL

Kasturba Medical College Hospital has about 700 beds. It offers the most modern treatment facilities in all the fields of Medicine. Surgery, Obstetrics and Gynaecology. It has Cobalt Therapy Unit for Cancer Therapy, Renal Dialysis Unit and a good Blood Bank and Corneal Bank. There are 7 maternity and child-welfare centres run by the college.

The college hospital has involved itself in the surrounding community by conducting regularly Dental Camps, Eye Camps, Medical and Surgical, O.B.G. Camps, Family Planning Camps, thus taking experts to the patients.

Medicare is being popularised to cover the population around. All people whose income is below Rs.200/- are given free medical aid in the hospital.

The Social & Preventive medicine department actively promotes preventive inoculation.

The Valley View International Health Club is a part of the Hospital. It gives facilities for people to come and have medical check every year.

The Department of Psychiatry has started a students counselling service in May, 1974.

The hospital works in close liaison with the General Practitioners so as to render better service to the patients.

Extra Curricular Activities

Following Recreation facilities are provided :

- | | | |
|---------------------------|---|-----|
| 1. Football ground | - | One |
| 2. Hockey | - | One |
| 3. Cricket pitch | - | One |
| 4. Basket Ball Court | - | Two |
| 5. Volley Ball Court | - | One |
| 6. Tennis Court | - | Two |
| 7. Indoor Recreation Hall | | |
| provides the following | | |
| facilities : | | |
| i) Shuttle badminton | - | One |
| ii) Table Tennis | - | Two |
| iii) Weight Lifting | - | - |

The following are run by the students :

1. Photograph and Arts Club
2. Debating Club
3. Dramatic Club
4. Film Club
5. Students' Library

There is N.S.S. in the college. 100 students are members. They take very active part in the Social Service activities. The service clubs like the Rotary and Loc have their Youth Wings and the students take very active part in these Youth Club.

In Patients and Out Patients

The hospital at present caters to nearly 11000 inpatients with 1.44 lakh hospital days and one lakh out patients a year. The statistics for the last 5 years is given in Table VII and VIII.

Income and Expenditure

The bed cost per patient per annum in the hospital comes to Rs.5202/- as shown in Table IX. The income and expenditure of the Medical College, Dental College and College of Pharmacy for the last 5 years is given in Table X and XI. It will be seen from this table that the ~~maintenance~~ of the Hospital is also being looked after by the Trust managing these institutions from 1975-76. The Medical Relief Society, South Kanaras was looking after this item of work till 1974-75. The audited accounts for the period ending December, 1974 show a deficit of Rs.12.53 lakhs on account of hospital maintenance which went upto Rs.13.88 lakhs in 1975-76. The capital works in progress cost the management Rs.55.35 lakhs in 1975-76 and Rs.18.3 lakhs in 1974-75. The new block under construction will be ready for occupation by January 1977. This huge expenditure has been met by the management from capitation fee collected from students for their admissions in 1976-77 and 1977-78.

The normal maintenance expenditure at the present level of activities comes to nearly Rs.38 lakhs on account of the medical college, Pharmacy College and Dental College. As against this the income from fees and other sources comes to only Rs.14 lakhs. The deficit is thus to the tune of Rs.24 lakhs per year. The deficit on account of hospital maintenance comes to nearly Rs.14 lakhs. The total deficit to be met thus comes to about Rs.38 lakhs per annum which is met from capitation fees and contributions made by the Academy from its own resources.

Table I 1975

THE KASTURBA MEDICAL COLLEGE, MANIPAL S.K.

Date : 11.12.1975

STUDENTS STRENGTH STATE-WISE (MBBS ONLY)

States	Total Number of Students
Mysore	189
Manipur	1
Kerala	32
Maharashtra	25
Punjab	1
Andhra Pradesh	6
Tamil Nadu	20
Gujarat	9
Bihar	2
Goa	1
Jammu & Kashmir	1
Uttar Pradesh	1
Delhi	1
U.S.A.	18
Malaysia	136
West Indies	1
Ceylon	8
Africa	22
Thailand	2
Kenya	6
Newzeland	1
Australia	1
Canada	6
Netherlands	1
Uganda	1
England	4
Brunei	1
France	1
Tanzania	3

p.t.o.

Hong Kong	2
Mauritius	1
Grand Total :	<hr/> 506 <hr/>

STUDENT STRENGTH

Postgraduate course (Medical) :	45
Postgraduate M.Sc.(Non-med.) :	35
	<hr/> 80 <hr/>

Para-Medical :

1. General Nursing	58
2. Practical Nurse	14
3. Lab. Technician Course	16
4. Optician Course	-
5. X-ray Technician Course	5
	<hr/> 93 <hr/>

THE KASTURBA MEDICAL COLLEGE, MANIPAL

LIST OF THE TEACHING STAFF

Department of Physiology :

1. Dr. A. Krishna Rao, MBBS, M.Sc., Professor and Head of the Department & Dean.
2. Dr. K. Kireeti, MBBS, M.Sc., Additional Professor.
3. Dr. (Mrs.) Millicent Rego, MBBS, Assistant Lecturer.
4. Dr. P. Laxminarayana Rao, MBBS, MD., Associate Professor.
5. Dr. (Mrs.) Kunda V. Gore, MBBS, Assistant Lecturer.
6. Sri S. Krishnamoorthy Bhat, M.Sc., BL., Assistant Professor.
7. Miss N. Nagaraj Kumari, M.Sc., Assistant Professor.
8. Miss U. Vasanthi Bai, M.Sc., Lecturer.
9. Sri P.S. Jeganathan, M.Sc., Lecturer.
10. Dr. G. Janardhana Rao, MBBS, Tutor.
11. Dr. Bhagyachandra Rao, I.K., MBBS, Tutor.
12. Miss B. Amba Devi, M.Sc., Lecturer.
13. Dr. (Mrs.) Susan Benjamin, MBBS, Tutor.

Department of Anatomy :

14. Dr. K. Krishnaswamy, MBBS, M.Sc., Professor and Head of the Department & Vice-Principal.
15. Dr. K.S. Manghirmalani, MBBS, M.Sc., Professor.
16. Dr. T. Umeshraya Pai, MBBS, M.Sc., Professor (on study leave).
17. Sri B.P. George, M.Sc., Lecturer.
18. Dr. B. Nagesh Pai, MBBS, Lecturer.
19. Dr. Balakrishna Varamballi, MBBS, Tutor.
20. Dr. (Mrs.) M.R. Sudha, MBBS, Tutor.
21. Sri S.N. Somayaji, M.Sc., Lecturer.
22. Sri Sitaram M. Bhat, M.Sc., Asstt. Professor.
23. Sri Ramachandra Bhat, M.Sc., Lecturer (on study leave).
24. Dr. K. Srikrishna Bhat, MBBS, Tutor.
25. Miss Premalatha John, M.Sc., Lecturer.
26. Dr. L.R. Uma, MBBS, Tutor.
27. Dr. Rajagopal Adiga, MBBS, Tutor.
28. Sri S. Suryanarayana Karnath, M.Sc., Lecturer.

Department of Biochemistry :

29. Dr. T.N. Pattabiraman, M.Sc., Ph.D. Professor and Head of the Department.
30. Sri T. Radhakrishnan, M.Sc., Assistant Professor.
31. Sri U. Sitarama Acharya, M.Sc., Assistant Professor.
32. Sri M.P. Sathyanarayana, M.Sc., Assistant Professor.
33. Miss Ashalatha V. Rao, M.Sc., Assistant Professor
34. Dr. A. Annayya Rao, MBBS, Junior Research Fellow.
35. Sri K. Sudhakar Prabhu, M.Sc., Lecturer.
36. Sri M. Ananda Rao, Lecturer, (B.Sc., AIC)
37. Sri H. Ramachandra Prabhu, B.Sc., AIC, Lecturer.

Department of Radiology :

103. Dr. V. Ramachandra Naidu, MBBS, DMRD, Professor and Head of the Department
104. Dr. H.M. Rajmohan Shetty, MBBS, DMRD, MD, Offg. Associate Professor (study leave)
105. Dr. H. Mohandas Shenoy, MBBS, DMR, Lecturer
106. Dr. (Mrs.) Subbalakshmi V. Murthy, MBBS, DMR, MD, Reader

Department of Psychiatry :

107. Sri N. Kumaraswamy, MA, DM& SP, Clinical Psychologist
108. Dr. J.N. Nayak, MBBS, MD, Reader & Head of the Department (study leave)
109. Miss Ashadeep Pai, MSW, Medical Social Worker

Department of Anaesthesiology :

110. Dr. Martin Issac, MBBS, DA, MD, Ph.D. FFARCS(I) FAMS Professor & Head of the Department
111. Dr. P. Santakumari, MBBS, FFARCS, Associate Prof.
112. Dr. K. Rajaram Baliga, MBBS, DA, Lecturer
113. Dr. Y.N. Prasad, MBBS, Assistant Lecturer
114. Dr. Shamala Patankar, MBBS, Tutor
115. Dr. Anarnath Shetty, MBBS, DA, Assistant Lecturer

Department of Medicine:

116. Dr. G.N. Kundajo, MBBS, MRCP(Lond.) MRCP (Glasco) Professor & Head of the Division
117. Dr. P. Vital Rao, MBBS, MD, Associate Professor
118. Dr. K. Ramachandra Bhat, MBBS, MD, Associate Prof.
119. Dr. B. Ganesh Baliga, MBBS, MD, Assistant Professor
120. Dr. M.C. Vishwanath, MBBS, MD, Assistant Professor

Department of Cardiology :

121. Dr. S.G. Sarvothama Prabhu, MBBS, MD, IM, Associate Professor and Head of the Deptt.(on study leave)

Department of Paediatrics :

122. Dr. Alladi Venkatesh, MBBS, MD, Professor and Head of the Department
123. Dr. (Mrs.) Meera Baliga, MBBS, DCH, MD, Reader (on study leave)
124. Dr. G.J. Bhat, MBBS, DCH, Registrar

Department of Obst. & Gynaceology :

125. Dr. (Mrs.) A. Padma Rao, MBBS, DGO, MD, Professor and Head of the Department
126. Dr. (Mrs.) Vimala Issac, MBBS, MD, DGO, MRCCG, Prof.
127. Dr. (Miss) R. Sita, MBBS, MD, DGO, Associate Prof.
128. Dr. K. Gopinath, MBBS, MD, DGO, Assistant Prof.
129. Dr. Vasanthi M., MBBS, DGO, Registrar
130. Dr. P.V. Vilasini, MBBS, DGO, Registrar

ICAR PROJECTS :

131. Dr. J.V. Bhat, M.Sc., Ph.D. D.Sc., FNA, Emeritus Scientist
132. Sri Rajendra Nayak, M.Sc., Research Assistant
133. Miss Geetha Bai Naimpalli, M.Sc., Research Assistant
134. Dr. H. Shantaram, M.Sc., Ph.D.(Lond.) D.I.C.(Lond.) Professor of Biology (Services Unit to Science College).

TABLE III

Post- Graduate Courses

Degree :

1. M.D. General Medicine
2. M.D. Pathology
3. M.D. Physiology
4. M.D. Obst. & Gynaec.
5. M.S. General Surgery
6. M.D. Pharmacology
7. M.D. Paediatrics
8. M.D. Microbiology
9. M.D. Biochemistry
10. M.S. Anatomy
11. M.S. ENT
12. M.D. Anaesthesiology
13. M.S. Ophthalmology
14. M.S. Orthopaedics

Diploma :

15. D.G.O. (obst. & Gnaec.)
16. D.C.H. (Paediatrics)
17. D.A. (Anaesthesiology)
18. D.D.M.S. (Ophthalmology)
19. D.M. (Diploma in Microbiology)
20. Diploma in Cl. Pathology
21. D.L.O. (ENT)
22. D. Orthe.
23. D.V.D.
24. D.M.R.T.
25. D.M.R.D.

M.Sc. Non-medical Courses :

1. M.Sc. Biochemistry
2. M.Sc. Microbiology
3. M.Sc. Anatomy
4. M.Sc. Physiology

Other Courses :

1. General Nursing
2. Auxillary Nursing
3. Laboratory Technician
4. X-Ray Technician
5. Optician Course.

Results of the Medical College from 1972
(M.B.E.S. Results in percentages)

	1972				
	January	May	September	December	May
I.MBBS	54.00	52.85	--	50.00	41.13
II.MBBS.PART I	100.00	77.77	100.00	---	86.20
II.MBBS.PART II	83.30	66.70	100.00	50.00	---
II.MBBS PART III	71.40	60.00	100.00	72.20	83.30
FINAL MBBS	--	46.15	44.40	48.00	53.30

17. Earthworms and agriculture. A project sponsored by the ICAR.
18. Chromogenesis in bacteria -a collaborative project with the Indian Institute of Science, Bangalore.
19. Abnorma flora in local Sources of Water.
20. Biology & Biochemistry of coiretting.

SOCIAL & PREV. MEDICINE :

21. Innovative Project in Family Planning programme.

p.t.o.

TABLE V

THE KASTURBA MEDICAL COLLEGE, MANIPAL

List of current research work carried out:

PHYSIOLOGY DEPARTMENT

1. Chromosomal pattern in Azoospermia.
2. Comparative Study of Isoprenaline and Tylophole-Asthamatica on Lung function tests.

ANATOMY DEPARTMENT :

3. Long term effects of vasectomy on endocrine glands experimental study.
4. Internal Iliac artery distribution.
5. Study of peritoneal recesses.

BIOCHEMISTRY DEPARTMENT :

6. Project 'Lactins and Plant Enzyme inhibitors - sponsored by the Atomic Energy, Govt. of India.
7. Project 'Biodegradation and Biological activities of Plant Gums' sponsored by CSIR.
8. Project 'Metabolic studies on plant fructans' sponsored by UGC.
9. Amylase inhibitors of legumes.
10. Urinary regulutomyl transpeptidase.
11. Proteolytic enzymes of the human pancreas.
12. Protease inhibitor of lathyrus seeds.

MICROBIOLOGY DEPARTMENT :

13. Toxoplasmosis - sponsored by the ICMR.
14. Mycotic infection of lungs - Candidiasis.
15. Q Fever.
16. Atypical mycobacteria and infertility.

I.C.A.R. UNIT :

17. Earthworms and agriculture. A project sponsored by the ICAR.
18. Chromogenesis in bacteria - a collaborative project with the Indian Institute of Science, Bangalore.
19. Abnorma flora in local Sources of Water.
20. Biology & Biochemistry of coiretting.

SOCIAL & PREV. MEDICINE :

21. Innovative Project in Family Planning programme.

SURGERY DEPARTMENT :

22. Patterns of gastric acid secretions and their co-relation to histology.
23. Value of gastric cytology and biopsy in the early diagnosis of carcinoma stomach.
24. Evaluation of drainage operations for chronic relapsing pancreatitis due to pancreatolithiasis, with special reference to the Exeerine and Endocrine functional alterations post-operatively.

ORTHOPAEDICS DEPARTMENT :

25. Long term follow-up in Porthes disease with reference to the regeration of capital Epiphysis.
26. A clinical study of the effect of various types of treatment in Osteoarthritis of the knee.
27. A comparative study of the conservative and operative management in T.B. of the spine.
28. A comparative study of the conservative and operative method in the correction of club feet.
29. Cubitus varus in supracondylar fractures in children.
30. Study of synovial fluid in the diagnosis of joint disease.

UROLOGY DEPARTMENT :

31. Cytological diagnosis of enlargements of prostate.
32. Lower urethral excession Urethristis syndrome in female.
33. Biochemical evaluation of prostatic enlargement with particular reference to hepatic disorders.
34. Prostatitis - an evaluation with particular reference to Prostatosis.
35. Testicular biopsy interpretation in the management of male infertility.
36. "Sertolicell Status" in prognostication of carcinoma prostate.
37. Metheline blue in the management of Urinary calcute & urinary concretis - collaboration with Dr. Bhajekar, Surgeon and Urologist, Port Trust Hospital, Bombay.

MEDICINE DEPARTMENT :

38. Respiratory function tests in disease
39. Intestinal biopsy in hook work disease
40. Irritable bowel syndrome
41. Hepatic encephalopathy
42. Acute renal failure
43. Cerebrovascular disease and angiography
44. Co-trimoxazole and choramphenicol in the treatment of typhoid.

CARDIOLOGY DEPARTMENT

45. Prevalence of coronary heart disease amongst population of Manipal (a Project sponsored by ICMR).
46. Prevalence of congenital heart disease.
47. Normal blood pressure in paediatrics age group.
48. Prevalence of rheumatic heart disease.
49. Prevalence of diabetic Mellitus.
50. Electro-cardiographic changes during proctosyngmoidoscopy.
51. Electro-cardiogram in normal premature infants.
52. Survey of Ocular Morbidity in School-going children.
53. Canalicule Rhinostomes in the absence of lacrimal Sac.
54. Operative results of surgery in the hospital and in the camp.
55. Evaluation of Glaucoma Patients.
56. Follow-up study of pregnancy termination.
57. Follow-up study of female sterilization.
58. Laparoscopic sterilization.
59. Leptaden in the promotion of lactation.
60. Effect of Uni-Pamba after insertion of I.U.C.D.

PHARMACY :

61. Biological activities of eximine esters and benzisoxazines.
62. Search for new antibiotics.
63. Microbial transformation of drugs.
- *64. Alkaloids of *Tabernemontana coronaria*.
65. Naturally occurring Flavonoids (This is a collaborative project with Dr. W. Herz, Florida State University, Dr. H. Wagner, University of Munich and Dr. M.A. Ingarg of the College of Pharmacy).
67. A review of work in Indian Medicinal plants.
68. Mucilages of cocoa seed Husk.

*65. Prescribing tendency among Doctors.

TABLE VI

THE KASTURBA MEDICAL COLLEGE LIBRARY, MANIPAL

LIST OF JOURNALS SUBSCRIBED FOR THE YEAR 1976

1. Acta Neurologica Scandinavica
2. Acta Obstetrica et Gynaecologica Scandinavica
3. Acta Obstetrica Japonica
4. Acta Ophthalmologica
5. Acta Orthopædica Scandinavica
6. Acta Otolaryngica
7. Acta Radiologica Scandinavica
8. Adara Vijanana
9. American Heart Journal
10. American Journal of Anatomy
11. American Journal of Clinical Nutrition
12. American Journal of Clinical Pathology
13. American Journal of Cardiology
14. American Journal of Hospital Pharmacy
15. American Journal of Medicine
16. American Journal of Nursing
17. American Journal of Obstetrics & Gynaecology
18. American Journal of Ophthalmology
19. American Journal of Orthodontics
20. American Journal of Pathology
21. American Journal of Pharmaceutical Education
22. American Journal of Public Health
23. American Journal of Physiology
24. American Journal of Psychiatry
25. American Journal of Psychotherapy
26. American Journal of Roentgenology and Radium Therapy
27. American Journal of Tropical Medicine & Hygiene
28. Anatomical Record
29. Anaesthesia
30. Anaesthesia, Analgesia and Current Research
31. Angle's Orthodontics Journal
32. Annals of Internal Medicine
33. Annals of Otolaryngology, Rhinology and Laryngology
34. Annals of Ophthalmology
35. Annals of Royal College of Surgeons of England
36. Annals of Surgery
37. Annals of Thoracic Surgery
38. Anti-Speetic
39. Archives of Dermatology
40. Archives of Disease of Childhood
41. Archives of General Psychiatry
42. Archives of Neurology
43. Archives of Ophthalmology

44. Archives of Otolaryngology
45. Archives of Pathology
46. Bacteriological Reviews
47. Biochemics, Biophysica Acta
48. Biochemical Journal
49. Biochemcial Medicine
50. Brain; the journal of Neurology
51. British Dental Journal
52. Biochemistry
53. British Heart Journal
54. British Medical Bulletin
55. British Medical Journal
56. British Journal of Anaesthesia
57. British Journal of Diseases of Chest
58. British Journal of Disorders of Communication
59. British Journal of Hematology
60. British Journal of Obstetrics & Gynaecology
61. (Formerly Journal of Obstetrics & Gynec. of British Empire)
61. British Journal of Ophthalmology
- 62(a) British Journal of Oral Surgery
63. British Journal of Plastic Surgery
64. British Journal of Psychiatry
65. British Journal of Radiology
66. British Journal of Surgery
67. British Journal of Urology
68. British Journal of Venereal Diseases
69. Bulletin of the Institute of History of Medicine
70. Cancer
71. Cancer; Journal of Clinician
72. Canadian Nurse
73. Canadian Anaesthetist's Society Journal
74. Canadian Journal of Physiology
75. Circulation
76. Circulation Research
77. Clinical Chemistry
78. Clinica Chemica Acta
79. Clinical Obstetrics & Gynanecology
80. Clinics in Endocrinology & Metabolism
81. Clinics in Obstetrics & Gynaecology
82. Clinics in Hematology
83. Clinics in Gastroenterology
84. Clinical Radiology
85. Cumulative Index Medicus
86. Current Problems in Surgery
87. Dental Abstracts
88. Dental Clinics of North America
89. Dental Dialogue
90. Educational Quarterly
91. Eastern Archives of Ophthalmology
92. Eastern Pharmacist

93. Excerpta Medica Section - Anatomy
94. - do - Biochemistry
95. - do - Internal Medicine
96. - do - Microbiology
97. - do - Neurology & Neuro-surgery
98. - do - Pathology
99. - do - Pharmacology
100. - do - Physiology
101. - do - Urology
102. Gastroenterology
103. Gut
104. Herald of Library Sciences
105. Hindustan Antibiotics
106. Hospital Abstracts
107. Hospital Management
108. Human Pathology
109. Indian Academy of Forensic Science Journal
110. Indian Drugs and Pharmaceuticals
111. Indian Journal of Anaesthesia
112. Indian Journal of Biochemistry & Biophysics
113. Indian Journal of Diseases of Chest
114. Indian Journal of Cancer
115. Indian Journal of Dental Association
116. Indian Journal of Experimental Biology
117. Indian Journal of Hospital Pharmacy
118. Indian Journal of Medical Education
119. Indian Journal of Medical Research
120. Indian Journal of Medical Sciences
121. Indian Journal of Microbiology
122. Indian Journal of Otolaryngology
123. Indian Journal of Pathology & Bacteriology
124. Indian Journal of Pediatrics
125. Indian Journal of Pharmacy
126. Indian Journal of Pharmaceutical Education
127. Indian Journal of Physiology and Pharmacology
128. Indian Journal of Psychiatry
129. Indian Journal of Public Health
130. Indian Journal of Radiology
131. Indian Journal of Surgery
132. Indian Journal of Tuberculosis
133. Indian Journal of Venereology & Dermatology
134. Indian Pediatrics
135. Indian Science Abstracts
136. Industrial Economists
137. Industrial Times
138. International Abstracts of Biological Sciences
139. International Dental Journal
140. International Journal of Leprosy
141. International Pharmaceutical Abstracts
142. Investigative Urology
143. Journal of All India Ophthalmic Society
144. Journal of American Dental Association
145. Journal of American Medical Association

146. Journal of American Pharmaceutical Association
147. Journal of Anatomical Society of India
148. Journal of Anatomy
149. Journal of Applied Physiology
150. Journal of Associations of Physicians of India
151. Journal of Bacteriology
152. Journal of Bone & Joint Surgery
153. Journal of Biological Chemistry
154. Journal of Cardiovascular Surgery
155. Journal of Clinical Endocrinology & Metabolism
156. Journal of Clinical Pathology
157. Journal of Clinical Investigation
158. Journal of Clinical Orthodontics
159. Journal of Comparative Neurology
160. Journal of Dental Education
161. Journal of Dental Research
162. Journal of Experimental Zoology
163. Journal of Heredity
164. Journal of Indian Medical Association
165. Journal of International Federation of Gynecology and Obstetrics.
166. Journal of Laboratory & Clinical Medicine
167. Journal of Laryngology & Otolaryngology
168. Journal of Medical Education
169. Journal of Neurology, Neuro-surgery & Psychiatry
170. Journal of Neurosurgery
171. Journal of Obstetrics & Gynaecology of India
172. Journal of Oral Surgery
173. Journal of auditory research
174. Journal of Pathology & Bacteriology
175. Journal of Pediatrics
176. Journal of Periodontology
177. Journal of Pharmaceutical Sciences
178. Journal of Pharmacology & Experimental Therapeutics
179. Journal of Pharmacy & Pharmacology
180. Journal of Physiology
181. Journal of Population Research
182. Journal of Postgraduate Medicine
183. Journal of Prosthetic Dentistry
184. Journal of Rehabilitation of Asia
185. Journal of Speech & Hearing Disorders
186. Journal of Thoracic & Cardiovascular Surgery
187. Journal of Trauma
188. Journal of Urology
189. Lancet (The)
190. Leprosy in India
191. Laryngoscope
192. Medical Clinics of North America
193. Medical Record News
194. Medico-legal Journal
195. Medicine, Science and the Law
196. National Institute of Health Administration and Education Bulletin

197. Nature
198. Nephron
199. Neurology (India)
200. Neurology
201. Nutrition
202. New England Journal of Medicine
203. New Frontiers in Education
204. Nursing Clinics of North America
205. Nursing Mirror
206. Nursing Times
207. Obstetrical & Gynaecological Surgery
208. Obstetrics & Gynaecology (American)
209. Ophthalmological Literature
210. Ophthalmologica
211. Oral Research Abstracts
212. Oral Surgery, Oral Medical & Oral Pathology
213. Orthopedics Clinics of North America
214. Otolaryngical Clinics of North America
215. Pediatrics
216. Pediatrics Clinics of North America
217. Pharmacological Reviews
218. Pharma Times
219. Physics in Radiology & Medicine
220. Physiological Reviews
221. Postgraduate Medical Journal
222. Postgraduate Medicine
223. Practitioner
224. Primary Care
225. Proceedings of the Royal Society of Medicine
226. Progress in Cardiovascular Diseases
227. Psychological Medicine
228. Quarterly Review of Biology
229. Quarterly Journal of Medicine
230. Radiological Clinics of North America
231. Scandinavian Journal of Thoracic Surgery
232. Scandinavian Journal of Urology
233. Science
234. Science Reporter
235. Scientific American
236. Social Psychiatry
237. Stain Technology
238. Surgical Clinics of North America
239. Surgical Neurology
240. Surgery, Gynaecology & Obstetrics
241. Social Welfare
242. Swasth Hind
243. Thorax
244. Transplantation Proceedings
245. Urological Survey
246. Vascular Surgery
247. WHO Bulletin
248. WHO Chronicle.

Table VIaThe Kasturba Medical College Library, ManipalTotal number of volumes, subjectwise

1.	Anaesthesia	...	187
2.	Anatomy	...	1143
3.	Bacteriology	...	501
4.	Biochemistry	...	1217
5.	Cancer	...	96
6.	Dentistry	...	681
7.	Dermatology	...	246
8.	General	...	310
9.	Histology	...	229
10.	Mathematics	...	28
11.	Hygiene (Social & Prev. Medicine)	...	413
12.	Medical Education	...	274
13.	Medical History	...	214
14.	Medical Jurisprudence	...	99
15.	Medicine	...	1775
16.	Midwifery (Obst. & Gynaecology).	...	618
17.	Miscellaneous	...	202
18.	Nursing	...	520
19.	Ophthalmology	...	522
20.	Pathology	...	476
21.	Paediatrics	...	369
22.	Pharmacology & Pharmacy	...	1223
23.	Physiology	...	1203
24.	Psychiatry & Sex	...	385
25.	Surgery	...	1429
26.	Basic Sciences	...	1848

	Total:	...	17208

Kasturba Medical Hospital, Manipal (Mysore)
Medical Records Department
Outpatient visits during 1971-75

Service	1971	1972	1973	1974	1975
Med - I	6607	5735	5623	5967	10130
Med - II	8204	7711	7042	7330	7612
Cardio	7756	9037	7967	4756	2750
Skin	2806	2627	2681	2961	3268
Paed.	10980	11216	10421	9476	8623
Surg - I	2966	3623	3993	3709	3415
Surg - II	3484	4304	3147	2745	3606
Ortho	3713	4257	4367	4815	4859
C.T.S.	-	135	264	-	40
Neuro S.	-	398	1687	2388	2626
Burns	99	83	64	16	17
E.N.T.	-	5404	5853	5631	5804
Eye	8592	8595	8175	9750	10851
Dental	18332	19618	23923	25282	26370
Obs - I	2344 AN PN	1474 AN 252 PN	1384 300	1289 208	1442 221
Obs - II	347 AN PN	576 AN 77 PN	683 84	542 65	576 60
Gyn - I	3646	3085	2327	2484	3041
Gyn - II	-	1387	1195	1376	1458
Neonatal	41	829	726	606	569
Inf.	507	410	71	389	648
C.D.C.	-	31	66	170	279
F.P.	281	619	246	113	525
Casualty	-	4083	3907	4211	4550
Urology	-	-	388	761	1145
Psychiatry	-	5	-	2020	4141
RT & Oncology	-	-	-	34	852
Gen. Clinic	-	-	1844	786	-
Radiology	-	-	1	-	-
Total:	89737	95574	98829	99880	109478

Excess of Expenditure over Income

Manipal Institute of Technology

		Rs.
1970-71	...	5,31,192.56
1971-72	...	5,68,270.78
1972-73	...	4,33,995.95
1973-74	...	2,28,357.82
1974-75	...	4,26,737.59

'Medicare'

'Comprehensive Medical & Dental Health Care'

...

'Medicare' - Comprehensive Medical & Dental Health Care is a scheme introduced by the Kasturba Hospital on 1.1.1972 for the benefit of the staff of various institutions and the public around Manipal for getting the benefits of hospital services as prepaid nominal rates. The scheme is first of its kind in India. Only limited number of nations like U.S.A. have similar schemes. It was inaugurated by the Governor of Mysore on 3rd April, 1972.

A group of persons belonging to a particular institution of category will be enrolled to this scheme on payment of premium at the rates given below.

Admission to this scheme is done twice a year - i.e. on 1st of January and 1st of July. The minimum period for which a person can be enrolled is one year.

The rate of annual premium:

Category	Type of Accommodation	Amount payable under single benefit plan	Amount payable under family benefit plan, (husband, wife & up to three dependent children)
A	Special Room (one in a room)	Rs.90/-	Rs.270/-
B	Semi-special room (two in a room)	Rs.60/-	Rs.180/-
C	Semi-private (four in a room)	Rs.30/-	Rs. 90/-
D	General ward (more than four in a room)	Rs. 9/-	Rs. 27/-

Note: Any person who donates blood from the family twice a year will get 'D' Category benefit to his family free of charges for one year.

The enrolled members and their eligible dependents - in case of family benefit plan, are eligible for the following benefits free of charges at this hospital as per the hospital rules in force during the contract period:

- i) Consultation, examination & advice
- ii) Laboratory tests
- iii) X-rays
- iv) Electro-cardiogram
- v) Operations - Major & Minor
- vi) Confinements, not more than three
- vii) Hospitalisation - bed, room & nursing care
- viii) Dental Service.
- ix) Medical & Hospital Services excluding diet & Drugs.
- x) All services charges in the case of dialysis prosthetics, cobalt therapy dentures etc. However actual material cost has to be met by the member in these cases.

Persons desirous of joining this scheme have to apply in the prescribed form and remit the premium for one year. The management after scrutinising the applications shall issue an 'Identification Card' if accepted.

Vehicles available at Kasturba Medical College
Hospital

.....

Ambulance	...	4
Mobile Eye Unit	...	1
Jeep with trailer	...	1
Vans (mini buses)	...	2

Besides there are 3 vehicles (vans), available with Family Planning and Post-Martum departments.

.....

Department-wise beds available at Kasturba Medical
College Hospital, Manipal.

...

Department	As on 1.10.75	After opening the operative eyesight universal in January 1977.
1. Medicine (including Cardiology Nephrology and Isolation)	136	165
2. Paediatrics (including Premature Nursery and neonatal)	60	60
3. Skin & Leprosy	30	30
4. Tuberculosis & chest diseases	25	30
5. Psychiatry	31	31
6. Surgery (including Urology, Thor, Surgery Burns, Pl. Surgery, Cancer and Acc. & Emergency.	155	194
7. Ortho-paedics	40	40
8. Opthamology	40	50
9. E.N.T.	30	30
10. Obstetrics & Gynaecology (including family planning and 56 rural maternity beds)	149	156
	---	---
Total:	696	786
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Manipal Institute of TechnologyCourses and enrolment:

The Manipal Institute of Technology formerly known as the Manipal Engineering College was started in 1957 on the same pattern of the Kasturba Medical College. This institution which started functioning with a diploma course in Civil Engineering has now grown into one of the biggest technical institutions in the Karnataka State, with a student strength of over 1,250 and a staff strength of over 125 offering courses at the degree level affiliated to Mysore University in Civil Mechanical, Electrical Power, Electronics and Communications and Chemical Engineering. The Institute is also running a postgraduate course in Industrial Chemistry on behalf of the Mysore University besides offering instruction for postgraduate diploma courses in Industrial Engineering and Instrumentation Technology.

240 students are admitted every year to the first year of the various courses covering all branches of engineering as indicated below, mechanical engineering having the biggest intake:

Civil	...	60
Mechanical	...	90
Electrical Power	..	20
Electronics	...	40
Chemical	...	30

Total:...		<u>240</u>

The Postgraduate Diploma Course is of one year duration and only those who have passed the B.E. Degree of Mysore University and its equivalent are eligible for admission. The annual intake is 10 for this course. Similarly, for the Postgraduate Diploma Course in Instrumentation Technology, candidates who have passed the B.E. Degree in Electronics, Tele-communications and Electrical Engineering or its equivalent are admitted and the number of seats available is 10.

Facilities:

The Institute has adequate space (a floor area of 1,35,810 sq.ft. (Annexure I) which is comparable to the floor area of any Regional Engineering College). The land

area of the Campus is 182.57 acres and 104.99 acres thereof have so far been utilised for class-room accommodation, workshops, hostels, staff quarters, play-grounds, etc., having 77.58 acres for future expansion. The laboratories of the Institute are all fully equipped to cater to the needs of undergraduate students. Some of them have special equipments used for training postgraduate and research students. The Institute has already acquired equipment worth Rs.35 lakhs including special equipment.

Workshop:

The Institute also has a well-equipped workshop which has been rated as one of the best educational workshops available in the whole of Karnataka. The workshop not only trains students in workshop practices and various skills but is also able to take up outside work and has been responsible to design and manufacture highly sophisticated dental equipment including hydraulic dental chairs. These are now manufactured on a commercial scale by an independent unit. The workshop undertakes structural steel fabrication and is running a model Carpentry School. The cupola is fired regularly and castings are made so that the students get a first-hand knowledge about running a cupola.

Teaching Faculty:

The Institute has a teaching staff of 120 including teachers having long teaching and research experience. Among them are 6 Ph.Ds. and 5 Postgraduates. The non-teaching staff number 124 (Annexure II). The Institute has already a student-teacher ratio of 1:10 and has provided hostel facilities for all the students who join the Institute.

The library facilities are also adequate with nearly 18,000 books and subscribing to 80 standard technical journals. The Institute is spending nearly Rs.1 lakh every year on the maintenance of the library. The Institute mainly depends for its finances on the income from fees and also money collected from the parents of students as benevolence which is utilised for the programmes of development and improvement of the Institute.

The names of journals subscribed to by the Institute is indicated in the Annexure V.

Department of Civil Engineering:

The courses under this Department cater to the requirements of the Semester Scheme of the Five Year Degree course of the Mysore University. The diversified streams in the branch of Civil Engineering for which facilities are offered in the Institute are (I) Structures Stream, (II) Hydraulics Stream and (III) Public Health Engineering. In the Final Year of the course the students will be offering two electives pertaining to the particular stream to which they opt. This helps them to specialise and to acquire specialised knowledge even at the undergraduate level in the particular stream of their choice and also improves their employability in the specialised fields. The Department has the following laboratories.

1. Survey: The Survey laboratory has equipment to cover all Survey requirements including Astronomical surveying. The equipment includes Theodolites of various types, Celestial Globe, Planimeters, Sextants, Pantagraph, Clinometers at a total cost of Rs.2.03 lakhs.
2. Materials laboratory: The materials laboratory has all the equipments required for testing metals at a cost of Rs.1.4 lakhs. The equipments includes a universal testing machine, Brinell Hardness testing machine, Vismal Hardness testing machine, Rockwell hardness testing machine, Dynamic fatigue testing machine, Universal tester, Reverse Torsion testing machine.
3. Structural Laboratory: The Structural Laboratory which has all the equipment required and prescribed including a Bending Moment apparatus, Shear Force apparatus, Gib crane, Universal force apparatus, G.I. Stand for suspending rope pulley blocks, Spring compression apparatus, Redundant apparatus, Portal frame apparatus, Simple bow girder apparatus at a total cost of nearly Rs.26,000/-.
4. Concrete and Highway Materials laboratory: The Concrete and High Way Materials Laboratory is fully equipped with equipment worth Rs.60,000/- and has all the equipments and accessories to enable laboratory testing of pre-testing units.
5. Soil Mochanics Laboratory: The Soil Mechanics Laboratory has all the equipment necessary at a cost of Rs.53,000/-.

6. Hydraulic Machinery Laboratory: The Hydraulic Machinery Laboratory which has equipment worth Rs.1.2 lakhs and the Hydraulic irrigation laboratory includes equipments necessary for flow through plug sluices, flumes and syphons as also other units for measurements required under irrigation like plus sluices. The special feature of this laboratory is that all the units required for irrigation laboratory are cast and constructed by the college at a cost of only Rs.60,000/--.

7. Testing facilities offered by the laboratories of the Civil Engineering Department are also utilised by Public Works Department and Private Companies, for testing of the construction materials for the quality control of these materials used in the construction of buildings, bridges etc. These facilities are fully utilised by them. The Department provides the following testing facilities:

- (i) Testing of cement concrete and mortar cubes for finding the cube strengths and cylinder strengths.
- (ii) Testing of steel bars for their stress-strain characteristics, yield stress, ultimate tensile strength etc.
- (iii) Testing of welded joints in steel bars for the tensile strength and the effectiveness of the joints.
- (iv) Testing of bricks and tiles for their crushing strength, permeability etc.
- (v) Testing of road aggregates: This facility provided in the college has brought an awareness on the part of Engineering contractors and other construction companies working in the field, that testing of materials of construction and knowing their strength in advance is an important factor in quality control. It is also expected that with the future growth of industries in South Kanara District and the increase in the tempo of building activity, both urban and rural, these laboratories with the facilities available will play an even more important role in suitably advising the public regarding the suitability and the strength of locally available materials of construction.

The analysis of the placement of the students which have graduated from the Civil Engineering Department of the Institute shows that all of them were able to secure employment immediately after their graduation.

The Department has also facilities for starting postgraduate courses in Public Health Engineering and Structures though this would mean recruitment of additional staff, and also strengthening laboratory facilities. The Final Year Civil Engineering students are required to undergo a course of project work as such a course has been found to be very useful for the future professional career, and towards increasing the capabilities of students in preparing original project reports by themselves.

The Civil Engineering Department has also identified the services that are rendered or that can be rendered by it as below:-

(a) Strength of Materials Laboratory:

- (i) Testing of different materials for different strengths upto 25 metric tonnes in tension and 150T in compression.
- (ii) Testing of materials under torsion, fatigue and impact.
- (iii) Hardness Tests on materials (Brinell's, Vicker's and Rockwell's Hardness Tests).
- (iv) Testing on springs (leaf spring and Helical spring).
- (v) Bending Test on wood and other materials.

(b) Structural Laboratory:

- (i) Test on R.C.C. slabs, beams and columns upto 25T.

Note: a) The capacity of the testing machine will be increased to 100t with availability of some more components.

- b) When the structural laboratory is equipped with Photoelastic bench and Begg's Deformeter stress analysis of statistically indeterminate structures can be carried out.

- (c) Concrete and Highway Materials Laboratory:
- (i) Testing of cement, concrete and highway materials. (Tests such as strength of concrete cubes and cylinders, quality of aggregates, bitumen etc.).
 - (ii) In near future test on pre-stressed concrete components can also be carried out.
 - (iii) Pre-tensioned, pre-cast cement concrete lintels, beams, and post for fence etc., can be cast.
- (d) Soil Mechanics Laboratory:
- (i) Different types of test on soil including plate bearing test on soil for the determination of bearing strength of soil for the design of foundation.
 - (ii) Sub-soil exploration can be carried out.
- (e) Hydraulic Machinery Laboratory:
- (i) Testing of different types of pumps such as gear pumps, centrifugal pumps and reciprocating pumps.
 - (ii) Testing of turbines such as Kaplan and Francis.
 - (iii) Testing of ram.
- (f) Irrigation Laboratory:
- (i) Tests on rotameters and venturimeters.
 - (ii) Testing of pipes for friction loss and other losses.
 - (iii) Testing of notches, flumes and syphons.
- (g) Survey Laboratory:
- (i) Different types of ground surveys can be carried out and maps can be obtained.

(h) Planning and Construction Department:

- i. Preparation of site and detailed plans, designs, estimates, drawings and prints.
- ii. Supervision of Civil Engineering Works.

II Training facilities that are available:

- i. Draftsman training and blue print making.
- ii. Preparations of elementary designs and estimates and drawing up of tenders.
- iii. Conducting simple ground surveys using common survey equipments and plotting and preparation of maps.

III Projects taken up so far:

- i. Strength of mud bricks with cement as admixture.
- ii. Strength of mortar joints.
- iii. Strength of concrete beams with steel filings.
- iv. Design of multi-storeyed buildings for libraries, shopping centres, theatre and residential flats.
- v. Design of stadium.
- vi. Design of water tanks.
- vii. Design of industrial buildings.

IV Research facilities available:

- i. Research can be carried out as pre-stressed and reinforced cement concrete components.
- ii. Strength of different engineering materials.
- iii. Research on various aspects of soil engineering.

V Projects in Public Health Engineering:

- i. Sewerage and Sewage treatment for M.I.T. campus- Oxidation pond.
- ii. Sewerage and sewage treatment for K.M.C. campus by Extended aeration treatment.
- iii. Revamping of water distribution system.
- iv. Solid waste disposals.
- v. Swimming pool design and construction.

Department of Mechanical Engineering:

This Department trains students in the B.A. degree course in Mechanical Engineering and also the Postgraduate diploma course in Industrial Engineering. Three streams of specialisation are offered in the final year of the B.E. degree course viz., (1) Industrial and Production Engineering, (2) Heat Power Engineering (3) Machine Design. The Department has also adequate facilities to start Postgraduate course in Industrial Engineering. The laboratories are all well-equipped at a cost of Rs.4.35 lakhs. The Heat Engines Laboratory has a Knock Testing Engine for rating motor fuel by determination of Octane number. Further it has Testing Diesel unit for rating diesel fuel cetane number (2) 2 Stroke 2 Cylinder Diesel Engine (Russian Make) and (4) 4 Stroke, 4 Cylinder Diesel Engine Russian make. The Cochran Boiler of the laboratory cater to the needs of the steam to the laboratories of the Chemical Engineering Department and also the needs of the Laundry run by the Kasturba General Hospital. The final year students are required to do project work and in certain cases the students have been able to suggest ways and means of improving production and reducing cost. The fabrication work done by the students include a Tool dynamometer and Stear only cycle. The Department is in a position to offer the following consultancy service:

1. Design and fabrication of heat exchangers and heat transfer equipment.
2. Testing of single cylinder and multi-cylinder engines.
3. Testing of fuel oils like petrol, diesel etc.
4. Design and fabrication of cranes, material handling equipment etc.
5. Conducting courses on business administration and industrial organisation, industrial engineering for in service personnel.

The Department will also be in a position to start postgraduate courses in the following:-

- (a) Industrial Engineering.
- (b) Heat Transfer.
- (c) Industrial Administration and Management.
- (d) Internal Combustion Engineering.
- (e) Machine Design.

Electrical Engineering:

This Department is at present offering courses in Electrical Engineering. Its laboratories - Electrical Machines Laboratory, Electrical Measurements Laboratory,

are fully equipped. The Machines Laboratory can conduct all types of experiments covered by the syllabus. It has also satisfied the requirements specified by the A.I.C.T.E. as applicable to private Engineering Institutions. The Measurements Laboratory is also in a position to conduct experiments on basic electrical measurements and instrumentation prescribed for the Undergraduate courses. Experiments pertaining to Electro-techniques as per new syllabus of the Mysore University are also conducted in the laboratory which has equipment worth Rs. 4.09 lakhs. The analysis of the placement of the students who have graduated from this department shows that all of them have been either employed in Government organisations or private firms or have started their own electrical or are self-employed.

Though this Department is at present offering only undergraduate course, it has the facilities and potential to start postgraduate courses in Power System or Advanced Control systems with the strengthening of the laboratory facilities and teaching staff. The staff members of the Department have been particularly oriented towards Instrumentation, Digital Computer Applications, Load Flow Studies and Systems Engineering which have been useful in their project/research activities. The teaching staff are also encourage to acquire higher qualifications under the Q.I.P. Scheme of the I.S.T.E. The final year students are required to involve themselves in some kind of research studies and submit their project work report. This has offered an opportunities to the staff members to associate themselves with development and research activities of the Institute as a result several design and fabrication projects have been completed by the students and some of them are listed below:-

- (1) Fabrication of an a.c. potentiometer.
- (2) Fabrication of an A.V. meter.
- (3) Fabrication of an Electronic Voltmeter using F.E.T.
- (4) Fabrication of a squirrel cage induction motor.
- (5) Fabrication of a Linear Induction motor.
- (6) Fabrication of a Battery Charger including step-down transformer.
- (7) Fabrication of an electrically operated baking oven.
- (8) Fabrication of an A.C. voltage stabiliser using SCR.
- (9) Fabrication of a S.C.R. motor control unit.
- (10) Fabrication of a Solid State Automatic Voltage Regulator.

The students have also required to prepare desertation report on the current developments on several electrical engineering topics at utmost interest under the guidance of teacher guide. In the absence of the Computer facilities at the Institute, the required facilities have to be obtained from Bangalore at present.

The department of Electrical Engineering has adequate facilities for testing/consultancy services as below:-

- (i) Testing all types of d.c. and a.c. electrical machines

- (ii) testing and calibrating all types of electrical measuring instruments,
- (iii) testing all types of electrical installations in residential and public buildings besides industrial establishments.

The Department has the required personnel to take up planning, design and execution of electrical installations in buildings and industrial establishments of sophisticated nature. One of the areas where the department is motivating students is in taking the projects involving design, fabrication of devices equipments in the areas of the Electrical Engineering and Power Electronics. The Department has facilities for starting postgraduate courses in Electrical Power Systems and Modern Control Theory though this would mean provision of adequate funds for strengthening the laboratories and staff.

Department of Electronics and Communication Engineering:

This Department which trains students in Electronics and Communication Engineering has a good Electronic Laboratory which has been equipped worth over Rs.4.00 lakhs at present and is offering training to the B.E. degree programmes in Electronics and Communication. The Department also undertakes theory and laboratory courses for Electrical Power, Mechanical and Chemical Engineering in addition a Postgraduate course in instrumentation technology is also offered in collaboration with the Electrical Engineering Department.

With some additional investment it would be in a position to run Post-graduate course in Industrial Electronics, Instrumentation and Control Engineering T.V. and Communication Engineering. The Undergraduate students are already working on different projects in the above areas utilising the laboratory facilities of the Institute which have over 2000 volumes in this area.

The Department has also some notable impact on the community on the accounts of the consultancy work undertaken at the personnel levels and work for prospective small scale industrialists. A S.I.T.E. direct reception system has been installed by the Department as a service to the surrounding community which also gives a unique opportunity for the students to learn something about the latest technology. The Department is also involved instituting a circuit T.V. Inspection of Kali Bridge foundation work under the pneumatic lock which has undertaken by the Government of Karnataka. The students are actively engaged under the auspices of this Department through the Manipal Amateur Club in gadgets. All the students receive assistance by way of circuits, technical details testing trouble shooting etc., by the staff members. The number of films and slides shows are also arranged under the auspices of this Club. It is a regular programme of the department to arrange visits to factories as also sponsoring training and placement wherever feasible.

Department of Chemical Engineering:

This Department which at present conducts undergraduate courses in Chemical Engineering has four laboratories viz., (1) Mechanical Operations, (2) Fluid Mechanics (3) Heat Transfer and (4) Mass transfer, Kinetics, Instrumentation. The list of equipment in the laboratories is indicated below:-

Lab. I (Mechanical Operations): (1) Jaw Crusher, (2) Pulverizer, (3) Mineral Jig, (4) Ball cum Rod Mill, (5) Ro-tap sieve shaker, (6) Gyrotory sieve shaker, (7) Hand Sieve shaker, (8) Air compressor, (9) Flotation Cell (10) Drop weight crusher, (11) Plate and Frame filter press (12) Leaf filter, (13) Heavy duty hot air oven (14) Lab. size cyclone separator, (15) Wilfley table, (16) Hydro extractor, (17) Complete sets of B.S.S. and I.S.S. sieves, (18) Permeability set up, (19) Elutriator (20) other accessories like samplers, balances etc.

Lab. 2 (Fluid Mechanics): (1) Open orifice set up, (2) Orifice meter set up, (3) Venturi meter rotameter set up (4) Fluid flow through packed beds (5) Fluid flow through concentric circular annulus (6) Pitot tube set up (7) Flow past bundles of tubes set up (8) Gas-solid fluidized beds (9) Liquid-solid fluidized beds (10) Flow of fluids through helical coils, (11) Flow through circular pipes (12) Centrifugal pump characteristics (13) Air-lift pump, (14) Accessories for the above experiments.

Lab. 3 (Heat Transfer): (1) Double-pipe heat exchanger, (2) Shell and tube heat exchanger (i) Vertical, (ii) Horizontal, (iii) inclined, (3) Plate heat exchanger (4) Verification of Fourier's (5) Heat Exchange in vertical finned tubes, (6) Natural convection heat transfer (Jacketted vessels), (7) Natural convection heat transfer (vertical tube). (8) Forced convection heat transfer (Jacketted vessels), (9) Unsteady state liquid-liquid heat transfer (i) with stirring and (ii) without stirring (10) Vertex refrigerator (11) Heat transfer in packed beds.

Lab. 4 (Mass transfer, kinetics, instrumentation): (1) Liquid Liquid extraction tower, (2) Vapour-liquid equilibrium still, (3) Vacuum drying set up, (4) Humidity cabinet, (5) Simple distillation set up, (6) Steam distillation set up (7) Packed tower distillation set up, (8) Residence time distribution set up, (9) Surface evaporation set up, (10) Gas-Chromatography (11) Digilog recorder (12) Abbe Refractometer, (13) Bottle Shaker, (14) Accessories for the above experiments.

Lab. 5 (Experimental Projectors and Research):

(1) Muffle furnace, (2) Monopal balance (accuracy upto fifth decimal place), (3) constant temperature water bath (4) Ph. meter (5) Calorimeter, (6) Portable potentiometer (7) Stroboscope (8) Ultrasonic vibrator (9) Gas cylinders oxygen, carbondioxide and nitrogen and hydrogen, (10) Different mechanical stirrer heavy duty and light duty (11) Hot air oven, (12) Vacuum pumps, (13) Avery weighing machine (14) Accessories for the above experiments, (15) Pulse extraction column, (16) Reaction kettle

with agitation (17) Lab-size bubble cap distillation column, (18) Hoppler Viscometer (19) Infra-red dryer (20) Rotary vacuum drying unit.

Some of the important Experimental Projects undertaken by the Department are indicated below:-

1. Alumina and Alumina-Chromia-Preparation under mechanical stirring and Ultrasonic vibration.
2. Determination of surface area by benzene/E.G.M.E.E. absorption.
3. Preparation of 'Starch' from Tamarind seeds and analysis of the same.
4. Preparation of precepitated calicum carbonate.
5. Flow of glucose through hydro phobic membranes.
6. Syring type vicometer.
7. Fabrications of Roller pump.
8. Preparation of Citric acid from sugar by fermentation.
9. Nicotine sulphate from tobacco wastes.
10. Preparation of alcohol from molasses by fermentation.

The Faculty of the Department can take up consultancy assignments for any small scale industry wishes to manufacture chemicals and any other specific projects in the field of chemical process development and allied fields. The Department is currently engaged in research in chemical process development, catalysis and bio-engineering. The Department also collaborates with the Dental College.

The Department has facilities and potential for starting postgraduate courses in Chemical Plant Design and Fertilizer Technology, Paper Technology and Rubber Technology. The Department is already collaborating with the Mangalore Chemicals and Fertilizers Ltd., in organising Winter School in Theory and Practice in Fertilizer Technology which has been sponsored by Indian Society for Technical Education. This course is scheduled for November-December, 1976. The Paper Technology course will be organised in collaboration with West Coast Paper Mills and Rubber Research Institute, Madras.

The functioning of the Department of Mathematics in an Engineering Institution is enable the students to acquire the necessary mathematical knowledge and to face the problems which arise in the Engineering curriculam. The department at present interested in taking up research work in the following fields:-

1. Stochastic Processes.
2. Operations Research.

3. Mechanics of Fluids.
4. Magneto Hydro-Dynamics.

The Department also plans to provide Postgraduate programmes in Analytic number Theory, Graph Theory, The Geography Department is in a position to undertake consultancy services, as under:-

1. Survey of building materials.
2. Survey of Industrial minerals.
3. Foundation problems (Geological) for buildings and other civil structures.
4. Problems of ground water like site selection for wells bore-holes etc.
5. Problems of soil erosion and control.

The Physics Department which has four laboratories two of which are Dark Rooms can take a batch of 70 students at a time. The laboratory has been set up to work as an Industrial Consultation Cell in the matter of measuring specific gravity, thermal conductivity, electrical conductivity, viscosity, surface tension, calibration of electrical meters, measurement of small dimensions by interference methods and so on.

Under the auspices of the Department of Chemistry, the following consultancy works can be undertaken:-

1. Chemical analysis of water and sewage.
2. Analysis of building materials.
3. Analysis of ores and alloys.

This Department is conducting for M.Sc. Industrial Chemistry of P.G. Centre, Mysore University, Bhadra in collaboration with the Department of Chemical Engineering, M.I.T.

Examination Results:

With regard to examination results, it is seen that the Manipal Institute of Technology has always been among the first 3 of the 8 institutions affiliated to Mysore University with a number of rank holders of the university, having very good results every year.

The results for the last five years are indicated

Intake of students:

Branchwise Admission

Year	Civil	Mech	Power	E&C	Chem.	Total
1972-73	57	90	35	30	28	240
1973-74	60	90	30	30	30	240
1974-75	60	90	30	30	30	240
1975-76	46	112	33	44	29	264
1976-77	49	113	39	45	33	279

Results (Branchwise):

Year	CIVIL	Mech.	Power	E&C	Chem.	Total
1972	19	147	32	35	--	233
1973	15	116	19	32	--	182
1974	8	66	14	26	18	132
1975	8	57	11	21	11	108
1976	38	79	29	37	34	217

The Institute has set up a research cell with the following objectives:-

1. To conduct applied research in building materials and construction techniques towards connected problems and their solutions peculiar to conditions of South Kanara District.
2. To act as information centre about building materials, buildings techniques and related matters, the National Building Code - its application with reference to the Municipal Byelaws Model Building Byelaws, etc., for the builders and connected professional organisations.

A specific problem peculiar to the west coast is the impact of climate on buildings. The hot-humid climate throughout the year along with a heavy rainfall period of about 3½ months which the buildings have to face result in problems not occurring in other parts of the country. These are in many ways specific, defying common solutions applicable to other parts.

The facilities available at the M.I.T. in particular and partly in the laboratories of other Academy Institutions in general, afford possibilities for the opening of a Research Cell in Building Materials and Design at the M.I.T. Manipal, for conducting applied research towards solutions for the various problems faced in this District. Some of the problems which require immediate attention are in brief as follows:-

1. Leakage problems in flat roofs.
2. Growth of algae on exposed faces of walls of buildings resulting in grey or black stain.
3. Standardisation of doors, windows, ventilators etc. for functionally grouped buildings like dwellings, colleges, hostels, schools etc.
4. Standardisation of furniture for the Institutions and laboratory furniture.
5. Optimum utilisation of timber from the common species available locally for woodwork for structural and furniture needs.
6. This is expected to result in mass manufacture of standard components ensuring economy.

7. Suitable paint to metal parts and external plaster to walls.
8. Alternative solutions to use of steel and other metal fastenings which now get easily rusted on exposure and need frequent painting.
9. Application of modern building materials like the P.V.C. etc., to find their suitability for this climate.
10. Individual problems peculiar to a particular institution of the Academy.
11. Keeping track of concerned literature, codes and research material for the benefit of information in building technology and its possibility for local applications; areas and problems of mutual interest in collaboration with other research centres.
12. Use of broken tile pieces in concrete in place of broken metal. Strength, wear and tear are to be studied.
13. Strength and economy of composite mortar vs. cement mortar.
14. Using 3" thick lintels against the present 6" thick lintels.

The Institute has realised that the problems listed above need a concerted approach and the Research Cell of the M.I.T. has to be strengthened, to undertake this.

The salary scales and service conditions have been dealt with in a separate section (Appendix-VIII).

The Institute is also giving adequate attention to the organisation of sports and games and have provided adequate facilities for this purpose.

Assets of the Institute:

It has been estimated that the Academy has invested near 1 Rs.1.5 crores so far included the buildings of the Institute, hostel accommodation for 1200 students, 65 staff quarters, library books worth Rs.5 lakhs and laboratory equipments worth Rs.35 lakhs. 2146 graduates and 7 postgraduates have come out from this college so far.

Manipal Institute of Technology, Manipal

<u>S.No.</u>	<u>Name</u>	<u>Floor area in sq.ft.</u>
1.	Lecture halls (28 Nos.) ...	20,160
2.	Drawing halls (9 Nos.) ...	18,900
3.	Library ...	5,760
4.	Reading room ...	1,800
5.	Office ...	2,830
6.	Chemistry laboratories and store	8,520
7.	Physics laboratories ...	5,640
8.	Geology laboratory ...	2,100
9.	Electrical laboratories ...	7,800
10.	Electronics laboratory ...	3,600
11.	Heat Engines laboratory ...	8,970
12.	Concrete and Highway Materials Lab.	2,100
13.	Soil Mechanics laboratory ...	1,440
14.	Strength of Materials laboratory	2,100
15.	Structures laboratory ...	1,500
16.	Irrigation and Hydraulics lab...	6,900
17.	Survey laboratory ...	2,360
18.	Hydraulic Machinery laboratory..	2,100
19.	Chemical Engineering labs. ...	9,300
20.	Workshops-Carpentry and Machine shop.	13,100
21.	Workshops-Smithy and Foundry Shed	5,900
22.	Museum ...	2,880
Total:		1,35,810 Sq.Ft.

Teaching Staff Members

(Civil Engineering)

1. Prof. V. Chandrasekhar, B.Sc., B.E., M.E. (P.H.), M.I.E., M.R.S.H., M.I.R.C., M.I.U.W.A. Principal.
2. Prof. U.R. Kamath, M.E., M.I.E., M.I.C.E. (Chartered), F.I.V. Professor.
3. Prof. D.V.S. Iyer, M.I.E., D.T.C.P., Professor.
4. Prof. G. Raghunath Rai, B.E., M.Sc. (Engg.) M.I.E., Professor.
5. Prof. K.L. Upadhyaya, B.Sc., B.E., Associate Professor.
6. Prof. K. Ramaswamy Iyengar, B.E., M.Sc. (Engg.), A.M.I.E., Associate Professor.
7. Prof. K.N. Shenoy, B.E., M.Sc.(Engg.) Associate Professor.
8. Prof. K. Janardana Pai, B.Sc., (Engg.), D.T.C.P., Associate Professor.
9. Prof. A.K. Pai Kochikar, B.Sc., M.E., A.M.I.C.E. Associate Professor.
10. Sri B.P. Kamath, B.Sc., B.E., M.Tech., Reader.
11. Sri B. Krishna Shetty, M.E. Reader.
12. Sri G. Bhaskar Rao, B.E., Reader..
13. Sri Y.A. Rao, B.E. Reader.
14. Sri P. Jagadeesha Rao, B.E., M.Tech. Reader.
15. Sri M.M. Sampigethaya, B.Tech., M.E. Reader.

(Mechanical Engineering Department)

1. Professor B.V. Krishna Murty, B.E., D.I.I.Sc. (I.C.E.), M.I.E. (Ind.) Professor and Head of the Department.
2. Prof. R.G. Yaji, B.E., M.I.E., Professor.
3. Prof. P.A. Pandit, B.Sc., (Eng.) M.B.A., D.I.M.C. Engg., M.I.E.R.E., A.M.B.I.M., M.I.E. (Ind.) Professor.
4. Prof. B. Ramesh Pai, B.E. Professor.
5. Prof. T.S. Venugopalan, B.Sc., B.E., Associate Professor.
6. Prof. K.C. Acharya, M.E., A.M.I.E., Associate Professor.
7. Sri H. Prabhakara Shetty, B.Sc., B.E., A.M.I.E., Reader.

8. Sri B. Srinivas Bairi, B.E., M.Tech. Reader.
9. Sri H.K. Vishwanatha Rao, M.Tech., Reader.
10. Sri K. Dayananda Kini, B.E., M.Tech. Reader.
11. Sri S. Shantharam, B.E., M.Tech., Lecturer.
12. Sri K. Jayawantha Kamath, B.E., M.I.E., A.M.I.I.F. Lecturer.
13. Sri M.S. Maiya, B.E., Lecturer (on study leave).
14. Sri B. Srinivas, B.E., A.M.I.I.F. Lecturer (on study leave).
15. Sri K.S. Bhandary, B.E., Lecturer (on study leave).
16. Sri P. Bhupal Reddy, B.E., Lecturer (on study leave).
17. Sri B. Surendra Baliga, B.E., Lecturer.
18. Sri B.L. Anantha Ramu, B.E., Lecturer (on study leave).
19. Sri Laxmanayya P.A., B.E. Lecturer.
20. Sri P. Ramachandra, B.E., Lecturer.
21. Sri K.M. Manjundiah, B.E., Lecturer.
22. Sri K. Balakrishnappa, D.M.E., B.E., Lecturer.
23. Sri R.K. Nataraj, B.E., Lecturer.
24. Sri S. Ravikara Rao, B.E., Lecturer.
25. Sri B.N. Pajithaya, B.E., Lecturer.
26. Sri C. Sadashiva Kamath, B.E., Lecturer.
27. Kiran S. Kenjale.

(Department of Electrical Engineering)

1. Prof. T. Redhakrishnan, B.E. (Hons.), M.Sc. (Engg.), Dip. Stat., M.I.E. (Ind.), A.M.I.E.T.E., Mem. I.E.E.E. (U.S.A.), C. Eng. M.I.E.E. (Lond.) Professor and Head of Department.
2. Prof. D. Ramanatha Rao, B.E., M.Sc. (Engg.), M.I.E. (Ind.) Professor.
3. Sri K. Viswanatha Adiga, B.Sc., B.E., M.Tech. Reader.
4. Sri H.R.V. Shenoy, B.Sc., B.Tech., Lecturer.
5. Sri M.S. Chandramohan, B.E., M.Tech. Lecturer transferred to E. & C.
6. Sri M. Ravindranadha Reddy, M.E., Lecturer.
7. Sri M. Suresh Rai, B.E., Lecturer.

8. Sri M. Jayasurya B.E., Lecturer.
9. Sri K. Umashanker B.E., Lecturer.
10. Sri M. Balakrishna, M. Tech., Lecturer.
11. Sri C.V. Mahale, B.E., Lecturer.

(Department of Electronics and Communication Engineering)

1. Dr. S.J. Bhat., B.Tech. (Hons.), M.Tech., Ph.D., M.I.E. (C. Engg. M.I.E.R.E. (Lond.), M.I.S.O.I., Professor and Head of the Department.
2. Dr. T.G.S. Moorthy, M.Sc., Ph.D., Associate Professor.
3. Sri Panduranga Sharma, B.E., M.E., Lecturer.
4. Sri K. Bhaskar Rao., B.E., Lecturer.
5. Sri K.B. Shadaksharappa, B.E., Lecturer.
6. Sri M.B. Agnihotri, B.E., Lecturer.
7. Sri N.V. Balasubramanya, B.E., Lecturer.
8. Sri T.G.S. Chandrashekarappa, B.E., Lecturer.
9. Sri Srikanta, B.E., Lecturer.
10. Sri P. Shashidhara Rao, B.E., Lecturer.
11. Sri Omkar Nayak, B.E., Lecturer.

(Department of Chemical Engineering)

1. Dr. N. Subrahmanayam, Ph.D., M.M.I.I., Ch. E., Professor and Head of the Department.
2. Dr. R. Sampathkumar, Ph.D., Associate Professor.
3. Dr. P.G. Krishna Murthy, Ph.D., Associate Professor.
4. Sri M.S. Muthuraman, B.E., Lecturer.
5. Sri Jayadeva Bhat, M. Tech., Lecturer.
6. Sri B. Hanumantha Rao, M.Tech., Lecturer.
7. Sri P.K.N. Muniswaran, M. Tech., Lecturer.
8. Sri N. Krishnaswamy, M.Tech., Lecturer.

(Department of Mathematics)

1. Prof. I. Achutha Rao, M.A., Professor and Head of the Department.
2. Dr. H.V. Krishna, M.A., Ph.D., Professor.

3. Sri C.N. Sridharan, M.A., Reader.
4. Sri C.V. Venkatachalam, M.A., Reader.
5. Sri K. Kamalaksha, M.Sc., Reader.
6. Sri K. Narayana Rao, M.Sc., Lecturer.
7. Sri G.D. Kamath, M.Sc., Lecturer.
8. Sri G.M.J. Bhatt, M.Sc., Lecturer.
9. Sri S.G. Bhairi, M.Sc., Lecturer.

(Geology Department)

1. Sri K.S. Krishna Murthy, M.Sc., Reader and Head of the Department.
2. Sri R.V. Thatte, M.Sc., Reader.

(Physics Department)

1. Sri K. Mohan Bai, M.Sc., Reader and Head of the Department.
2. Sri I. Narayana, M.Sc., Reader.
3. Sri U.K. Rajagopal Rao, M.Sc., Lecturer.

(Department of Chemistry)

1. Sri K. Ramachandra Bhat., M.Sc., Reader and Head of the Department.
2. Sri M. Varada Kini, B.A., B.Sc., B.T., Reader.
3. Sri Srinivasa Rao, M.Sc., Reader.
4. Sri U. Venkatakrishna Bhat., M.Sc., Lecturer.
5. Sri Y. Krishna Murthy Bhat, M.Sc., Lecturer.

Name of periodical

CIVIL

1. Building Science.
2. Bhagirath.
3. Building Science Abstract.
4. Building Practice.
5. Building Research Station.
6. Cement and Concrete.
7. Civil Engg. Construction and Public Works Journal.
8. Climate Control.
9. Construction Methods and Equipment.
10. C.R.I. Abstract.
11. Current Literature in Environment, Health Engg. and Science.
12. Concrete.
13. Environmental Health.
14. Geotechnique.
15. Indian Concrete Journal.
16. Indian Architect.
17. Irrigation and Power Abstract.
18. Journal of American Water Works Association.
19. Journal of Water Pollution Control Federation.
20. Journal of Mines Metal and Fuels.
21. Journal of Soil Mechanics and Foundation Division.
22. Proceedings of Inst. of Civil Engg.
23. Water Service.
24. Journal of National Building Organisation.
25. Water and Sewage Works.
26. Vishwakarma.

MECHANICAL

1. Auto Car.
2. Basic Engineering.
3. Business Week.

4. British Industrial News.
5. Engineers Digest.
6. Engineer.
7. Engineering.
8. Foundry.
9. Heating and Air-conditioning Jr.
10. Industrial India.
11. Indian Journal of Technology.
12. Industrial Engineering.
13. Industrial Products Finder.
14. Industrial World.
15. Indian Industries.
16. Indian Jr. of Pure and App. Physics.
17. Journal of Dynamic System Measurement and Control.
18. Journal of Basic Engineering.
19. Journal of Engg. for Industry.
20. Machine Building Industry.
21. Mechanical Engineering.
22. Management and Accountant.
23. Operations Research.
24. Productivity.
25. Productivity News.
26. Proceedings of Institution of Mechanical Engineers.
27. Production Engineer.
28. Research and Industry.

ELECTRICAL

1. Electrical India.
2. Electrical Review.
3. Electrical Equipment.
4. Electrical Times.
5. IEEE Transactions on Power Apparatus and System.
6. Journal of Engineering for Power.
7. Power.
8. Proceedings of Institution of Electrical Engineers.
9. Siemen's Circuits.

ELECTRONICS AND COMMUNICATION

1. Automatic Control, IEEE Transactions.
2. Bell System Technical Journal.
3. Biomedical Engineering IEEE.
4. Communications IEEE Transactions.
5. Circuit and System IEEE Transactions.
6. Electronics Today.
7. Electronics for You.
8. Electrotechniques.
9. Electron Devices IEEE Transactions.
10. Electrical and Electronic World.
11. Electrical Insultation IEEE.
12. Instrumentation and Measurement IEEE Transactions.
13. Industry and Applications IEEE Transactions.
14. Journal of Computer Society of India.
15. Popular Electronics.
16. Practical Wireless.
17. Radio Electronics.
18. Inst. of Electronics & Radio Engineers.
19. IEEE Spectrum.

CHEMICAL

1. American Institute of Chemical Engineers Journal.
2. Canadian Journal of Chemical Engineering.
3. Chemical Age of India.
4. Chemical Engg. World.
5. Chemical Engg. Science.
6. Chemical and Engg. News.
7. Hydrocarbon Processing.
8. Indian Journal of Technology.

MISCELLANEOUS

1. Arogya.
2. American Labour.
3. American Review.
4. American Reporter.

5. Bi-Peninsular.
6. Employment News Digest.
7. Education Quarterly.
8. Invention Intelligence.
9. Imprint.
10. Illustrated Weekly of India.
11. Journal of Engg. Education.
12. Library Documentation Notes.
13. Mysore University Gazettee.
14. Mathematical Education.
15. National Geographic.
16. New Scientist.
17. Nuclear India.
18. Natural Rubber News.
19. Popular Science.
20. Shankar's Weekly.
21. Science Today.
22. Scientific American.
23. Science Reporter.
24. University News.
25. Vikranth.
26. Youth Review.
27. Yuva Bharathi.

COLLEGE OF PHARMACY, MANIPAL

Started at first as a part of the Kasturba Medical College, the College of Pharmacy, Manipal is at present an independent institution.

Courses and enrolment :

The college runs the following courses :

- (i) D. Pharm - diploma in Pharmacy since 1963
- (ii) B. Pharm - since 1965
- (iii) M. Pharm - since 1970

The B. Pharm and M. Pharm degree courses are affiliated to Mysore University. The number of students enrolled for 1975-76 for D. Pharm is 32, B. Pharm 102 and M. Pharm 16. While the students admitted at the diploma level are from different parts of India, the college has admitted for B. Pharm and M. Pharm students from abroad also.

Faculty

There are 20 teachers who are working full-time including the Director and 3 Professors. Besides, 15 teachers are also on the staff of the college working on a part-time basis to teach Biochemistry, Physiology, Pharmacology, Technology, Management, Physics and English. Most of these part-time staff members are seconded from the Medical College or the M.G.M. College. Among the full time staff members 3 have research degrees and 9 postgraduate degrees. Among the part-time staff, 2 have research degrees and 9 postgraduate degrees. The Director is an experienced Professor who is also the Chairman of the Board of Studies and Board of Examiners of the Mysore University for the last 8 years. He is associated with the Pharmacy courses conducted by Universities of Andhra, Bangalore, Karnataka, Madurai, Madras, Kerala, Bombay, Sagar, Nagpur, Banaras, Gujarat, Rajasthan, B.I.T.S., Pilani and Panjab. The staff students ratio in the laboratory classes works out to 1:10. Further 15 personnel on the non-teaching side work in the laboratories etc.

The staff members have rich research experience to their credit. Some of them have also worked in good research institutions abroad. All the staff members are involved in research activities organised by the college.

Examination Results :

The results of the examinations for the last 5 years indicate that for M.Pharm., the percentage of passes have been 100% since 1972 when this course was started. As for the B.Pharm., degree results, the percentages have been 70 to 94% during 1965-76.

Research Programmes :

The college is at present engaged in research on the following :

1. Synthetic Drugs
2. Plant Drug Constituents
3. Search for new antibiotics
4. Pharmaceutical adjuvants from local sources, etc.
5. Development of process know-how by interested industries
6. Development and advisory activity in the hospital Pharmacy and Pharmacy Manufacturing at Kasturba Hospital.

The subjects of dissertations assigned to M.Pharm. students are all related and relevant to contemporary needs in the field of Pharmacy as would be seen from below :

1973

1. Synthesis and Biological Studies of some Ke-toximine Esters
2. Synthesis and Evaluation of Biological Activity of certain Aldoximine Esters
3. What the medical Profession Expects from Medical Detailment.

1974

1. Synthesis and Biological studies of some eximino esters
2. Reinvestigation into the Indigenous sources of Caffeine.

1975

1. Investigations some new and known Flavonoids in some composite
2. Synthesis and Biological Studies of some eximino esters and Benzoxazines
3. Studies on some Naturally occurring Flavonoids.

1976

1. Pharmacological studies of a New Sulfa-Biguanide Compound.
2. Prescribing Tendencies of Physicians
3. Microbial Transformation of some Synthetic Substrates
4. Antibiotics from Soil Actinomycetes around Manipal
5. Chemical Investigation of Indigenous and exotic plants.

Innovations

This Institution has been able to introduce a number of innovations in the courses of studies and methods of teaching. It has pioneered in offering Hospital Pharmacy as an elective course at the Undergraduate level. It is the only college in the country which is offering Pharmacy Administration at the Postgraduate level.

M.Pharm in Pharmacy Administration

Management in Pharmaceutical Industry, Drugs Control Administration and in Hospital Pharmacy has assumed great importance. The need for training Pharmacy graduates to take up managerial assignments in the pharmaceutical industry which is expanding rapidly has been emphasised by various Pharmasists and by the All India Pharmaceutical Conference almost every year. Even though courses like Industrial Engineering and Industrial Management have been started in the fields of Engineering and Technology, a similar development has not yet taken place in the field of Pharmaceutical Industry. With a view to making up this lacuna, the College of Pharmacy designed and developed the M.Pharm., Pharmacy Administration Course which is an interdisciplinary course where graduates with a basic degree in Pharmacy are trained in fields like :

- (I) Jurisprudence and National Policy as applicable to Pharmaceutical Industry and profession.
- (II) Administration relevant to Pharmaceutical personnel management, recruitment, assessment etc
- (III) Managerial assistance from advanced technology and Statistics including computers, card-indexing, information retrieval, operation research etc.,
- (IV) Financial and marketing principles which form the backbone of the industry.

- (V) Drug Marketing, including special techniques evolved by the Drug Industry.
- (VI) Technical Organisation and Development including latest innovations in machinery, processes, quality control and
- (VII) Hospital and Retail Pharmacy Management, an area which is assuming growing importance year after year.

The response to this course started by the College has been very good and rewarding. Top executives with high qualifications in Business Administration representing various important pharmaceutical industries and Government organisations and other user industries **have been** associated in designing the curriculum for delivering lectures and in evaluating the candidates. This course has been able to produce well-trained administrators for the Pharmaceutical Industry and Drugs Control Administration and all the 10 candidates who have completed their course have been suitably employed in supervisory positions in various industries.

The College has been able to orient and diversify its courses at the first degree level and to relate them to the felt needs. The first batch of graduates in Hospital Pharmacy (a diversified course) will come out of the college in 1977. The need for any hospital having a bed strength of 100 and more to regulate the purchase, stocking, quality control and distribution of drugs has been realised by the College authorities. Further hospitals are also required to manufacture intravenous fluids and special products which are not marketed by commercial firms. For this, it is necessary to have the services of trained and qualified expert pharmacists to undertake this activity but the present degree holders in Pharmacy have very little or no relation with the orientation required for dealing with this activity of hospitals and medical colleges. The College of Pharmacy has been able to introduce this practical oriented course in Hospital Pharmacy for the first time in the country at the degree level as an elective in the final semesters. The course has been designed and developed after considerable thoughts and studies and based on the experience actually gained in participating in the running of the Kasturba Hospital Pharmacy and teaching the same subject as part of the post-graduate pharmacy Administration Course.

Besides, Hospital Pharmacy the college has also introduced two other electives to enable diversification and improve employability. One of the electives is "Perfumes and Cosmetics". The need for this course is increasingly

felt as the Drugs and Cosmetics Act has brought the Cosmetics Industry recently under Government control and adequately trained personnel are not yet available to man this industry. For the first time in 1977, the College of Pharmacy at Manipal will be able to supply B.Pharm., Graduates adequately trained in "Perfumes and Cosmetics". A second elective is "Unit Process in Organic Chemistry" which will help these graduates to enter into organic-pharmaceutical industry engaged in basic drug manufacture like the IDPL Plant at Hyderabad.

One of the areas where emphasis is being laid at the undergraduate level is the aspect of instrumental pharmaceutical analysis. Quality control in Pharmaceutical industry is highly sophisticated and the industry has to make use of many electrical and optical instruments. This college has bestowed special attention for giving a practical bias in this area for the first degree students and as a result the students who successfully complete their courses from this college are readily accepted by the Pharmaceutical industries for employment. The college has thus been able to design courses according to the changing needs of the Pharmaceutical industry.

It has also been possible for the college to strengthen and reorient certain areas of the B.Pharm., course like Physical Pharmacy, Bio-Pharmaceutics and Pharmacokinetics.

In view of the quality and competence of the staff of the College, it has had no difficulty for introducing innovations in teaching methods and in modernising the content of courses. Semester system has already been introduced in the College which has its examination system dominated by internal continuous assessment. The question papers are of a composite nature comprising objective short answer questions and essay type questions in suitable proportion. Teacher evaluation has been introduced by the College and this is the only institution imparting pharmacy education in the Mysore University area.

Work Experience - Collaboration with industry

Though independently managed, the college is functioning as a part of the Medical College and hospital complex and, therefore, it has involved itself in the administration and technical development of the pharmacy manufacturing unit of the Kasturba Hospital. This Unit manufactures over 30 different types of injectibles including the important ones like intravenous glucose, saline, dialysates. These are tested for freedom from bacterial and pyrogen contamination and proper chemical composition by the College and are certified before being released for the use

of patients in the hospital. Several liquid orals, tablets, externals are also manufactured by this Unit, some of which like Silver Sulfaxiazine cream and diphenhydramine syrup were developed by the college. Work experience is thus an integral part of all the courses in the college. The doctors of the hospital and the medical college refer problems of a technical nature pertaining to drugs to the College from time to time. The College also has maintained close relation with the pharmaceutical industry. With the help of technical personnel of the College, processes for Black Disinfecting Fluid, White Deodorant, Caffeine from tea waste have been developed and made available to the industry. Projects under development in collaboration with industry at present include calcium lactobionate, estimation of the components of a complex and analgesic formulation and synthetic route to Caffeine.

Employment Pattern of the College Graduates

A study of the placement pattern of the students who have completed their courses in the college indicates that all of them have been suitably employed nearly 42% by the industry, 8% self-employment, 10% retail and hospital pharmacy, 5% drug control administration and teaching, higher-studies and research and employment abroad 37%.

The Director of the College is at present the Editor of the Indian Journal of Pharmaceutical Education, Inspector of Pharmacy Council of India and Chairman of the Pharmacy Education Section, Hospital Pharmacy Section and Industrial Pharmacy Section of the Indian Pharmaceutical Congress Sessions held in 1970 to 1975, and has several original and review publications on matters relating to the development of Pharmacy Education and Industrial Pharmacy. Other Teachers have also several research papers and monographs to their credit and they are authors of a number of authoritative books on subjects like Pharmacognosy. Some of the teachers are well known for their work as for example Physicochemical work with Professor Wagner of Germany and Professor Herz of U.S.A.

The scales of Pay and service conditions as at present allowed to teachers have been given in Appendix-VIII.

Conclusion :

The College which is well equipped has a qualified experienced and competent Faculty (Annexure VI) which are continuously and actively engaged in relevant research and utilising the findings of their research for modernising the courses. The Faculty has further ensured participation of almost all their students in this and have also been able to motivate them. This has helped this institution to grow one of the best institutions in Pharmacy in the country.

THE KASTURBA MEDICAL COLLEGE, MANIPALCOLLEGE OF PHARMACY

1. Dr. P. Gundu Rao, M.Pharm., Der.Rer.Nat.(Germany), Director.
2. Sri N. Krishnamoorthy, B.Sc., M.Pharm., Professor.
3. Dr. M.A. Iyengar, M.Sc., Ph.D., Professor.
4. Dr. A.R. Bhat, M.Sc., Ph.D., Reader.
5. Miss P.S. Sundari, M.Pharm., Assistant Professor.
6. Sri P. Ranganatham, M.Pharm., Assistant Professor.
7. Sri B. Subba Rao, M.Pharm., Assistant Professor.
8. Sri K. Subba Rao, B.A., B.Pharm., Lecturer
9. Sri B.R. Baliga, B.Pharm., B.Sc., Lecturer.
10. Sri K. Laxminarayana Bhat, B.Sc., AIC., Lecturer.
11. Sri V. Jagodish Rao, B.Sc., Demonstrator.
12. Sri M. Panduranga Nayak, B.Sc., Demonstrator.
13. Sri J.A. Sakhovalkar, B.Pharm., Lecturer.
14. Sri S. Gopalakrishna Nayak, B.Sc., BL., Demonstrator.
15. Sri M. Aravagiri, B.Pharm.
16. Sri C. Jeyachandran, B.Pharm., Lecturer.
17. Sri B.P. Singri, B.Pharm., Lecturer.
18. Sri S. Narayana Rao, M.Sc., Assistant Professor.
19. Sri G.Rajshakar Bairy, M.Sc., Assistant Professor.
20. Sri K.K. Sreenivasan, M.Sc., Lecturer.
21. Sri Sreenivasa Aithal, M.Sc., Demonstrator.
22. Sri C.N. Sridharan, M.A., Part-time Lecturer.
23. Sri Madhava Bhat H., M.A., Part-time Lecturer.
24. Sri Muthuraman, B.E., Part-time Lecturer.

COLLEGE OF DENTAL SURGERYCourses and Enrolment :

The college of Dental Surgery (India's first rural Dental College) started functioning as a part of the Kasturba Medical College in the year 1966 and the first batch of graduates (B.D.S.) came out of the College in 1970. The College started postgraduate courses in the year 1971 in the subjects of Orthodontia, Operative Dentistry, Prosthetic Dentistry and Periodontia. The College has also provision for admitting students for Ph.D. in Dentistry.

At present, the College has a student enrolment of 246 for the various courses in Dentistry, and nearly 2/3rd of them are from abroad particularly from Malaysia which accounts for more than half the students enrolled. The number of Indian students were only a little more than a third of the total enrolment. Overseas students are mainly from Malaysia, Africa, Ceylon and Thailand. The students' strength has increased from 24 in 1966-67 to 246 in 1976-77. Students for M.D.S. being 8 for the current year.

Faculty :

At present there are 28 teachers on the staff but they do not include the teachers teaching in ~~Anatomy~~, Physiology, Biochemistry, Pathology, Microbiology, Pharmacology, Medicine and Surgery. For these subjects, the Medical College staff are available. This type of staffing pattern is followed by all the 14 dental colleges in the country. It is seen that all the major departments of the college are headed by senior professors having long experience in teaching and research and all the Heads of Departments have had the opportunity of enriching their professional experience under the Commonwealth Medical Fellowship Programme. 16 of them have postgraduate or research qualifications. They have a number of publications to their credit (Annexure VII).

Research Programmes :

Independent research activities are encouraged in all the departments of the College. The details of the research in the various departments are indicated below :

Department of Operative Dentistry

1. In vitro study of marginal microleakage around amalgam restorations at amalgam commentum interface.

2. Studies on Erosion of teeth.
3. In vitro and vive study of antibacterial action of three endodontic drugs.
4. Fractured anterior teeth.
5. Connective tissue reaction to tarnished and untarnished amalgam in rats.

Department of Orthodontia:

6. The normal range of axial inclination of upper and lower incisors in Bunts of S.K. Dist. (A cephalometric study).
7. Dimensional changes of dental arches amongst 6-12 years children from S.K. Dist. (Karnataka State).
8. Nature of Angle's Class II Div. I malocclusion in patients from S.K. Dist. (A cephalometric study)
9. A study of cranio-facio-dental complex of Kashmiri Young male adults.
10. Cephalometric appraisal of bimazillary col. I protrusion.
11. Cephalometric norms for Gowda Saraswath Brahmins.

Department of Periodontia:

12. Efficiency of the mango leaf as a cleansing method in the maintenance of oral hygiene.

Department of Oral Pathology:

13. Oral Manifestations of Leprosy.
14. The combined effect of ultra-violet radiation and restricted diet on the labial mucosa of the pigmented rats. An histological evaluation.

Department of Prosthetic Dentistry:

15. Artificial denture contour design and dental prosthesis.
16. Effects of varying the position of the posterior teeth in complete artificial dentures on the annunciation of vowels.
17. Heat transfer in enamel and dentin.
18. Tissue changes under acrylic and cast metallic denture bases.

Inter Institutional Collaboration:

The College has very close collaboration with other institutions of the Academy particularly the Kasturba Medical College and the Manipal Engineering College in the fields of manufacture of dental instruments and equipments and bio-medical research activities. It has active collaboration with the Departments of Pathology, Pharmacology, Physiology and Microbiology of the Medical College. There is linkage with the London Hospital Dental College. Research programmes have also been undertaken with the help of I.C.M.R.

Achievements:

Some notable achievements of the College are in the area of manufacturing dental equipments and instruments at a time when such materials and equipments were in short supply in the country. Equipments like dental chairs and units are now locally manufactured and supplied to various colleges in the country on a commercial basis. They are also exported. The design and fabrication of the dental chair was done in the engineering workshop but commercial production and sale of these instruments are now handled by an independent unit as the College could not undertake production activities within the bye-laws of the Trust.

Innovations:

Extensive use of audio-visual aids and involvement of teachers regularly in workshops for advancement of medical education are among the programmes of innovations undertaken by the dental college which has introduced internal assessment since 1969. The College has been able to integrate intensive field work with the clinical activities of the students. Camps in rural areas are held regularly helping a large number of patients in the district to derive benefits out of such camps. The college undertakes intensive dental care for the school going children within a radius of 20 k.m. around Manipal. The B.D.S. students from the clinical section during the clinical posting hours, visit the school daily and examine and treat the school children who would otherwise have not been benefited by the dental health services. A significant rural bias has thus been given to the training programme of the dental students. It was indicated that only this College of Dentistry has been able to achieve this in a rural area. Dental health exhibitions are regularly organised by the College giving valuable experience to students and public in health activities with an emphasis on prevention. Informative materials and booklets are published for the benefit of the public.

Sophisticated equipments like chrome cobalt casting facility is available in this college. Such facilities are available at present only in 2 or 3 colleges in the whole country.

The College has an excellent library where adequate books and journals and micro-film recorders have been made available to the dental students and staff to help in their advanced work. The hospital section of the college which started with 10 patients a day in 1965 is at present attracting more than 250 patients a day. The College of Dental Surgery is housed in the Out-patient Block of the Kasturba Hospital, though its administration is run by a separate unit. The Dean of the Medical College has the responsibility of over-all supervision of this College but curriculum development, planning and the running of the various departments, purchase of equipments and materials are all carried out by the Dental College itself.

Examination Results:

The examination results in the college for the last 5 years shows that for B.D.S. the successful candidates had been in the range of 69 to 83% and for M.D.S. between 75-100%.

Details of treatment under the auspices of the College:

(Annexure-VIII)

The total number of cases examined by the college which was 8897 in 1967 has been growing steadily and rose to 25,218 in 1975. The total number of extractions done rose in the same period from 1061 to 5882. In the case of filling it was 4826 in 1975 as against 939 in 1967.

As for scaling and polishing, the figure rose from 1086 to 3176 during 1967-75. As for the dentures delivered the number rose from 67 in 1968 to 500 in 1975. The College is also able to deliver on an average 225 ortho appliances per year.

A rural and community oriented health programme as part of the public education for dental health is carried on regularly by the college in collaboration with the Rotary Club Lion Club, Jeevas Schools, Panachayats and through publication booklets, exhibitions and film shows and it covers the whole of Udupi District. The Dental Camp Survey and relief programme has covered different parts of the Udupi District during 1970-1975, through 65 camps organised by the college.

FACULTY - DENTAL COLLEGE

- | | | |
|-----|--|--|
| 1. | Dr. K.S. Bhat, M.D.S. | Director Dental Studies and Professor & Head of the Department of Operative Dentistry. |
| 2. | Dr. V.K. Gore, M.D.S.,
(on study leave) | Professor and Head of the Department of Periodontia. |
| 3. | Dr. S.P. Luthra, B.Sc.,
M.D.S. | Professor & Head of the Department of Prosthetic Dentistry. |
| 4. | Dr. K.G. Pillai, M.D.S. | Professor of Dental Radiology and Oral Diagnosis. |
| 5. | Dr. S.R. Prabhu, M.D.S.,
M.R.S.H. | Professor of Oral Pathology & Dental Anatomy. |
| 6. | Dr. Ch. Bhaskar Rao, M.D.S.
(on study leave). | Associate Professor in Oral Surgery. |
| 7. | Dr. S. Shyamala, M.D.S. | Assistant Professor. |
| 8. | Dr. M. Subraya, M.D.S. | Assistant Professor. |
| 9. | Dr. Balakoti Reddy, M.D.S. | Assistant Professor. |
| 10. | Dr. M. Venkateswarlu, M.D.S. | Assistant Professor. |
| 11. | Dr. Indumathi Pai, M.D.S. | Assistant Professor. |
| 12. | Dr. Sudhir Walvekar, M.D.S. | Assistant Professor. |
| 13. | Dr. Suresh M. Kotecha M.D.S. | Assistant Professor. |
| 14. | Dr. P.K. Ghosh, M.D.S. | Assistant Professor. |
| 15. | Sri V. Shama Bhat, M.Sc., | Assistant Professor. |
| 16. | Dr. K.G. Ramakrishna, B.D.S. | Tutor. |
| 17. | Dr. P.M. Yashoda, B.D.S. | Tutor. |
| 18. | Dr. Sudha Mohan B.D.S. | Tutor. |
| 19. | Dr. H.S. Ballal B.D.S. | Tutor. |
| 20. | Dr. Batni Ramesh B.D.S. | Tutor. |
| 21. | Dr. Kumaraswamy, B.D.S. | Tutor. |
| 22. | Dr. H. Nanda Kumar B.Sc.BDS | Tutor. |
| 23. | Dr. B. Prakash Rao, B.D.S. | Tutor. |
| 24. | Dr. P. Ramakrishna Sarma, BDS | Tutor. |
| 25. | Dr. C.D. Dwarakanath, B.D.S. | Tutor. |
| 26. | Dr. M. Madhusudana, B.D.S. | Tutor. |
| 27. | Dr. U.S. Shashidhar, B.Sc.,
B.D.S. | Tutor. |
| 28. | Dr. Hussain A. Gazi, B.D.S. | Tutor. |

STAFF POSITION

<u>Staff Position:</u>	<u>1967</u>	<u>1970</u>	<u>1975</u>	<u>1976</u>
Director	1	1	1	1
Professors	1	1	3	5
Associate Professors	3	3	1	1
Readers	-	-	2	-
Assistant Professors	2	3	7	9
Lecturers	2	8	8	12
Junior Lecturers.	-	2	-	-
Resident	-	-	1	1

Services - Dental College

	1967	1968	1969	1970	1971	1972	1973	1974	1975
Total no. of cases examined.	8897	16180	15216	15552	26156	29063	39642	28413	25218
Extractions	1061	2087	5391	4889	3470	3702	5351	4402	5882
Fillings	939	1532	28871	3407	3296	4540	4693	4489	4820
Scaling & Polishing	1086	1471	1592	1829	1843	1906	2383	2567	3176
Dentures		67	195	227	390	427	533	501	500
Crowns		14	97	89	72	124	152	88	87
Ortho. Appliances							250	284	221

Year	No. of camps held	No. of patients examined	Year	No. of schools completed	No. of children examined
1972-73	10	7183	1974-75	12	3389
1973-74	25	15138	1975-76	8	1800
1974-75	10	5504			
1975-76	20	3500			

Mahatma Gandhi Memorial College
Udupi-2

This collegè was established by the Academy of General Education in 1949 and it offers instruction for B.A., B.Com., and B.Sc., courses affiliated to Mysore University. It has a student enrolment of 822 at the degree and 648 at the pre-university level. The subject taught cover Humanities, Sciences, Commerce, Business Management and among languages apart from Kannada, English and Hindi, the college also offers instruction in Sanskrit, Malayalam, Tamil, German and French. Among the optionals at the first degree level the subjects taught comprise History, Economics, Politics, Science, Kannada, English, Mathematics, Physics, Chemistry, Statistics, Botany Zoology and Commerce.

The college for the last five years has shown good results between 60-80% in the B.Sc., courses, 60-80% in the B.A. courses and 57% to 69% in the B.Com. courses. As for the certificate and diploma courses in German, the results have been very good ranging from 67% to cent per cent. A number of students among the successful candidates every year, have been rank holders of the university. The college is considered to be one of the best colleges affiliated to the university.

The college library which is housed in a separate building within a total floor area of 11,520 sq. ft. has at present 46,089 books apart from the books in the Book Bank. The college issues on an average 918 books every week to students and 120 books per week to teachers. The library has books costing Rs. 3.62 lakhs and is subscribing to 78 journals .

At present the college has a staff strength of 53 and a supporting staff of 10 and non-teaching staff of 20. Among the academic staff are teachers of long experience, most of whom are first class postgraduate degree holders. Four of them have research degree at present and ten of them are currently working for their Ph.D.

The college gets the bulk of its students from the rural areas in the district. A large number of students who complete their studies are not able to go for post-graduate studies because the college has not been able to start post-graduate courses, though it has facilities for the same in many subjects.

Though the college is an Undergraduate College, it has the unique distinction of having a research centre called the M. Govinda Pai Samsodhana Kendra which has been recognised by the Mysore University as a centre for research leading to Ph.D. in Tuluva Linguistics, Culture and History. Eminent people like Padmabhushan Dr. Shivarama Karanth, Professor Mariappa Bhat and Dr. P. Gururaja Bhat are associated with this centre as Research Guides.

The college has established a subsidised mid-day meal centre where wholesome food is served to day-scholars at reasonable prices. This arrangement has been able to meet one of the felt needs of the students coming to the college from the distant villages. This centre is managed by the students under the supervision of a staff member.

The college is providing hostel facilities for 250 students and has provided facilities for sports and games in an extensive ten acre plot of land. The college has also a well laidout Pavilion overlooking the cricket stadium available for the entire educational complex of the Academy.

A Student's Cooperative Society is also functioning in the college premises which is able to cater to the needs of the students including cloth, stationery and text-books. The Students Cooperative Society is offering a dozen scholarships every year to deserving students from the profits earned by it. The Society is managed by a Board of Directors the bulk of whom are students' representatives.

The college has a spacious day-students centre for women students, three auditoriums including one indoor auditorium which is fully equipped and electrified.

The college has also provided a Youth Centre with common room, Dormitory and Cafeteria for the use of students.

Through a scholarships, endowments and other arrangements, nearly 80% of the students of the college enjoy scholarships in one form or the other. The college is very active for extra-curricular activities. The following students' Clubs are active in the college:

- I Debating Club
- II Speakers Club
- III Humanities' Club
- IV Commerce Club
- V Photographic Club
- VI Science Club
- VII Literary and Fine Arts Club
- VIII Players' Club.

and they give a wide range of opportunities to students to develop an all-round personality.

The college is also implementing the National Service Scheme with a boys Wing, a girls' Wing. Projects like Shramadan, distribution of fruits and magazines of to the sick in Hospitals, Flood Relief Work and organising Camps are among their activities. The N.S.S. Unit of the College has been adjudged as one of the top three units of the Mysore University. The N.S.S. has adopted a neighbourhood school for all-round development. It has been possible for the N.S.S. to gift a Steel gate to the school and a children's theatre. Dental check-up covering all children has been completed in the current year. It is at present collecting funds for building two rooms for the primary school. The N.S.S. of the college has been recognised as the hard-core of the volunteer service inside the campus and is available for assistance for all activities of the college. One of the regular activities of the Unit is collection of clothes for the poor and helping in the re-construction of the houses of poor people.

The N.C.C. has also a Unit of 50 cadets functioning in the college.

The college has opened a new course in Business Management affiliated to Mysore University to train middle-level managerial personnel.

The college has also organised the Yakshagana Kendra for nurturing the traditional Folk art of the community and to give it a place of pride at the National and International levels. It trains youngsters in all facets

of Yakshagna. This is recognised by the Sangeet Natak Akademi, New Delhi and is also receiving assistance from the Department of Culture of the Ministry of Education for raising a professional Ballet Troupe.

The assets of the college ^{have} been valued at Rs. 56.6 lakhs as on 31.3.1976, the cost of the land and buildings amounting to Rs. 28.27 lakhs. The annual budget of the college for the year 1975-76 shows an income of Rs. 8.3 lakhs including a contribution of Rs. 82,410 by the management to meet the total expenditure of Rs. 8.3 lakhs of the college during the same year.

MANIPAL COLLEGE OF EDUCATION
UDUPI

The Manipal College of Education which was started in 1965 by the Academy of General Education at present admits 100 students for the B.Ed. course every year. The college has introduced two parallel media for instruction-Kannada and English and 17 Secondary schools in and around Udupi are associated with its programmes.

Facilities:

The College has its own building providing a floor area of 9,500 sq. ft. and has also organised a useful library for pupil-teachers which has at present 6300 reference books on Teachers' education. The college is also subscribing to 34 journals. It has 13 teachers on the staff all of whom have long experience of teaching and possess double post-graduate degree. Some of them have also had the advantage of training abroad in new methods of teaching (Annexure-X). Most of the staff members are engaged in research and have also a number of publications to their credit.

The college has been able to acquire a number of teaching aids and is also giving training to pupil-teachers in the use of Audio-visual aids in teaching. The aids acquired include a 16 m.m. Film Projector, Filmstrips, a Slide Projector, Record Player and Microphone, Tape Recorder, Films and Slides, Psychology laboratory, the science kits, maps, charts and models for teaching science and Humanities subjects apart from a well equipped psychology laboratory.

The college has also established linkages with other institutions in the fields of teacher-education for professional enrichment. Such linkages have been established with the Departments of Post-graduate Studies and research in Education of the Mysore University. The Regional college of Education, Mysore, NCERT, Regional Institute of English State Institute of Education, Bangalore, the State Bureau of Educational and Vocational Guidance, Bangalore, Indian Association of Teacher Educators, Family Planning Association of India, Bombay.

Among the innovations introduced by the college are rationalised admission procedure consisting of Aptitude Test, Language Test and Interview, Orientation Programme, Academic Guidance and Counselling, Training in Decentralised functioning of the library and Cooperative teaching. The

college has also developed the concept of educational complex for qualitative improvement of Secondary Education with the active association of 17 cooperative schools.

The college is also regularly involved in a number of workshops and projects like Impact of teacher education on Educational Practices, Summer Institute for college teachers, Population Education in Secondary schools (A resource book "Jana Sankya Shikshanda Roopareshegalu" - Organisation of Educational Exhibition, Science Fairs and other workshops.

The college has laid adequate emphasis on physical education work experience, and citizenship training in its curricular and cocurricular programmes. The college has also encouraged the students to join associations like the Literary Club, Fine Arts Club, Planning Form, Sports and games Association Social Service League, Magazine Club (Shikshak) thereby relating Teacher Education Programmes with co-curricular activities on a regular basis.

The college has planned to develop itself into a comprehensive college of education providing Teacher education at all levels and has also formulated a plan for introducing new courses at the undergraduate and postgraduate levels, Diploma courses in education, Library Science, Work experience, Physical education, Administration and Supervision, Guidance and Counselling, Educational Testing, Education Extension, Social Education and Parental education and educational technology. The college also wants to establish a Centre for Educational Consultancy, Educational Testing, Extension Counselling and Research.

The college at present has a Teacher-Pupil ratio of 1:10 and all the students are covered by the programme of college for Academic Guidance and Counselling.

Examination Results:

The Examination Results of the college have always been a very good as would be seen from the results of the last six years:

<u>Year</u>	<u>Percentage</u>
1970	91
1971	88
1972	76
1973	87
1974	90
1975	84
1976	86

The salary scales of the teachers are not comparable to the existing scales/university scales, as the Principal is only in the grade of Rs. 600-1000 with a special pay of Rs. 100/- per month and a total allowance amounting to Rs. 367/- per month. The Reader is in the scale of Rs. 400-950 with allowances totalling Rs. 356/- per month and Lecturer in the grade of Rs. 300-700 with allowances amounting to Rs. 315/-. The college also pays House Rent Allowance to teachers at the rate of 3% upto a basic pay of Rs. 620/- and has also introduced C.P.F. scheme for retirement benefits of the Faculty.

The college has its own building which along with land is valued at Rs. 6.13 lakhs. With the Library, laboratory equipment and Audio-Visual Aids including those gifted by other agencies, the present assets of the college come to Rs. 10 lakhs. The income and expenditure statement for 1974-75 shows that the expenditure of the college was Rs. 1.60 lakhs as against an income of Rs. 1.20 lakhs. The deficit of nearly Rs. 40,000/- was met by the Academy.

Annexure IXNames and qualification of staff Members
of M.G.M. College.

	Name	Designation	Qualifications
1	Mrs. T. Joseph	Reader and Head of the Department	M.A. I class
2	B. Krishnappa	Lecturer	M.A. II class
3	Mr. N.T. Bhat	Lecturer	M.A. II class
4	Mr. L. Samaga	Lecturer	M.A. II Class
5	Mr. F. Paul	Lecturer	M.A. II Class
6	Prof. K.S. Haridasa Bhat	Principal and Professor	M.A. I Class ISVE (Naples)
7	Sri K. Rama Bhat	Reader and Head of the Department	M.A. II Class
8	Sri N. Shreesha Ballai	Lecturer	M.A. II Class
9	Shri M. Robert Peres	Lecturer	M.A.B.T. II Class
10	Mrs. Indira R. Kidiyoor	Lecturer	M.A. II Class
11	Sri M. Vasudeva Padakannaya	Lecturer	M.A. II Class B.T.
12	Sri B. Balachandra	Lecturer	M.A. II Class
13	Sri M. Hariprasad	Lecturer	M.A. II Class
14	Sh. K.R. Srikantiah	Reader and Head of the Deptt.	B.Sc., B.Com. (II Class) M.A. (III Class)
15	Sh. K. Ananda Bhat	Lecturer in Commerce	M.Com. (III Class)
16	Sh. P. Dayananda Shetty	Lecturer in Commerce	M.Com (II Class)
17	Sh. K. Srinivasa Upadhyaya	Lecturer in Commerce	M.Com. (II Class)
18	Sh. K. Shreesha Acharya	Head of the Deptt.	M.A. II Class

Name	Designation	Qualifications
9 A. Vadiraja Tentry	Lecturer in Maths.	M.A. II Class
0 Sh. C.A. Bhat	Lecturer in Maths	M.A. II Class B.Ed. II Class
1 Dr. A. Bhasker Rao	Lecturer in Maths	M.Sc. I Class Ph.D.
2 Sri Madhava Rao K.S.	Lecturer in Statistics	M.Sc. II Class
3 Prof. U.L. Acharya	Prof. & Head of the Department	M.A. I Class (Madras) L.T. III Class
4 Sh. K. Ramadas	Reader	M.Sc. I Class Banaras
5 Sh. U.R. Acharya	Lecturer	M.Sc. II Class (Karnataka)
6 Sh. K. Haridas Bhat	Lecturer	M.Sc. I Class III Rank Mysore
7 Dr. A. D'Souza	Reader and Head of Department	M.Sc. I Class, Ph.D.
8 Sri R.N. Kidiyoor	Lecturer	M.Sc. II Class
9 Sri M. Vasanth Kumar Rao	Lecturer	M.Sc. I Class
0 Sri B. Balakrishna Bairi	Lecturer	M.Sc. II Class
1 Sri K.H. Karki	Lecturer	M.Sc. I Class
2 Sri K.K. Easwaran	Reader and Head of the Deptt.	M.Sc. I Class II Rank
3 Sri K. Shekar Shetty	Lecturer in Botany	M.Sc. III Class
4 Sri P.K. Rajagopal	Lecturer in Botany	M.Sc. I Class II Rank
5 Sri U. Shyamasunder Bhat	Lecturer in Botany	M.Sc. II Class
6 Sh. V. Balakrishnan	Reader	M.Sc. II Class
7 Dr. Ashok Kundapoor	Lecturer	M.Sc. II Class Ph.D.
8 Sri B.S. Krishna Prasad	Lecturer	M.Sc. I Class
9 Vittaldas Bhat	Lecturer	M.Sc.

MEMBERS OF THE FACULTY

S. No.	Name; Designation and Qualification.	Total teaching experience
1	Prof. K.R. Hande, Principal, M.A., M.Ed. Cert. of Science Inst. University of N. Dakota, U.S.A.	29 years
2	Sri T. Viswanath, Reader M.A. M.Ed.	19 years
3	Sri B.L. Shankaranarayana, Reader M.Sc., M.Ed., A.I.E. (London)	20 years
4	Sri N. Sukumar Gowda, Lecturer (on study leave), M.A., M.Ed.	11 years
5	Sri A. Mahabaleshwar hebbbar, Lecturer, M.Sc., M.Ed.	9 years
6	Miss K.A. Lalitha Kumari, Lecturer M.Sc., M.Ed.	4 years
7	Sri K.S. Karanth, Lecturer M.A., B.Ed.	14 years
8	Sri. A. Subramanaya Upadhya, Lecturer, M.Sc. B.Ed.	12 years
9	Sri K.R. Rangaraju, Lecturer, B.Sc., M.Ed.	8 years
10	Sri S.V. Bhat, Lecturer M.A., M.Ed., D.P.Ed., D.B.Ed.	20 years
11	Sri B.K. Sridhar Rao, Physical Education Director, M.A., B.Sc. B.Ed., B.P.Ed.	9 years
12	Miss A. Laxmi Bai, Part-time Lecturer, M.A., M.Ed.	9 years
13	Sri V. Srinivas Bhat, Part-time Lecturer, M.A., B.T. Vidwan.	24 years
14	Sri K.R. Daya Rao, Part-time Lecturer, M.A., B.Ed.	5 years

UDUPI LAW COLLEGE

The Udupi Law College was established by the Academy in 1957 and is the first Law College that was started in a Taluk Centre in the whole of the South. The College has been functioning as a morning college since its inception helping thereby many employed persons to secure legal education.

Courses and Enrolment :

The college offers facilities for B.A. and LL.B degree courses of the Mysore University and has at present a student enrolment of 372, the annual intake being 150.

Facilities :

The college has 8 staff members of whom only 2 are full-time and the remaining 6 are leading advocates engaged in the teaching programmes as part-time teachers. (Annexure-41).

The college has its own building providing accommodation of 15,700 sq. ft. floor area. It also offers hostel accommodation for 90 students including 10 women students.

The College Library has at present 6,385 books costing about Rs.1.5 lakhs covering subjects of Law of Contracts, Company Law, Constitutional Law, Constitutional History of India, Criminal Law, Criminal Procedure Code, Law of Evidence, Indian Succession Act, Hindu Law, Jurisprudence, Labour Law, Law of Limitation, Mohammedan Law, Pleadings and Conveyancing, Private International Law, Public International Law, Property Law, Taxation Law, Law of Tort, Banking Law and Practice and Civil Procedure Code. There are at least 100 reference books in every subject as indicated above and the selection of books has been very carefully made. Apart from this all the important Law Journals are subscribed to and foreign law journals in bound volumes have also been made available. Besides, the Library has a collection of 43 books which are considered to be rare collection.

The college has introduced two educational innovations in their teaching programmes by conducting regular moot courts in civil and criminal cases and by giving practical training to students by allotting them in batches to leading practising advocates for attending in their offices and in Law Courts to acquire practical knowledge of law procedure and functioning of Advocate's office and of law courts.

The Management has introduced a unique scheme to award loan scholarships to students who are in financial need and desirous of pursuing a legal career. The advance of loan is interest free and the loan is to be repaid by the students in convenient instalments.

The examination results for the last five years show that they have been very good, the successful candidates being in the range of 56-100% as below:-

<u>Year</u>	<u>Percentage</u>
1971-72	100
1972-73	68.1
1973-74	65.8
1974-75	72.2
1975-76	55.9

So far 675 students have been taken law degree from this Institution.

The assets of the College have been valued at Rs.6.75 lakhs including Rs.5 lakhs for the land and building.

The College has included in its future plan the institution of short-term diploma courses in intensive study of specialised branches of law such as taxation law, factory law, industrial law and company law. The college has also proposed starting of LL.M. courses in different branches of law. A legal clinic with assistance of the part-time professors of the College, who are practising advocates has also been planned by the college. This clinic is intended to give free legal aid to the deserving needy and poor litigants. The final year students of the LL.M. course would be actively associated with this clinic as it would be of immense benefit to them in their future career as lawyers.

The 1975-76 income and expenditure statement shows that the college has a deficit of Rs. 20,000 which has been made up by the management.

TEACHING STAFF
(UDUPI LAW COLLEGE)

1. Shri H.P. Aithal, M.A., LL.M.
Principal,
He has 13 years of teaching experience in this college. He is an examiner for Law examinations of Mysore, Bangalore, Karnataka and Madras Universities. M.L. Examinations.
He has been a member of the Law Faculty of the Mysore University.
2. Shri A.M. Ahmad, M.A.LL.M.
Reader and Vice-Principal,
He has 19 years of teaching experience in this college. He has been a member of the Law Faculty of the Mysore Univ. He is an examiner for Law examinations of the Mysore, Bangalore, Madras and Karnataka Universities.
3. Shri P.N. Krishnamoorthy Rao, B.A., LL.B.,
Part-time Lecturer.
He is a practicing Advocate.
He has 18 years of teaching experience in this college. He is an examiner for Law examinations of Mysore and Bangalore Universities.
4. Shri M. Narasinha Kanath, B.Com., B.L.
A. Part-time Lecturer.
He is a Chartered Accountant doing private practice. He has 6 years of teaching experience in this college. He is an examiner for Law Examinations of the Mysore and Bangalore Universities.
5. Shri V.G. Kodlaya, M.A. LL.B.,
A Part-time Lecturer.
He is a practicing Advocate.
He has 6 years of teaching experience in this college. He is an examiner for Law examinations of the Mysore and Bangalore Universities.
6. Shri F. Balakrishna R. Shenoy, B.A., LL.B.,
A Part-time Lecturer.
He is a practicing Advocate.
7. Shri F. Shivaji Shetty, B.A., LL.B.,
A part-time Lecturer.
He is a practicing Advocate.
8. Shri S. William Pinto, M.A.LL.B.,
A part-time Lecturer.
He is a practicing Advocate.

Scale of pay effective 1st September, 1971.
Medical College/ Dental College/ College of Pharmacy.

Jr. Professor	Rs. 1100-50-1600-EE-80-2000
Professor	Rs. 900-40-1100-50-1350-EE-1600
Associate Professor	Rs. 900-40-1100-50-1350
Reader	Rs. 600-30-900-EE-40-1100
Assistant Professor (with post-graduate degree for medical and dental staff).	Rs. 500-25-750-EE-30-900
Lecturer (with post-graduate diploma for medical staff.)	Rs. 400-20-500-25-750
(for M. Pharm. without teaching experience).	
Assistant Lecturer (Medical Tutors with 2 years' experience in the same department)	Rs. 300-25-600
Lecturer in Dentistry (BDS with one years' experience as Jr. Lecturer or 2 years' experience after graduation).	
Medical tutor	Rs. 300-20-500
Junior Lecturer in Dentistry (BDS with one year's experience as House Surgeon).	Rs. 150 p.m. fixed.

Non-practising allowance.

25 per cent of the basic salary subject to the following minimum :

Professor/Associate Professor	Rs. 300/-
Reader	Rs. 200/-
Assistant Professor	Rs. 150/-
Lecturer/Assistant Lecturer.	Rs. 100 p.m. fixed.
Tutor	Rs. 50 p.m. fixed.

Dearness Allowance

Basic pay Rs. 210 and above Rs. 175/-

Ad Hoc Allowance

Professor, Associate Professor & Readers	Rs. 125/-
Asstt. Professor and Lecturer	Rs. 75/-
Other categories.	Rs. 50/-

Scales of pay of M.I.T. Teaching Staff.

<u>Designation</u>	<u>Grade</u>
Senior Professors	Rs. 1300-50-1600.
Professor	Rs. 800-40-1000-EB-50-1300
Associate Professor	Rs. 600-40-1000
Reader	Rs. 400-25-450-30-720-40-800
Lecturer	Rs. 300-25-550-30-700
Demonstrator	Rs. 200-10-310-15-400

D.A. rates same as in medical college.

Pay scales in M.G.M. college, Manipal College of Education
and Udupi Law College.

Professor	Rs. 500-30-650-40-850-EB-50-1000
Readers	Rs. 400-30-640-EB-40-800-50-950
Lecturers.	Rs. 300-25-550-EB-30-700

Dearness allowance

<u>Basic Pay</u>	<u>D.A.</u>
Rs. 300	Rs. 315
Rs. 400	Rs. 350-40
Rs. 450	Rs. 373-40
Rs. 500	Rs. 408-90
Rs. 550	Rs. 367-60
Rs. 999	Rs. 396-00
Rs. 1000	Rs. 395-00

Principal's allowance Rs. 100 per month.

List of non-teaching staff in institutions at Manipal

KASTURBA MEDICAL COLLEGE

Executive Director 1

Office

Office Manager 1

P.A. to Registrar 1

Accountants 4

Steno-typists 4

Senior Clerks 6

Junior Clerks 8

Lift Operator 1

Attender 1

Peons 5

Sweepers 5

Drivers 2

Watchman 1

Engineering & Purchase Department

Officer-in-charge 1

Purchasing Assistant 1

Senior Clerk 1

Junior Clerk 2

Senior Technicians 3

Junior Technicians 2

Junior Electricians 4

Telephone Mechanic 1

Carpenter 1

Machineman 2

Generator Operators 2

Attender 1

Peons 3

Maintenance Unit

Officer-in-Charge 1

Supervisors 2

Junior Clerks 2

Foreman 2

Junior Electricians 6

Winders 2

Mechanic 1

Generator Operator 1

Carpenter 1

Plumbers 7

Borewell operators 2

Attenders 2

Hostel

Caretaker	1
Mess Managers	3
Matrons	2

Library

Librarian	1
Library Assistants	3
Steno-typist	1
Junior Clerks	2
Sweeper	1

Departmental Staff

Senior Clerks	2
Junior Clerks	7
Scientific Assistant	1
Senior Technicians	12
Junior Technicians	19
Electrician	1
Film Projectionist	1
Photographer	1
Laboratory Assistants	15
Artists	5
Attenders	1
Peons	6
Drivers	1
Sweepers	25

KASTURBA MEDICAL COLLEGE HOSPITAL

Nursing Superintendent	1
Assistant Nursing Superintendent	2
Nursing Tutors	2
Ward Sisters	21
Staff Nurses	90
Practical Nurses	39
A.N.Ms	1
Warden	1
Office Manager-cum-Financial Controller	1
Asstt. Manager	1
Special Deputy Officer	1
Watch and Ward Officer	1
Health Supervisor	1
Welfare Officer	1
Hospital Sergeant	1
Junior Clerks	29
Typists	13
Senior Clerks	33
Telephone Operators	4
Health Inspectors	2

Technicians	67	
Attenders	13	
Drivers	5	
Cooks	4	
Ward Boys, Ayas, Messenger boys, Helpers etc.	68	+ 23 on daily wages.
Watchmen	11	
Sweepers	42	+ 65 on daily wages.

MANIPAL INSTITUTE OF TECHNOLOGY

Office

Manager	1
Senior Clerks	5
Stenographer	1
Librarian	1
Security Officer	1
Typist Clerks	18

Departmental Staff.

Technical Supervisors.	2
Senior Technicians.	25
Junior Technicians.	5
Artist, -cum-Tracer	1
Carpenters	3
Borewell Operator	1
Pumphouse Operator	1
Plumber	1
Attenders	22
Peons.	19
Sweepers	15
Night Watchmans	4

Objectives of the deemed to be university proposed
by the Manipal Academy.

- I. The Manipal Academy being situated in a rural area possesses a distinct rural characteristic and bias. It bears the stamp of pragmatism and social relevance derived from its original inspiration. It has tapped available resources, provoked new thinking, co-ordinated local effort to build educational institutions of the highest quality. Throughout its growth it has taken care to make its service available to the community. Further development under freer circumstances of a University will be in the same direction.
- II. A wide-ranging and also in-depth study could be undertaken of the problems of a rural society in transition. South Kanara District provides a crucible for the melting of many rural attitudes in a fast changing industrial environment. A university could reflect this context very much.
- III. Faculty of Health Sciences could re-orient its activity towards making better and cheaper health-care available to the rural community. Further development along this line will be to combine academic studies in the college with innovative health schemes.
- IV. Education in Technology will be modernised and attuned to the needs of regional development. It will base itself on integrated association with the emerging industries - smallscale and large-scale within the region.
- V. Applied courses will be started at the undergraduate level. Their content also will be stepped up to develop complete skill in a particular line. The degree courses will become more meaningful with practicals related to immediate life. eg. economics will be related to fisheries, botany to horticulture and agronomy and forestry, zoology to marine biology.
- VI. It will promote continuing education programmes in all the faculties.
- VII. It will place at the disposal of self-employed persons the resources of the technological expertise of all the institutions to improve their skill for a particular job. e.g. in Technology we can give a 3 months or 6 months course in specific skills. Research consultation to industries will be provided.
- VIII. To provide opportunity to the student community to be exposed to social problems during the course of their studies and involve themselves in co-operative effort with other social work organisations towards their solutions.

- I. Promotion of research in all faculties will be intensified. The proximity of Basic sciences, Health Sciences, Technology and humanities in a single campus would enable a multi-disciplinary approach in working on research themes. Intensified health care, for example, requires an investigation into the social and economic background of the population.
2. The limitation imposed by the University Centre and the demands of undergraduate work have hindered the aspirations of the faculty to improve its qualifications in research. In the new university situation we can have a fresh ordering of our lives whereby aspiring teaching members of the faculty would be allowed to earn a research degree - M.Litt or Ph.D. within the next five years.
- XI. In the Humanities, the area studies approach is both timely and relevant. The Tulu dialect, and culture which is an integral part of Karnataka culture - now being studied by many foreign scholars - could be made into an attractive feature. In the disciplines of folkways, sociology, History and archaeology and yakshagana. The new University could develop a total approach to languages and arts and provide facilities for research in these areas.
- XII. The Manipal complex developed on the basis of a co-operative approach to institutional organisation and parental contribution to meet the cost of education. Hence arose the controversy between subsidised education and education at cost. Once admitted to the pattern of a deemed university we are prepared to accept the relevant characteristics of such institutions prescribed by UGC with reference to financial organisation.

GOVERNANCE OF THE UNIVERSITY

The Academic life of the university will be governed solely by the academicians - Deans, Professors, etc. The course content of various disciplines will be determined by the faculty in consultation with the experts from outside. The administrative set-up corresponding to this will be re-organised in accordance with needs of the "Deemed University", as stipulated by the UGC. The governing Council will be broad based and representative enough to invest the new University with an awareness of regional needs in diverse areas of socio-economic life of the community.

Proposed Plan of the New University :

1. Preparation of detailed Project Report giving plans and programmes for the next 10 years.
2. New postgraduate courses in medicine, health care, Engineering and Technology in areas where such courses are relevant and necessary for which facilities also are available or can be made available by strengthening the existing facilities.
3. Establishment of postgraduate departments in Basic Sciences and Humanities.
4. Exploration of existing resources in and around Manipal to start new courses in relation to feel community needs - e.g.
 1. An integrated 4½ years degree course in Banking in collaboration with Syndicate Bank a nationalised bank with Headquarters in Manipal.
 2. A degree course in Book Publishing in collaboration with Manipal Power Press which is one of largest printing establishments in India which has specialised in Book publishing right from preparation of manuscript to printing and distribution on a mass scale.
 3. A degree course in Journalism in collaboration with Udayavani, a Kannada daily and Manipal Record an English weekly.
 4. A degree course in Foundry Engineering in collaboration with Alloy Foundry, Manipal which is fabricating several gadgets of high quality. This Foundry has been built up with the expertise available at MIT.
 5. A degree course in Dairy Technology in collaboration with Canara Milk producers Cop-operative Union Ltd., Manipal which is promoting dairy activities in the Northern part of South Kanara District with assistance from National Dairy Development Corporation, Anand and with assistance from Danida.
 6. Advance Special Courses in Geology and Mining in collaboration with the gigantic Mining project at Kudramukh which is about 120 miles from Manipal.
 7. A special course in Oceanography and Marine Biology in terms of the needs of the Major Fishing Harbor being constructed in Malpe, just 6 miles from Manipal.

8. Special courses in ceramics, as tile manufacturing is a major industry in and around Manipal.
9. Expansion of Industrial Estate functioning at Manipal in collaboration with MIT with new courses designed for various functionalities.
10. Special need based courses in medical technology, public health, hospital administration, building technology, wood technology, retail trade.
11. Identifying problems for research to research in the Manipal Academy e.g. methods of providing cheap but effective health services to rural folk effective methods of propagating family planning and population education, problems of malnutrition, conservation of water and similar other local problems for which solutions are to be found after investigation.
12. Programmes for toning up and improvement of education at all levels in Manipal by implementing the Education Commission's recommendation regarding Educational Complex. The co-operation of schools and Colleges and other institutional run by the Academy would be sought.
13. Advance courses in Music and Fine Arts by upgrading the existing school of Music and Fine Arts in Manipal.
14. Other programmes that would be suggested by the Planning Board.

TRUSTEES OF HASTURBA MEDICAL COLLEGE

Dental College & College of Pharmacy.

1. Dr. TMA Sai, MBBS,
MANIPAL President & Registrar
educationist.
2. Shri T. Ramesh U Pai
MANIPAL. Secretary - educationist.
3. Dr. KL Aithala, MBBS
UDUPI. Member - Physician &
Surgeon.
4. Dr. K. Mohandas Pai, B.Sc.,
MBBS, UDUPI. " "
5. Mr. AJ Rebello, IAS (retd)
11, Hayes Road,
Richmond Town,
BANGALORE-560025. Held, Chief Secretary,
Karnataka Govt.
6. Dr. MN Mahadevan, MCh,
FRCS, DTM.
No. 2, St. Mark's Road,
Bangalore-1. " Physician
7. Dr. NS Radmanabhan, D.S.
28 Vanivilas Road
BANGALORE 560004. " Dental surgeon
8. Dr. KN Rao, MBBS, DGO,
MD, LL.D.
D-57, Naraina, New Delhi-110028. " DGHS, New Delhi.
9. Shri AT Mohan Rao, B.A.B.I.
Technical Adviser
The Shankar Vittal Motor Coid. Ltd.,
Attavar, Mangalore-1. " Businessman
10. Shri Davidas Girdharlal
Post Box No.50,
MANIPAL. " Businessman
11. The District Surgeon
South Bihara,
MANIPAL. " Govt. of Karnataka
nominee.
12. The Principal
Hasturba Medical College,
Mangalore-1. "
13. The Dean
Hasturba Medical College
Manipal. "

sd/- Registrar
HASTURBA MEDICAL COLLEGE, MANIPAL SK.

KASTURBA MEDICAL COLLEGE - TRUST DEED

TRUST DEED

The Trust Deed of Kasturba Medical College as amended upto 22.3.1975 include the following provisions:-

1. The Trust will be managed by the Council of Management consisting of nine elected trustees and additional ex-officio Trustees whose number shall not exceed the number of the elected Trustees. The elected Trustees shall be nominated by the Administrative Committee of the Academy from amongst the members of the Supreme Governing Body and the majority of the Trustees shall have a degree in the allopathic system of Medicine.
2. The Principal of the said Medical College shall be the "ex-officio" Trustee. The elected Trustees along with the ex-officio Trustee shall constitute the Board of Trustees. The State of Mysore shall be entitled to appoint one Trustee who shall also be ex-officio Trustee.
3. As it is mainly due to the efforts of the said Dr. Tonse Madhava Anantha Pai that facilities in the manner stated above were secured from the Karnatak University and the Government of Madras, the said Dr. Tonse Madhava Anantha Pai shall be the Registrar, Treasurer and Correspondent and he shall hold these offices and trusteeship during his life-time and shall be known and sign all papers as "Registrar, Kasturba Medical College" or as the Registrar of any hospital or any institution connected therewith as may be required. On his death or resignation, the author of the Trust shall appoint one of the Trustees as Registrar, Treasurer and Correspondent. Mr. T. Ramesh U Pai shall be the Secretary and be in charge of and shall be responsible for the safe custody of all records of the Trust, and shall exercise all the powers of the Registrar concurrently.
4. The Trustees shall elect from among the elected Trustees a President. The President of the Board of Trustees shall preside at all the meetings of the Board and in his absence, the Registrar shall be the President of such meetings.
5. The Registrar shall at all time be competent to call a meeting of the Board of Trustees sue motto.
6. At the end of every five years, three from among the elected Trustees whose term of office is the longest, shall retire and their place shall be filled by election. The election qualifications and conditions of office of Trustees shall be as laid down by the General Body of the Academy of General Education from time to time. The retiring Trustees are, however, eligible for re-election and shall continue to hold office until the

election of fresh Trustees. But no member of the said Academy who does not hold a degree in Allopathic Medicine shall be eligible for election as a Trustee, provided that on the recommendation of all the elected Trustees, any person who is not the holder of a degree in Allopathic Medicine may be elected in the place of retiring Trustee or as an additional Trustee. The said Dr. Tense Madhava Anantha Sai shall not be subject to retirement.

7. The Trustees shall be competent and are hereby empowered:

a. To receive any more and further assets in any shape or form as and when given by the author of the Trust or any other person;

b. To invest the Trust funds from time to time in such securities, shares, stock, bank deposits, debentures, Government Promissory Notes, etc. and in such manner as they deem fit and also to receive, collect or realise or cause collection or realisation of all interest, dividends, bonus or premium to accrue due on all or any such stock, funds, securities, shares, debentures or deeds or documents of life nature;

c. To create endowments or otherwise to institute scholarships and prizes for the students of the above college;

d. To acquire, to sell, mortgage, to lease out or transfer in any manner properties movable or immovable, to construct buildings and other improvements for the purpose of the Trust and to manage and to deal with properties, movable or immovable and all other assets of the Trust and to pledge them to raise funds, to repay loans or otherwise and to deal generally with the assets for any other purpose of the Trust;

e. to borrow for the purposes of the Trust on personal credit of the Trustees or on the personal credit of the Trust with or without charge and responsibility upon the assets of the Trust;

f. to meet all the necessary expenses incurred or to be incurred in connection with the creation and execution of this Trust which shall be borne by the Trust;

g. to make donations to any of the educational institutions run by the Academy or to any other educational institutions;

provided that the above powers of the Trust shall be exercised by the Trustees in a manner not inconsistent with the provisions of Section 10(22), Section 11 and 12 read with Section 13 and section 80-G of the Income-Tax Act 1961 as amended from time to time, so that the income of the Trust will enjoy exemptions under Section 10(22), Section 11 and/or Section 12 of the said Act and further that the donors to the Trust will enjoy exemption under

the provisions of Section 80-G upto the prescribed limits mentioned therein.

8. In the event of the Trust being unable to carry out the objects, The Trustees, by a majority resolution, are empowered to transfer the assets of the Trust to any institution, other than the Author of the Trust, having objects similar to those of the Trust.

TRUSTEES OF MANIPAL INSTITUTE OF TECHNOLOGY

1. Dr. TMA Pai, Manipal - Registrar and Treasurer.
 2. Shri UF Shenoy, Udupi - Retd. Headmaster.
 3. Shri A Sripathi Rao, Mangalore- Businessman.
 4. Shri T. Ramesh U pai, Manipal - Secretary, Academy of
General Education, Manipal.
 5. Shri RV Bhat, Manipal - Retd. Principal of the college.
 6. Mysore University representative.
 7. Principal of the college.
 8. One staff representative.
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THIS DEED OF TRUST is executed by the ACADEMY OF GENERAL EDUCATION, MANIPAL, through its Registrar Doctor Tense Madhava Anantha Pai, son of Tense Anantha Pai, Gowdasarasvath Brahmin, residing in Manipal of Shivalli village, Udipi Taluk, South Kanara District, Mysore State (herein after called "The Author of the Trust")

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The Trust shall be styled "The Manipal Engineering College Trust, Manipal".

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The Trust will be managed by the Council of Management of the Manipal Engineering College, Manipal, consisting of the Principal of the said College and five Trustees to be appointed by the Administrative Committee of the Academy of General Education, Manipal from a panel of eight names recommended by the Registrar of the said Academy. The Trustees appointed for the purpose of carrying out the objects and terms of the Trust are for the present the following members constituting the present Council of management of the said Manipal Engineering College, Manipal, formed as per resolution of the Registrar of the said Academy.

1. Udipi Kumbalik Shenoy, B.A.T., retired Head Master, son of Jogappa Shenoy, Udipi.
2. Tense Ramesh Upendra Pai, son of Tense Upendra Anantha Pai, Merchant, Manipal.
3. Roque Fernandes, B.A.T., Retired Head Master, son of Xavier Fernandes, Ambalapadi, Udipi.
4. Shripathi Achar, B.Com. son of Punaroor Muchinthaya Krishna-charya, Landholder, Udipi.
5. Tense Mohandas Pai, LL.B. Merchant, son of Dr. Tense Madhava Anantha Pai, Manipal.
6. Prof. KB Krishna Rao, B.A., B.E., M.L.S. Principal of the Manipal Engineering College, son of Kasargod Patnasetty Ramachandraya, residing at Koorkee University, Koorkee.

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The Registrar of the said Academy shall at all times be competent to call a meeting of the Board of Trustees suo motto.

All appointments shall be made by the Registrar in consultation with the ex-officio Trustee, but, the conditions of appointment and terms of service shall be decided by the Registrar.

: 147 :

The Registrar of the Academy, if he deems it necessary, may appoint from among the superannuated engineers, who have been appointed as special associate professors, one as chief administrative officer, who will carry out the policies of the Academy and be answerable to the Registrar of the said Academy for the efficient, economic and proper working of the same. However, the internal administration of the College shall entirely vest in the Principal and in his absence in the Vice-Principal, subject to supervising control and direction of the Registrar.

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The object of the trust is to establish, manage and run the Manipal Engineering College and its hostel at Manipal or in such other places as the Board of Trustees may with the written approval of the Registrar of the Academy from time to time decide. All such connected institutions, the properties and assets attached to or belonging to them or moneys received by them or standing in their names shall be deemed to be the properties of this Trust and shall be controlled and managed by it. The Treasurer shall have the same powers and responsibilities in respect of such properties, assets and moneys as he has in respect of the other assets of this Trust. In case the said Engineering College ceases to exist or function, the entire Trust assets then existing shall revert to and vest in the Author of the Trust.

If at any time any dispute, doubt or question shall arise touching the construction, meaning or effect of this deed or any clause thereof or any clause thereof or any rule or regulations, the interpretation and decision of the Registrar of the said Academy shall be final and binding on the Trust and the concerned party.

TRUSTEES OF M.M. COLLEGE, UDUPI

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1. Shri Anand Mohan Rao, Mangalore - President

Businessman.

2. Shri S.G. Acharya, Udupi-Correspondent and Treasurer

Building Contractor.

3. Shri T. Ramesh Urali, Manipal

Secretary,
Academy of
General
Education.

4. Shri M. Madhva Raj, Malpe

Businessman.

5. Principal of the college.

6. One staff representative of the college.

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TRUST DEED

This Deed of Trust is executed by the Academy of General Education, Manipal, through its registrar, Dr. Tansa Madhava Anantha Rai, son of Anantha Rai, Gowdasaraswath Brahmin, residing at Kadakar Village, Udupi Taluk, hereinafter called "the Author of the Trust".

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The Trust shall be irrevocable so long as the existence and the object for which the College is founded are carried on.

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The principal of the college and the member nominated by the University shall be the ex-officio Trustees. The "elected trustees" along with the "ex-officio trustees" shall constitute the Board of Trustees.

The Trustees shall elect from among themselves a President, a Secretary and a Treasurer - Correspondent. The Secretary shall be in-charge of and shall be responsible for the safe custody of all records of the Trust.

The Treasurer-Correspondent shall receive and disburse all the moneys of the Trust and maintain or cause to be maintained proper accounts of the same.

The object of the Trust is to manage and run the Mahatma Gandhi Memorial College and its hostels at Udupi and in case the Mahatma Gandhi Memorial College ceases to exist or function, the entire Trust assets then existing shall revert to the Author of the Trust.

The Trustees shall have power to create endowments for or otherwise to institute scholarships and prizes for the students of the above college.

Trustees of the Udupi Law College.

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Appendix-XV

1. Dr. T.M. Sai, Manipal
2. Shri N. Arishamurthy Iyer, Udupi
3. Shri T. Mahandas Sai, Manipal
4. Shri M. Prasad, Manipal
5. Principal of the college.

President

Advocate.

Businessman

Chief Development
Manager,
Syndicate
Bank, Manipal.

UDUPI LAW COLLEGE TRUST DEED

THIS DEED OF TRUST is executed by the Academy of General Education, Manipal through its Registrar Doctor Tonsa Madhava Anantha Rai, son of Tonsa Anantha Rai, Govdasaraswath Brahmin, residing in Manipal of Shivalli Village, Udipi Taluk, South Kanara District, Mysore State (hereinafter called "the Author of the Trust".)

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AND WHEREAS it is now the desire of the Author of the Trust to execute two separate deeds of Trust in respect of the Law College and the Engineering College setting forth the terms, conditions and provisions thereof for the proper, permanent and efficient administration of the trusts.

The Trust will be managed by the Council of Management of the Udipi Law College, Udipi consisting of the Principal of the said College and five Trustees to be appointed by the Administrative Committee of the Academy of General Education, Manipal, from a panel of eight names recommended by the Registrar of the said Academy. At least three of the appointed Trustees shall be Law Graduates. The Trustees appointed for the purpose of carrying out the objects and terms of the Trust are for the present the following members constituting the present Council of Management of the Udipi Law College, Udipi, formed as per resolution of the Registrar of the said Academy.

1. Padamunur Radmanabha Rao, B.A., B.L. Vakil, son of Sitaramayya, Udipi.
2. Mangalore Ramodhar Kamath, B.A., B.L., Advocate, son of Ramakrishna Kamath, Ujjarkad, Udipi.
3. Gratian Charles Rego, B.A., B.L., Vakil, son of Albert Thomas Rego, Udipi.
4. Tonsa Mohandas Rai, L.B. Merchant, son of Dr. Tonsa Madhava Anantha Rai, Manipal.
5. Kaimadi Cururaja Rao, B.A., B.L., Advocate, son of Shankaranarayana Rao, Udipi.
6. B. Lakshminarayana Rai, B.A., M.L., Retired District Judge, son of K. Mana Rai, Principal of the Udipi Law College, residing at Ujjarkad, Udipi.

The Principal of the said Law College shall be the "ex-officio" Trustee. The "appointed Trustees" along with the "ex-officio Trustee" shall constitute the Board of Trustees.

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The Treasurer shall receive and disburse all the moneys of the Trust and maintain or cause to be maintained proper accounts of the same. He shall also be entitled to receive all moneys, money-orders, correspondence, registered articles and insured articles addressed to the Principal, Udipi Law College or any other institution connected with it.

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The Registrar of the said Academy shall at all times be competent to call a Meeting of the Board of Trustees suo motu.

At the end of every three years, all the Trustees other than the ex-officio Trustees shall retire and their place shall be filled up by the Administrative Committee of the Academy of General Education, Manipal, by appointment of Trustees from a panel of eight names recommended by the Registrar of the said Academy. Out of the Trustees so appointed at least three shall be law graduates. The retiring Trustees are, however, eligible for re-appointment and shall continue to hold office until the appointment of fresh trustees.

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The Treasurer shall be the person authorised to execute or negotiate all the necessary papers and documents such as pro-notes, bills, cheques, hundis, or any other negotiable or non-negotiable instruments such as bonds, mortgages, pledges, agreements, conveyances, transfers, etc., and he shall also have power to receive moneys and other assets, to grant receipts and discharges on behalf of the Trust.

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The object of the Trust is to establishment, manage and run the Udipi Law College and its hostel at Udipi or in such other places as the Board of Trustees may with the written approval of the Registrar of the Academy from time to time decide. All such connected institutions, the properties and assets attached to or belonging to them or moneys received by them or standing in their names shall be deemed to be properties of this trust and shall be controlled and managed by it. The Treasurer shall have the same powers and responsibilities in respect of such properties, assets and moneys as he has in respect of the other assets of this Trust. In case the said Law College ceases to exist or function, the entire Trust assets then existing shall revert to and vest in the Author of the Trust.

If at any time any dispute, doubt or question shall arise touching the construction meaning or effect of this Deed or any clause thereof or any rule or regulations, the interpretation and decision of the Registrar of the said Academy shall be final and binding on the Trust and the concerned party.

. . . .

There is no Trust Deed for this College. The management of this College is conducted directly by the Academy. As such there are no Trustees to this College. However, there is a Governing Body to manage the affairs of the College and its members are as under:-

1. Shri P. Sripathi Acharya, Udupi - Engineering Contractor.
2. Shri T. Ramesh U Pai, Manipal - Secretary of the Academy of General Education.
3. Shri U. Shenoy, Udupi - Retd. Headmaster
4. Shri A. J. Jose, Udupi - Retired Teacher
5. Shri K. Narahari Komatha, Udupi - Social Worker.
6. Principal of the College
7. One teaching staff member of the College.

CONFIDENTIAL

UNIVERSITY GRANTS COMMISSION

235

Meeting :
Dated : 31st Jan.'77

Item No.31 To consider references received from the Government of India, Ministry of Education & Social Welfare regarding the minimum qualifications laid down for recruitment to the post of lecturers consequent upon the revision of scales of pay of university and college teachers.

The Government of India, Ministry of Education & Social Welfare have intimated the State Governments of the following minimum qualifications for recruitment to the post of lecturers in the faculties of Arts, Social Sciences and Sciences consequent upon the revision of scales of pay as recommended by the University Grants Commission for university and college lecturers:

University Lecturers

- (a) A Doctor's degree or research work of an equally high standard; and
- (b) consistently good academic record with first of high second class (B in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign university.

Having regard to the need for developing inter-disciplinary programmes, the degrees in (a) and (b) above may be in relevant subject.

Provided that if the Selection Committee is of the view that the research work of a candidate as evident from his thesis or from his published work is of a very high standard, it may relax any of the qualifications prescribed in (b) above.

Provided further that if a candidate possessing a Doctor's degree or a equivalent research work is not available or is not considered suitable, a person possessing a consistently good academic record (weightage being given to M.Phil or equivalent degree or research work of quality) may be appointed provided he has done research work for at least two years or has practical experience in a research laboratory/organisation on the condition that he will have to obtain a Doctor's degree or give evidence of research work of equivalent high standard within five years of his appointment, failing which he will not be able to earn future increments until he fulfils these requirements.

Explanation : Candidates for being eligible for recruitment to the posts of Lecturers must have a 1st or high second class (B in the seven point scale) at the Master's level and for determining consistently good record, average of 50-55% or (B in the seven point scale) may be expected at the two examinations prior to the Master's examination.

236

College Lecturers

The minimum qualifications for recruitment of lecturers in the above mentioned faculties in the Colleges are as follows:

- (a) A consistently good academic record with 1st or high 2nd class (B+) at the Master's degree in a relevant subject or an equivalent degree of a foreign university; and
- (b) An M.Phil degree or a recognised degree beyond Master's level or published work indicating the capacity of a candidate for independent research work.

Provided that if a candidate possessing the qualification as at (b) above is not available or not considered suitable the college, on the recommendation of the Selection Committee may appoint a person possessing a consistently good academic record on the condition that he will have to obtain an M.Phil degree or a recognised degree beyond the Master's level within five years of his appointment, failing which he will not be able to earn future increments till he obtains that degree or gives evidence of equivalent published work of high standard.

2. The Ministry of Education & S.W. on receipt of references from the State Governments/Universities/Teacher Organisations regarding the qualifications prescribed for appointment of lecturers as a result of the revision of scale of pay have sought the clarifications/comments from the Commission.

An extract from each of the communications received from the Ministry of Education & S.W. are reproduced below:

(1) "As you are aware, the scheme of revision of scales of pay of University and College teachers provides that:

"For future recruitment to the posts of lecturers in universities as well as in colleges, the minimum qualifications shall be as may be determined by the University Grants Commission from time to time".

On the recommendations of the Commission, this Ministry vide letters No.F.1-1/75-U.1 dated 20.2.1976 and No.F.1-12/76-U.I dated 21.7.1976 had communicated to the State Governments the minimum qualifications for recruitment to the posts of Lecturers in universities and colleges. For existing lecturers in colleges, the scheme, however, envisaged that:

"The existing lecturers in colleges who did not possess at the time of their initial recruitment minimum qualification as prescribed by the University concerned at the time of appointment should be required to attain these qualifications within five years from the date of placement in the revised scale. If they are unable to do so during this period, they should not be allowed to earn any future increment till they have satisfied this condition".

In this context, the representatives of the All India Federation of University and College Teachers' Organisations, who met the Union Education Minister on November 25, 1976, had pointed out that the lecturers who are retrenched by the private managements due to various reasons like discontinuance of certain courses or reduction in enrolment etc. and who do not possess the qualifications now prescribed for recruitment find it impossible to get fresh appointments elsewhere. They had, therefore, sought some relaxation in qualifications in the case of lecturers who were retrenched by the Managements and who are seeking fresh employment.

I shall be grateful if you could kindly have the matter regarding prescription of appropriate qualifications, possession of which should be essential by the lecturers, who are retrenched by the Private management, considered in the Commission and let us have the views early."

(2) It would be noticed that a candidate having good research work at his credit, even though he does not have a Ph.D. degree, can be appointed as Lecturer in Universities even without having a consistently good academic record with 1st or high 2nd class Master's degree if the Selection Committee so recommends. But the same candidate cannot be considered for appointment as Lecturer in college, since no such discretion had been allowed to the Selection Committee in case of appointment of college lecturers. As such the position appears to be anomalous. However, on a suggestion made by the Government of Uttar Pradesh, the Commission, vide its letter No.F.1-93/74(CD-CP) dated 5.7.1976 had agreed to provide for relaxation from the requirements of a consistently good academic record for Lecturers in Colleges, who possessed a Ph.D. degree, as in the case of University Lecturers. A copy of each of the communications No.3599/XV-10-76-60(115)/73 dated 4.12.1976 and No.11423/XV-10-76-60(115)/73 dated 15.12.1976 received from the Government of Uttar Pradesh pointing out some further inconsistencies in the matter of qualifications for university and college lecturers is enclosed. (Appendix I & II).

It is requested that after taking all relevant aspects into consideration, the matter may kindly be reconsidered by the Commission alongwith the question of determining the qualifications of Professors and Readers in Universities and Principals in colleges, so that the State Governments could be addressed on the issue."

(3) The conditions of grant attached to the introduction of revised scales of pay of teachers of central universities inter-alia lays down the following condition regarding the age of superannuation of teachers.

"The age of superannuation for teachers as well as for Principals shall be 60 years and thereafter no further extension in service shall be given. A teacher who has already been given extension on attaining the age of 60 years on January 1, 1973 or thereafter shall continue to be in the old scale of pay during the period of extension and shall not be permitted to opt for the revised scale."

The Commission had also intimated the central universities though the age of superannuation of teachers shall be 60 years, it would, however, be open to any university if it so desires to give reemployment to a talented teacher for a limited period beyond age of 60 years.

A question has been raised whether the revised scale of pay would be available to the persons who are appointed as teachers in the central universities after superannuation either from any other university or from government service. The Government of India was requested for a decision in the matter. The Ministry of Education have informed that they have been considering this in consultation with the Ministry of Finance. They have, however, asked for the view of the Commission on the following points to consider the matter further.

- a) Whether a teacher in a University/College who is re-employed and is fixed in the revised scale of pay will be expected to possess the qualifications prescribed by the UGC from time to time under the scheme of revised scales of pay?
- b) The UGC is assuming re-employment for a limited period of time, it may be indicated what is their intention in using this phase i.e. what is the maximum period for which a person can be re-employed is one or more than one spells.

(4) The Ministry of Education on a reference from the University of Bombay regarding the qualifications for the appointment of part time teachers in the faculty of law have asked for the views of the Commission in the matter. An extract of the letter received from the University of Bombay is reproduced below:

"Please refer to your letter No.F.1-29/75-U.I. dated 2nd December, 1975, addressed to the Secretary, Education Department, Government of Maharashtra, Bombay.

My Registrar has received a copy of the above mentioned letter. Para two of the letter mentions that the minimum qualifications for recruitment to the post of Lecturers in the Departments/Faculties of Law in the universities and colleges should be an LL.M. degree. In this behalf I would like to state that the Law Colleges have two types of Lecturers who are practitioners of law in the Law Courts. In the case of second category of Lecturers what is necessary is their experience in the Law Courts. Hence possession of LL.M. degree is not made compulsory. The Bar Council of India has also not made possession of LL.M. degree as compulsory for such Lecturers. I presume that the qualifications mentioned in your letter are to be insisted only in the case of full time Lecturers and not part-time Lecturers. This presumption may please be confirmed."

The matter is placed before the Commission for consideration on the following points:-

- (i) Relaxation in qualification for lecturers who are retrenched by the Private Managements due to various reasons like discontinuance of certain courses or reduction in enrolment etc. who do not possess the qualifications prescribed by the Commission for recruitment to the post of lecturers on introduction of revised scales of Pay.
- (ii) The Selection Committee can relax the following qualification in the case of university lecturers but, no such relaxation is allowed in the case of college lecturers:-

"Consistently good academic record with first or high second class (B in the seven point scale) Master's degree in a relevant subject or an equivalent degree of a foreign university".

- (iii) a) Whether a teacher in a University/College who is re-employed and is fixed in the revised scale of pay will be expected to possess the qualifications prescribed by the UGC from time to time under the scheme of revised scales of Pay?
- b) The UGC is assuming re-employment for a limited period of time; it may be indicated what is their intention in using this phase i.e. what is the maximum period for which a person can be re-employed in one or more than one spells.
- (iv) The minimum qualifications for recruitment to the post of lecturers in the departments/faculties of law in universities and colleges is L.L.M. degree. It is for consideration whether these qualifications would also be necessary in the case of Part-time lecturers appointed in the colleges who are practioners of Law in the Law Courts.

The matter is placed before the Commission for consideration.

AS/DS(CP)

C O P Y

2190

No. 8599/XV-10-76-60(115)/73

From

Shri H. S. Sodhi,
Deputy Secretary to
Government, UP.

To

The Secretary,
Government of India,
Ministry of Education and S. W.
(Deptt. of Education)
New Delhi.

Education(10)Section

Dated: Lucknow: Dec. 4, 1976

Subject:- Minimum qualifications for teachers of Universities
and Degree Colleges after revision of salary scales.

Sir,

I am directed to refer to the correspondence resting with the Ministry's letter No. F.1-3/74-U.1 dated July 24, 1976 where in the Ministry's decision was communicated that in case of recruitment of college Lecturers, the requirement of consistently good academic record with first or high second class (B+) Master's degree may be relaxed if the candidate possesses a Doctorate degree. Orders were issued accordingly. Representations have, however, since been made to the State Government that in case of recruitment to the post of a Lecturer in a University the Selection Committee can relax the requirement of consistently good academic record with first class or high second class (B+) Master's Degree in the subject, if it is of the opinion that the research work of a candidate, as evidenced by his published work, is of a very high standard, even if he does not possess a Doctorate Degree. Such relaxation is not given to a candidate if he applies for the post of Lecturer in Degree College. I am to request that the Ministry may kindly reconsider the matter and let the State Government have their valuable advice on the subject.

Yours faithfully,

SI/-

(H. S. Sodhi)
Deputy Secretary

C O P Y

241

No. 11423/XV-10-76-60(115)/73

From

Sri H. S. Sodhi
Deputy Secretary to
Government, U.P.

To

The Secretary,
Government of India,
Ministry of Education and S.W.
(Deptt. of Education),
New Delhi.

Education (10) Section

Dated, Lucknow, Dec. 15, 1976

Subject:- Qualification for the post of Lecturers in Universities
and Degree Colleges.

Sir,

I am directed to say that in the Conference of the Vice-Chancellors of the State Universities held at Lucknow on December 6&7, 1976 one of the Vice-Chancellors pointed out that the minimum qualifications as prescribed for the post of University Lecturers in the Government of India letter No.F.1-1/75-U.1 dated February 20, 1975 include a clause for relaxation from certain qualifications. This clause is so worded as the Selection Committee can relax certain minimum qualifications including even M.A. Degree in the subject, if the candidate has published work of a very high standard to his credit without having Ph.D. degree. It is, thus, open for interpretation that a candidate who has a published work of very high standard to his credit can be appointed to the post of University Lecturer if he does not even possess M.A. degree in the subject. This does not perhaps seem to be the intention. I am, however, to request that the Ministry may like to consider this point and favour the State Government with their valued advice in the matter.

Yours faithfully,

S/-

(H. S. Sodhi)
Deputy Secretary