

NORTHERN REGIONAL COMMITTEE  
OF THE  
ALL INDIA COUNCIL  
FOR  
TECHNICAL EDUCATION

\* \* \* \* \*  
\* NORTHERN REGIONAL COMMITTEE \*  
\* AGENDA FOR FORTYSECOND MEETING \*  
\* DAY, DATE Monday the 1st December, 1975 \*  
\* TIME : at 11,00 A.M. \*  
\* PLACE: Delhi College of Engineering, \*  
\* Kashmere Gate, Delhi-6. \*  
\* \* \* \* \*

NIEPA



G1083

GOVERNMENT OF INDIA  
MINISTRY OF EDUCATION & SOCIAL WELFARE  
DEPARTMENT OF EDUCATION  
NORTHERN REGIONAL OFFICE  
7/169, SWARUP NAGAR  
KANPUR - 2

Donated by Sh. D. P. Nayyar

ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION  
NORTHERN REGIONAL COMMITTEE

No. F.3-243/75-NRC/ED- 3693

Ministry of Education & S. .  
Northern Regional Office  
7/169, Swarnpuri,  
Kamapur-2

Dated: Nov. 12/12, 1975

From

The Member-Secretary,  
Northern Regional Committee,

To

All members of the Northern Regional Committee and  
members of the Coordinating Committee/All-India Council  
for Technical Education resident in the Northern Region -

Subject: Fortysecond Meeting of the Northern Regional Committee

Sir,

Further to this Office letter No. F.3-243/75-NRC/ED-5506-5541  
dated the 10th November, 1975, agenda with relevant papers for the  
Fortysecond Meeting of the Northern Regional Committee, is sent herewith.  
The meeting will be held at 11.00 A.M. on Monday the 1st December, 1975  
in the Conference Room of the Delhi College of Engineering, Kashmere Gate,  
Delhi-6.

Kindly make it convenient to attend the meeting.

Yours faithfully,

(Narendra Singh)

Member - Secretary

Northern Regional Committee

Encl: (As above)

Encl. No. F.3-243/75-NRC/ED-

of date,

Copy for information forwarded to:-

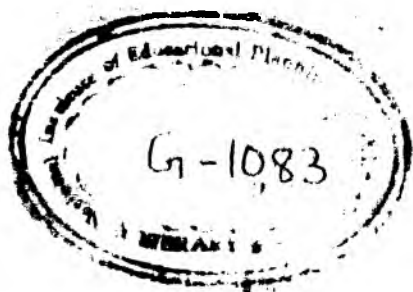
1. Shri H. S. Shahani, Jt. Educational Adviser (Tech) to the Govt. of India,  
Ministry of Education & S. G., Shastri Bhawan, New Delhi-2.
2. Ministry of Education & S.W., T.5 Section, Shastri Bhawan, New Delhi.
3. The Asstt. Educational Adviser (T), Ministry of Education & S.W.,  
Western Regional Office, Industrial Assurance Building, 2nd Floor,  
Vignariman Road, Opp. Church Gate Stn., Bombay-20.
4. The Dy. Educational Adviser (T), Ministry of Education & S.W., Eastern  
Regional Office, 5, Esplanade East, Calcutta-1.
5. The Asstt. Educational Adviser (T), Ministry of Education & S.W.,  
Southern Regional Office, Shastri Bhawan, Madras-6.
6. The Director, Bureau of Planning & Coordination, Govt. of India,  
Ministry of Education & S.W. (Statistical & Information Division),  
New Delhi.

(Narendra Singh)

Member - Secretary

Northern Regional Committee

SINHA:DT:13.11.1975



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ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION

NORTHERN REGIONAL COMMITTEE

AGENDA :-

Place: Delhi College of Engineering,  
Kashmere Gate, Delhi-6

Day, date & time Monday the 1st September, 1975  
11.00 A.M.

		<u>Page No.</u>
Item 1	To confirm the minutes of the 41st meeting of the Northern Regional Committee held on 15th Jan. 1975.	1 to 3
Item 2	To report on the action taken/progress made on the various decisions/recommendations made at the 41st meeting of the Northern Regional Committee.	4 to 27
Item 3	To consider the report of the Visiting Committee regarding assessment of physical/instructional facilities required for the introduction of an Under-graduate Degree course in Electronics at Thapar Institute of Engg. & Technology, Patiala.	28 to 42
Item 4	To consider D.O. letter No. F.11-34/74-T.5 dated the 17th October, 1975 from Sri U. B. Sangal, Asstt. Educational Adviser (Technical) to the Govt. of India, Ministry of Education & S.W., New Delhi, regarding the question of restoration of admission in Technical Institutions.	43 to 48
Item 5	To consider Ministry's letter No. F.9-8/71-T.2 dated 6.1.1975 regarding introduction of revised curriculum and syllabus for six years full-time diploma course in Architecture on Sandwich pattern.	49 to 75
Item 6	To consider the report of the Expert Committee on the proposal received from the Secretary, Board of Technical Education, U.P., Lucknow, regarding the duration of diploma course in Costume Design and Dress Making at the Govt. Girls' Polytechnic, Lucknow.	76 to 93
Item 7	To note Ministry's letter No. F.25-9/74-T.5 dated the 5th April, 1975, regarding education of Scheduled Caste and Scheduled Tribes candidates.	94 to 97
Item 8	To note replies received from the State Governments located in the Northern Region, regarding adoption of per capita maintenance norms.	98 to 101
Item 9	To consider Ministry of Education & S.W., New Delhi letter No. F.19-36/74-T.5 dated the 20th September, 1975 regarding the revision of salary scales of teachers in Engineering Colleges.	102 to 107
Item 10	To consider the report of the Visiting Committee on the Scheme of establishment of Government Polytechnic for Women, Jullundur City.	110 to 123



Item	11	To consider the question of fixing the optimum size of intake of the diploma institutions.	126
Item	12	To receive a note for the provision of necessary funds for Sandwich Programme in the Scheme of Chemical Operators and Supervisors Course approved by the Northern Regional Committee at its 41st meeting held on 15th Jan., 1975 for Government Polytechnic, Kanpur.	127 to 129
Item	13	To consider the request from the State Govt. of Uttar Pradesh for appointment of a Visiting Committee to assess the teaching staff requirements of Madan Mohan Malaviya Engg. College, Gorakhpur.	130 to 132
Item	14	To receive a report on the Programme of Apprenticeship Training in the Northern Region.	133 to 134
Item	15	To receive a note on progress of Quality Improvement Programme in the Northern Region.	135 to 137
Item	16	To receive a note regarding grant of academic autonomy for technical institutions.	138 to 145
Item	17	To receive a note regarding Model Bill for establishment of State Boards of Technical Education as Statutory Bodies.	146 to 170
Item	18	To receive a note regarding adoption of revised scheme and syllabus for Diploma Course in Architectural Assistantship.	171 to 184
Item	19	To receive a report on the Survey of Facilities for Tech. Education in the Northern Region for 1975.	185 to 187
Item	20.	To receive a note on the staff structure for diploma institutions of the Northern Region.	188 to 214
Item	21	To receive the minutes of the 2nd meeting of the Standing Committee of the Northern Regional Committee held on 29th Nov., 1975.	215 onwards (to be placed on the table)
Item	22	Any other business with the permission of the Chairman.	

Item 1 . To confirm the minutes of the 41st meeting of the Northern Regional Committee held on 15th Jan., 1975 -

The minutes of the 41st meeting of the Northern Regional Committee held on 15th January, 1975 at Lucknow were circulated to the members for their information and comments, if any. Shri S.A. Abbas, Principal, University Polytechnic, A.M.U. Aligarh vide his letter No.Ex.D.455 dated 22.2.1975 (copy placed at Annexure) has desired that the decision against Item No.41.5(A)- basic qualifications for teachers in Engineering Colleges/Polytechnics vis-a-vis the revised pay scales be amended as under:-

" the basic qualifications laid down earlier by the All-India Council for Technical Education for teachers in Engineering Colleges/Polytechnics and as at present in force, may continue and be adopted unchanged vis-a-vis the revised pay scales which may be made applicable to the teachers in technical institutions."

No comments have been received from any other members.

Note from the Secretariat of the Northern Regional Committee:

The Northern Regional Committee at its 41st meeting held on 15.1.1975 noted the recommendation of All-India Council for Technical Education that before implementing the decision on the revised pay scales of teachers in Technical Institutions the details of qualifications, experience and other requirements prescribed for various categories for teaching posts in technical institutions should be examined vis-a-vis those recommended by the University Grants Commission for teachers in Universities and colleges. The Committee recommended that:-

" The basic qualifications laid down by the All-India Council for Tech.Education for teachers in Engg. Colleges/Polytechnics vis-a-vis revised scales be adopted and revised scales made applicable to the teachers in technical institutions."

From the decision noted above against Item No.41.5(A) and the amendment suggested by Shri Abbas, it is noted that no material change in the decision already recorded in the minutes of the 41st meeting of the committee is required. The Special Committee appointed by the All-India Council for Technical Education to look into the question of adoption of revised scales of pay recommended by the University Grants Commission has submitted its report. The recommendation of the Committee have been examined by the Government of India and its decisions are reported under Item 9. In view of this, letter of Shri Abbas may be noted and the minutes as circulated may be treated as confirmed.

ANNEXURE  
ITEM 42.1

Copy of letter No.455 dated 22.2.1975 from Shri S.A.Abbas, Principal, University Polytechnic, Aligarh Muslim University, Aligarh.

\*\*\*\*

I have for thankful acknowledgement the receipt of your letter No.F.5-231/74-NRO/ED-9764-802, dated February 9, 1975, enclosing a copy of the minutes of the 41st meeting of the Northern Regional Committee held at Lucknow on 15-1-1975.

I have to offer the following comments, as desired, for your kind consideration :-

ITEM NO.41.5(a) :- Basic Qualifications for teachers in Engg. Colleges/Polytechnics, vis-a-vis the revised pay scales.

The minuted recommendation may be considered for greater clarification so as to become an entirely faithful record of the deliberations.

It will be recalled that the committee had expressed the opinion that the raise in pay scales was consequent on the rise in cost-index, and should there have no impact on the qualifications of the teachers which may remain unchanged.

The above minute could, therefore, be recorded as below so as to become unmistakably clear :-

AMENDED VERSION :- the basic qualifications laid down earlier by the All India Council for Technical Education for teachers in Engg. Colleges/Polytechnics and as at present in force, may continue and be adopted unchanged vis-a-vis the revised pay scales which may be made applicable to the teachers in technical institutions;

Item 2 . To report on the action taken/progress made on the various decisions/recommendations made at the 41st meeting of the Northern Regional Committee -

Item No. of the minutes	Recommendations/Decisions of the Committee	Action taken
(1)	(2)	(3)

41.3 To report on the action taken/progress made on the various decisions/recommendations made at the 40th meeting of the Northern Regional Committee -

The progress made on the various decisions/recommendations of the 40th meeting of the Regional Committee were noted by the Committee. Whilst on the item, the Committee made the following observations/recommendations:-

The matter is being considered by the Standing Committee of the Northern Regional Committee. Its recommendations will be placed on the table.

1) The State Plan of technical education of the different States of the Regional are being formulated by the respective State Governments and then submitted before the Working Group for consideration. The Regional Committee which is directly responsible for the development of technical education in the Region hardly comes into picture with regard to the formulation of the State plan scheme etc.

The representatives of the State

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Governments viz. Directors of Technical Education, Chairman of the State Boards etc. strongly felt that the Regional Committees must have a say in the matter and should be associated with the formulation and fixation of the priorities to be given to the different schemes to be included in the State Plan of the respective States of the Region.

ii) The Standing Committee of the Regional Committee should be activated for the purpose and the following persons are co-opted on the Standing Committee:-

1. Shri A.K. Mandal,  
Director,  
Education Division,  
-Planning Commission,  
New Delhi.
2. Shri T.K.Vaidyanathan,  
Principal,  
Technical Teachers' Training  
Institute, Chandigarh.

iii) The Standing Committee should ensure that the programme of the type- providing better training facilities for training of T.V/Radio mechanic and Technicians, training of technicians at the diploma level in the field of Agricultural Engineering receive due priorities in the State

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Plans within the availability of the resources.

iv) The Committee desired that the proposals for the 5th Five Year Plan of the technical education of the various States of the region should be considered by the above Standing Committee and recommendations sent to the appropriate authorities at the earliest.

1.4 To consider the question of revision of functions of the Regional Committee -

1. The Committee considered the note sent by the Chairman to the Ministry regarding the revision of the functions of the Regional Committee and endorsed the views expressed therein. The Committee agreed that in the context of the changed situation the following functions should be assigned to the Regional Committee:-

1) to survey the facilities for technical education at all stages starting from the school level to the University degree level and to disseminate the information regarding

The recommendations of the Committee have been forwarded to the All-India Council for Technical Education for consideration.

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facilities for technical education available in the Region to the concerned State Governments, institutions, individuals.

ii) to promote liaison between technical institutions and industry and other technical establishments/ departments.

iii) to review critically the academic aspects of training, such as the levels of performance achieved in the laboratories and the standards of instruction and examination at the School level, Diploma level and Degree level and to make recommendations to the Co-ordinating Committee/Council on the consolidation and development of existing institutions and establishment of new institutions and to exercise checks on the proper utilisation of central funds at the State Govt./institutional level;

iv) to evaluate the institutions seeking recognition and to accredit the same;

v) to tender advice and guidance to technical institutions within the Region affiliated to the Regional



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Committee/Council in receipt of financial aids from the Central Government as well as to such other institutions may seek the same;

- vi) to co-ordinate the work relating to curriculum development on a Regional basis;
- vii) to carry out manpower surveys of the requirements of technical personnel on a Regional basis;
- viii) to consider and make recommendations on such other matters as may be referred to it by the Coordinating Committee/Council.

For satisfactory discharge of the above functions specially for conducting the Man Power Surveys at the Regional level, for disseminating the information to the needy institutions etc. for accrediting the institutions etc. suitable staff machinery may be provided by the Central Government in the Secretariat of the Regional Committee.

2. The change in the policy of financial assistance in respect of disbursement of central funds

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necessitates a strong central organisation say All-India Council for Technical Education its Regional Committees vested with necessary powers with regard to the disbursement of funds not only in respect of Central Sector schemes of technical education but in respect of State Plan schemes for which 50% reimbursement is claimed by the State Governments from the Centre by ways and means. In the absence of such powers the All-India Council for Technical Education/Regional Committee will not be able to discharge their functions of maintaining the standard of technical education in the country. In order to give these powers to the All India Council for Technical Education/its Regional Committees a National Policy for the Development of Technical Education on the lines of the National policy for Medical Education should be formulated by the Central Government and submitted to the Parliament for approval.

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41.5 To report the important decisions taken/suggestions made by the All-India Council for Technical Education at its 22nd Meeting held on 17th May, 1974 -

The Committee noted the important decisions taken/recommendations made by the All-India Council for Technical Education in its 22nd meeting held on 17th May, 1974.

1) Para 2 of item  
41-5 - Revised pay scale of teachers in Engg. Colleges and polytechnics -

The Committee noted that the Government of India has appointed a Committee to look into the details of qualifications, experience and other requirements prescribed for various categories of teaching posts in technical Institutions vis-a-vis those recommended by the U.G.C. for teachers in Universities and Colleges at which the question of making the revised scales applicable for the teachers in Engineering Colleges and polytechnics could be considered. The Committee recommended that:-

- a) the basic qualification laid down by the All India Council for Technical Education for teachers in Engineering Colleges/ Polytechnics vis-a-vis the

The recommendations of the Committee were forwarded to the All-India Council for Technical Education. The AICTE had appointed a Special Committee to look into the question of revision of salary scales of teachers in Engineering Colleges. The decision of the Govt. of India on the recommendation of Special Committee is being reported under Item -9.

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revised scales be adopted and revised scales made applicable to the teachers in technical institutions;

- b) there should be parity in the scales of pay between the teachers in the Engg. Colleges and Polytechnics.
- c) the Govt. of India should give 80% assistance to State Govts. for implementing the revised scales of pay in Engineering Colleges and Polytechnics:
- d) the Committee appointed by the Govt. of India to look into the matter should meet at an early date to avoid hardships to teachers in Engineering Colleges and Polytechnics.

41.6 To consider the report of the Visiting Committee on the introduction of 3-year Diploma Courses in Construction Technology, Automobile Engineering, Production Technology, Instrumentation and Control, Public Health Engineering, Plastic Technology, Tool Engineering & two year Diploma Course in Commercial Practice at Allahabad Polytechnic, Allahabad -

1. The Committee approved the report of the Visiting Committee on the introduction of 3-year diploma courses in Construction Technology, Automobile Engineering, Production Technology, Instrumentation & Control, Public Health Engg., Plastic Technology, Tool Engineering

The recommendations of the Committee have been forwarded to the All-India Council for Technical Education.

and 2-year diploma course in Commercial Practice at Allahabad Polytechnic, Allahabad. The Committee also approved the following estimates of additional facilities recommended by the Visiting Committee on the introduction of the new courses:-

Non-Recurring

	Rs.
Building (Plinth area 63,530 sq.ft.)	25,94,850
Equipment	25,00,000
Furniture	80,000
Library	80,000
Total: Non-recurring -	<u>52,54,850</u>

Recurring

Salary of staff	11,34,000
Maintenance expenditure	2,22,000
Library recurring	15,000
Total: Recurring -	<u>13,71,000</u>

Hostel

Hostel (for 410 students)	Rs. 34,70,000
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2. While approving the report the Committee desired that the feasibility or otherwise of continuing of these courses at this instt. from the point of view of employment potential available for the products of these courses should be reviewed

The review suggested by the Committee shall be carried out at the appropriate time.

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by the Regional Committee  
after a period of six years.

3. The Committee also advised the State Government to take suitable steps for development of other polytechnics in the State as well.

The Director of Technical Education, Uttar Pradesh, has been suitably addressed in the matter.

4. The Committee took note of the fact that in a number of polytechnics a large number of diversified courses have been introduced recently by the State Governments under the scheme of diversification of diploma courses. In most of the cases the intake for such diversified courses is in addition to intake already approved for the conventional courses. A stage has now reached when a deeper study, as to what should be optimum size of intake for the polytechnic, has to be made by an Expert Committee so as to avoid the deterioration in the quality of technical education and other disciplinary problems.

The question of appointment of an Expert Committee to examine the optimum size of intake for the polytechnics is being considered under Item -11.

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+1.7 To consider the question of revival of Inspection and Accreditation Committee of the Northern Regional Committee-

There was a lively discussion on the question of revival of Inspection and Accreditation Committee of the Northern Regional Committee. After considering the pros and cons of the issue, the Committee recommended that steps be taken to revive the Evaluation and Accreditation Committee of the Northern Regional Committee. The Committee authorised the Chairman to constitute the Evaluation and Accreditation Committee for the Northern Region.

The Chairman, Northern Regional Committee has appointed an Evaluation and Accreditation Committee for the Northern Region. The visits to selected institutions at diploma level are being arranged.

+1.8 To consider a note from Sri S.A. Abbas Principal, University Polytechnic, Aligarh Muslim University, Aligarh regarding the establishment of a Regional Curriculum Development Centre for Girls' Polytechnics at the Girls' Polytechnic, Aligarh Muslim University, Aligarh -

The Committee observed that the Curriculum Development Centres set up by the Ministry of Education & Social Welfare, New Delhi at the Technical Teachers' Training

The recommendation of the Committee were communicated to the All India Council for Technical Education. The Council has

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Institute, Chandigarh and Allahabad Polytechnic, Allahabad are mainly concentrating on the development/ improvement of the curricula/ syllabi in respect of the courses conducted in the boys polytechnics. The Girls Polytechnics in the Region are conducting courses of non-conventional nature like Interior Decoration, Costume Design and Dress Making, Pharmacy etc. etc. also. In order to improve these courses the Committee felt that a Curriculum Development Centre on the lines of Allahabad Polytechnic, Allahabad should be set up at the Girls' Polytechnic, Aligarh Muslim University, Aligarh. The Committee recommended that funds for the purpose should be made available by the University Grants Commission.

41.9 To report the revised norms of Maintenance Expenditure recommended by the All-India Council for Technical Education -

The Committee while noting the per capita revised norms of Maintenance Expenditure recommended by the All-India Council

invited the views of the University Grants Commission in the matter as the University Grants Commission has to provide finances in this regard.

The Secretaries of Technical Education of the various States of the Northern Region were



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for Technical Education for degree engineering colleges and polytechnics desired that more funds should be provided for Library recurring under the scheme of consolidation of existing courses.

The Committee, however, noted that the per capita norms as recommended by the Northern Regional Committee/All-India Council for Technical Education are not being adopted by the State Governments in spite of the recommendations having been communicated to them by the All-India Council for Technical Education/Secretariat of the Northern Regional Committee. The members desired that the Chairman of the Northern Regional Committee should address the Secretaries of the State Govts. dealing with the Technical Education to adopt the per capita Maintenance norms as recommended by the All-India Council for Technical Education from time to time to maintain the proper standards.

requested to adopt the per capita maintenance norms as recommended by the All-India Council for Technical Education. The progress of the matter is being reported under item 8.

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41.10 To receive a note on the inclusion of representatives of the teaching staff on the Managing Committee/Board of Governors of Non-Government Instts. in the Region -

The Committee noted that the inclusion of representatives of teaching staff on the Managing Committees/Board of Governors of Non-Government institutions is a healthy sign to inculcate the sense of participation and involvement of teachers in the administration of the institutions. The Committee, however, desired that representation of teachers on the Managing Committees/Board of Governors should be by rotation: one from Senior level and the other at the level of Assistant Professors/Readers/Lecturers.

The recommendations of the Northern Regional Committee were communicated to the Managing Committees/Board of Governors of various Non-Government institutions. ~~The~~ Most of the institutions have agreed to make necessary provision in the constitution of Managing Committee/Board of Governors for the purpose.

41.12 To consider the proposal received from the Director of Technical Education, Uttar Pradesh, Kanpur for the introduction of a 4-year Degree Course in Leather Technology at Government Leather Institute, Kanpur -

The Committee agreed to the proposal from the Director of Technical Education, Uttar Pradesh, Kanpur for the introduction of a 4-year Degree Course in Leather Technology at Government Leather

The recommendations of the Committee were communicated to the All-India Council for Technical Education. The Council has asked

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Institute, Kanpur. The Committee desired that the State Government may be requested to make suitable plan provision in their plan for the purpose after the receipt of approval of the All-India Council for Technical Education and thereafter instructional facilities may be assessed by the Visiting Committee of the Northern Regional Committee of the All-India Council for Technical Education.

for certain clarifications from the State Government.

-1.15 To receive a report on the Programme of Apprenticeship Training in the Northern Region -

The Committee while receiving a report on the Programme of Apprenticeship Training in the Northern Region desired that a Committee consisting of the following be appointed to review the working of the Board of Apprenticeship Training, (Northern Region), Kanpur.

- 1) Shri R.N. Kapoor,  
Director of Technical Education,  
Uttar Pradesh,  
Kanpur.
- 2) Shri T.K. Vaidyanathan,  
Principal,  
Technical Teachers' Training Institute,  
Chandigarh.

The Apprenticeship Act 1973 has come into force w.e.f. 1.4.1975. If necessary, the Reviewing Committee to review the working of the Board will be appointed in accordance with the rules and provisions made in the Act, in consultation with the Ministry of Education & Social Welfare, New Delhi.

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- 3) Shri S.N. Goel,  
Principal,  
Jodhpur Polytechnic,  
Jodhpur.
- 4) Director,  
Board of Apprenticeship  
Training,  
(Northern Region),  
Kanpur.
- 5) Member-Secretary,  
Northern Regional Committee.

41.16 To consider the report of the Visiting Committee on the introduction of Diploma Courses in Electronics and Chemical Operators & Supervisors and Post-Diploma Course in Instrumentation Technology at Government Polytechnic, Kanpur -

(1) The Committee considered the report of the Visiting Committee on the introduction of Diploma Courses in Electronics and Chemical Operators & Supervisors Course and Post-Diploma Course in Instrumentation Technology at Government Polytechnic, Kanpur. The Committee also approved the following additional facilities recommended by the Visiting Committee on the introduction of the new courses :-

(1) The recommendations of the Committee were communicated to the All-India Council for Technical Education. The Council has desired that provision of stipend for the students of diploma course in Chemical Operators & Supervisors, run on sandwich pattern, may be made in the scheme. The matter is being considered under item 12 .

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NON-RECURRING

1)	Buildings (Plinth area 26,040 sq.ft.)	Rs. 11,71,800
ii)	Equipment	9,50,000
iii)	Furniture	30,000
iv)	Library	30,000
Total : Non-Recurring :		21,81,800

RECURRING

1)	Salary of Staff	3,13,500
ii)	Maintenance Expenditure	63,000
iii)	Library Recurring	6,000
Total : Recurring :		3,82,500

(ii) The Committee while noting the inadequacy of facilities available at Government Polytechnic, Kanpur desired that the facilities recommended by the Visiting Committee must be provided by the State Government at the institute as early as possible.

(ii) The recommendation of the Committee have been brought to the notice of the State Government.

The Committee also recommended that no new courses should be started by the State Governments till the barest minimum facilities for the proper conduct of the courses have been made available at the institutes

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41.18 To consider the proposals received from the Director of Technical Education, Uttar Pradesh, Kanpur relating to the development of Technical Education in the U.P. State-

The Committee considered the proposals received from the Director of Technical Education, Uttar Pradesh, Kanpur relating to the development of technical education in the U.P. State and recommended as under :-

1) Introduction of Post-Graduate Courses in Textile Technology and Textile Chemistry at Govt. Central Textile Instt., Kanpur

The proposal be sent to the Post-Graduate Board of the All-India Council for Technical Education for its consideration.

The Post-Graduate Board of All-India Council for Technical Education has desired that due to the paucity of funds, the proposals can not be considered at this stage. The State Government of Uttar Pradesh may come up with the proposal in 1976-77.

2) Introduction of Bachelor's Degree Course in Textile Design at the Government Central Textile Instt., Kanpur.

The Proposal be sent to the Textile Board of the All-India Council for Technical Education for its consideration.

The recommendations of the Committee have been forwarded to the All-India Board of Tech. Studies in Textile Technology of the

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3) Raising of the stipend amount paid to diploma holders under the Practical Training Stipends Scheme of the Government of India -

The Committee agreed in principle that the amount of stipend paid to degree and diploma holders be raised. The same may, however, be implemented as and when financial position improves.

The recommendations of the Committee have been forwarded to the Ministry of Education & Social Welfare, New Delhi.

4) Starting of Non-Technical Courses in well established Polytechnics and Secondary Technical Schools -

The Committee noted that looking into the present unemployment position in the country, the proposal submitted by the Director of Technical Education, Uttar Pradesh, Kanpur seems to be a correct step in the right direction. The Committee recommended that before starting these courses a very cautious approach be adopted and suitable provisions made in the State Annual Plan. The advice of the respective Board of Technical Studies of the All-India Council for Technical Education may also be obtained wherever necessary.

The All India Council for Technical Education has been requested to convey the advice of its respective Board of Technical Studies in the matter.

5) Introduction of diversified courses under the scheme of diversification of technical education at the diploma level in various Polytechnics in Uttar Pradesh -

The Committee recommended that the State Govt. be requested to conduct 'Manpower Survey' in respect of employment position available or likely to be available during next 10 years for the product of any new courses. After establishing the need for the introduction of such courses, the State Government may make suitable plan provisions in the State Plan and approach the Regional Committee for assessment of additional facilities.

The State Governments of all the States of the Northern Region have been suitably addressed in the matter.

6) Condition for repayment of Hostel Loan -

The Committee recommended that the repayment of Hostel Loan should only start after the completion of the construction of the hostel building when it is fit for occupation by the students.

The recommendations of the Committee were brought to the notice of the Ministry. Since the Schemes of construction of hostel already approved upto Third Plan are nearly at the final stage of completion the Government has NOT considered it necessary to review the existing policy.



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The Government of India have already taken decision to write off 50% of the loan subject to fulfilment of certain conditions by the institutions.

41.19 To consider the proposal received from the Secretary, Board of Technical Education, Uttar Pradesh, Lucknow regarding the duration of Diploma Course in Costume Design and Dress Making at the Government Girls' Polytechnic, Lucknow -

The Committee noted that the diploma course in Costume Design and Dress Making should be on a much broader higher pedestal than the popular short-term courses introduced by the private establishments and private manufacturers like Usha etc. The Committee thought that the Diploma Course in Costume Design and Dress Making can be of 2-years' duration with one year Post-Diploma course for narrow specialisation.

The report of the Expert Committee is placed under item 6

The Committee recommended that before taking any decision in the matter the full question of structure, duration and syllabus be examined by an Expert Committee

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(3)

consisting of the following

members :-

- 1) Shri S.A. Abbas,  
Principal,  
University Polytechnic,  
Aligarh Muslim University,  
Aligarh.
- 2) Shri T.K. Vaidyanathan,  
Principal,  
Technical Teachers' Training  
Institute,  
Chandigarh.
- 3) Shri B.K. Lohani,  
Offg. Principal,  
Government Central Textile  
Institute,  
Kanpur.
- 4) Miss M.Y. Sule,  
Principal,  
Women Polytechnic,  
Kashmere Gate,  
Delhi.
- 5) Smt. Urmila Chandra,  
Principal,  
Govt. Girls' Polytechnic,  
Lucknow.
- 6) A representative from Lady  
Irwin College, Delhi.
- 7) Member-Secretary,  
Northern Regional Committee.

41.20 To consider D.O. letter No. GRD/  
69/74 dated the 1st June, 1974  
from Shri G.R. Dalvi, Executive  
Director, National Productivity  
Council, New Delhi addressed to  
Dr. M.S. Muthana, Chairman,  
Northern Regional Committee re-  
garding establishment of Tech-  
nical Man Power Survey Units in  
each State of the Northern Region

There was a lively discussion on this item. Members felt that for the planning and development of technical education it is essential

The Chairman, Northern Regional Committee has suitably addressed the Hon. Chief Ministers of

(1)

(2)

(3)

to have Education Research Cells and Man Power Assessment Cells at all levels. The Committee desired that the Chairman, Northern Regional Committee may write to the Chief-Ministers of the States concerned requesting for early setting up of Educational Research Centres/ Man Power Assessment Cells in each State. The Director, Institute of Applied Manpower Research, New Delhi be requested to furnish the information on the work done by them in this direction.

The Committee also desired that the Secretariat of the Northern Regional Committee should collect the information from the Manpower Assessment Cells of the various States and also from the technical institutions in the Region, consolidate the same and place it before the Regional Committee.

41.22 To consider the question of appointment of Evaluation Committees for academic evaluation and assessment of performance in respect of degree awarding technical institutions in the Northern Region -

After a lively discussion on this item, the Committee authorised the Chairman to appoint Evaluation

The Chairman,  
Northern Regional  
Committee has

(1)

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Committees for each State of the Northern Region for academic evaluation and assessment of performance in respect of degree awarding technical institutions with the following terms of reference.

constituted a Committee for the purpose.

1. To review critically the academic aspects of training such as the levels of performance achieved in the laboratory and the standard of instruction and examination.
2. To review the requirements of equipment, library etc. to replace outmoded equipment and of additional equipment in the light of syllabus, curriculum etc. of the institutions.
3. To recommend measures to accelerate the development programme of the institutions and to improve the standard of education.
4. To identify the potential growth points of the institutions and to suggest special funds for acceleration of such growth points.
5. To identify the needs of small items of equipment, specialised instruments, which might lead to optimization of the use of existing equipment.

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- Item 3 - To consider the report of the Visiting Committee regarding assessment of physical/ instructional facilities required for the introduction of an Under-Graduate Degree Course in Electronics at Thapar Institute of Engineering & Technology, Patiala -

The Thapar Institute of Engineering & Technology, Patiala, established in the year 1956, has been developed as a composite unit consisting of a degree college in Engineering & Technology and a Polytechnic conducting courses leading to the award of State Diplomas in Engineering. Both the instts. are situated in the same campus. The present intake of the institution (Engineering College) in the various courses is as under:-

DEGREE COURSES

Civil Engineering	- 60
Electrical Engineering	- 60
Mechanical Engineering	- 60
Total:-	<u>180</u>

POST-GRADUATE COURSES

Structural Engineering	- 10
(Full-time)	
Structural Engineering	- 10
(Part-time)	
Total:-	<u>20</u>

The State Government of Punjab submitted a proposal to the Government of India for introduction of an Under-graduate degree course in Electronics in this college. Necessary provision has been made by the Working Group on 5th Five Year Plan of Technical Education of Punjab State for the starting of this course. The State Government have agreed to provide the necessary funds in their state plan.

The Chairman, Northern Regional Committee appointed Visiting Committee consisting of the following to examine the

proposals in detail and to assess the instructional facilities required for the opening of a new Under-graduate course in Electronics :-

1. Dr. S. Venkateswaran,  
Professor & Head of the Deptt. of Elect. Engineering,  
Indian Institute of Technology,  
Kanpur.
2. Dr. J.S. Bajwa,  
Professor & Head of the Elect.  
& Electronics Engg. Department,  
Punjab Engineering College,  
Chanligarh.
3. Shri Narendra Singh,  
Asstt. Educational Adviser (Technical)  
& Member-Secretary,  
Northern Regional Committee.

The above Visiting Committee visited the Thapar Institute of Engineering & Technology, Patiala on the 25th June, 1975 and have recommended the introduction of an Under-graduate course in Electronics Engineering with an intake of 15 seats each year. These 15 seats will be diverted from the Electrical Engineering. In other words, the intake in the various under-graduate courses in this institution after the introduction of Electronics course will be as under:-

Civil Engineering	-	60 seats.
Mechanical Engineering	-	60 seats
Electrical Engineering	-	45 seats.
Electronics Engineering-		15 seats

Total:- 180

The Committee recommended the provision of following additional instructional and physical facilities for the

## Electronics Engineering course:-

NON-RECURRING

	Rs.
a) Building(Plinth area 5,740 sq.ft)	2,41,080
b) Equipment	5,50,000
c) Furniture	40,000
d) Library	50,000
Total:-	<u>8,81,080</u>

RECURRING

a) Salary of staff	94,770
b) Maintenance expenditure	30,000
c) Library recurring	10,000
d) Extension Lectures	2,000
Total:-	<u>1,36,770</u>

A copy of the report of the Visiting Committee is placed at Annexure for consideration of the Northern Region Committee.





ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

NORTHERN REGIONAL COMMITTEE

Report of the Visiting Committee regarding  
assessment of physical/instructional  
facilities required for the introduction of  
an Under-Graduate Degree Course in Electro-  
nics at Thapar Institute of Engineering &  
Technology, Patiala.

1. BRIEF HISTORY

1.1 The Thapar Institute of Engineering & Technology, Patiala was established in the year 1956. The classes were first started on the 8th October, 1956 in a building allotted temporarily by the Pepsu Government. The institute shifted to its present buildings in August, 1957. The scheme for the establishment of this institution was first approved by the Government of India in the IInd Five Year Plan (August 1956). To begin with, the institution was approved for conducting courses in Draftsmanship & Courses. Diploma courses and degree courses in Civil, Electrical and Mechanical Engineering and the annual intake of the various courses was sanctioned as under:-

Degree courses - 80 students (Civil-40, Electrical-20 and Mechanical-20)

Diploma courses - 100 students (Civil-50, Electrical-25 and Mechanical-25)

Draftsmanship - 50 students (Civil-25, Electrical- courses and Mechanical both 25)

Later on in 1958 on the recommendations of the All-India Council for Technical Education the annual admission capacity of this institution was increased to as under:-

Degree Courses - 120 (Civil-60, Elec.-30 & Mech.-30)

Diploma Courses - 120 (Civil-60, Elec.-30 & Mech.-30)

Draftsmanship - 60 (Civil-30, Elec. & Mech. both 30) courses

1.2 The institution has so far been developed as a composite unit, consisting of a Degree College in Engineering AND A POLYTECHNIC LEADING TO STATE DIPLOMA IN ENGG. -ing both situated in the same campus. Subsequently in the year 1963-64 and 1964-65 the intake was increased from 120 to 180 students each in the degree and diploma courses (60 each in Civil, Electrical and Mechanical Engineering) respectively. The degree college runs a 4 year degree course and is fully equipped for tackling the intake of 180 students.

1.3 The Polytechnic building has been constructed contiguous to the Degree College building and has been catering for an intake of 180 students. Although the degree and Diploma classes are being conducted in the different buildings by the teaching faculty of the respective institutions yet the laboratory and workshop facilities are common to both the institutions.

1.4 The institute buildings are constructed on a plot of land comprising about 250 acres and is situated in healthy surroundings away from hustle and bustle of the town in the City of Patiala. The present intake of the institution in the various courses is as under:-

DEGREE COURSES

Civil	-60
Electrical	-60
Mechanical	-60
Total:-	<u>180</u>

POST-GRADUATE COURSES

Structural Engg. (Full-time)	-10
Structural Engg. (Part-time)	-10
Total:-	<u>-20</u>

1.5. The physical and instructional facilities approved for the college for the conduct of degree course for an intake of 180 are given below:-

Non-Recurring.

1. Building (Plinth area- 1,58,266 sq.ft.)
2. Equipment -Rs. 22,27,110.00
3. Furniture -Rs. 76,000.00
4. Library -Rs. 1,35,000.00

1.6 The following is the staff position:-

Sl.No.	Designation of staff	No. approved for 180 intake.	Staff in position.
1.	Principal	1	1
2.	Professor	3 )	4
3.	Junior Professor	3 )	
4.	Associate Professor	12	12
5.	Asstt. Professor	32	32
		<u>51</u>	<u>51</u>

Students Amenities

(Common for Degree & Diploma courses)

Canteen & Tuckshop	6,040 sq.ft.-Plinth area
N.C.C. Block	7,000 " "
Dispensary	2,093 " "
Cycle Stand	480 cycles
Water coolers	Rs.20,000/-

More or less the above facilities have been provided by the institute.

2. PRESENT PROPOSALS

The State Government of Punjab had submitted a proposal to the Government of India for opening an Under-graduate degree course in Electronics in this College.

Necessary plan provision has been made by the Working Group on Vth Five Year Plan of Technical Education of Punjab State for the starting of this course. The State Government have agreed to provide the necessary funds in their State Plan.

3. APPOINTMENT OF THE VISITING COMMITTEE.

3.1 The Chairman, Northern Regional Committee appointed the following Visiting Committee to examine the proposals in detail and to assess the instructional facilities required for the opening of a new Under-graduate course in Electronics:-

1. Dr.S.Venkateswam,  
Professor & Head of the Deptt.of Electrical Engineering,  
Indian Institute of Technology,  
Kanpur.
2. Dr.J.S.Bajwa,  
Prof. & Head of the Electrical & Electronics Engineering Deptt.,  
Punjab Engineering College,  
Chandigarh.
3. Shri Narendra Singh,  
Asstt.Educational Adviser(Technical) &  
Member-Secretary,  
Northern Regional Committee.

3.2 The above Visiting Committee visited the Thapar Institute of Engineering & Technology, Patiala on the 25th June, 1975. The Visiting Committee was received by Dr.M.L.Jain, Principal, Thapar Institute of Engineering & Technology, Patiala. The Committee had preliminary discussions with Dr.M.L.Jain Principal and Prof.P.B.Gupta, Prof. & Head of the Department of Electrical Engineering and other senior faculty members of the Electrical Engineering Department of the Institute. After having the preliminary discussions, the Committee went round the laboratories,

class rooms and workshop of the college.

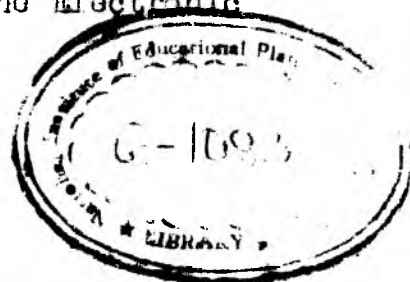
3.3 The Committee discussed at length the proposal of the institution for the introduction of this new course and came to the following conclusions:-

3.3.1 The course in Electronics have received top priority in the developed countries and have attracted most brilliant students. The growing applications of solid devices in the equipment meant for Industry and defence, change over from conventional communication systems to micro-wave systems and increased use of analogue and digital computers will certainly increase demand for Electronics under-graduates in the near future.

3.3.2 Television stations have been started in State of Punjab. Certain industries for manufacturing of television sets are proposed to be established in that State. Further, the Government of Punjab and Himachal Pradesh have already decided to set up a complex of Electronics industry in their respective areas.

3.3.3 According to the report of the Electronic Commission, the Electronics Industries in India are expected to produce goods worth rupees five hundred crores in 2nd or 3rd year of the 5th Five Year Plan.

3.3.4 The above development will create tremendous employment opportunities to the Electronic Engineering under-graduates.



3.3 3.3.5 The introduction of a degree course in Electronics in the institution will be conducive to the improvement of curricula and teaching techniques in the other Deptts. of the institution as well.

4. RECOMMENDATIONS OF THE COMMITTEE.

4.1 In view of the conclusions drawn by the Committee as stated in para 3 above, the Committee agreed to recommend the opening of an Under-graduate Course in Electronics at this college. To start with, the college may admit 15 students to the degree course in Electronics by diverting 15 students from the Electrical Engineering discipline. In other words, the intake in the various undergraduate courses in this institution will be as under:-

Civil Engineering	-	60seats.
Mechanical Engineering	-	60seats.
Electrical Engineering	-	45seats.
Electronics Engineering	-	15seats.
		<hr/>
	TOTAL;	<u>180seats.</u>

The Committee then proceeded to assess the additional requirements of instructional and physical facilities for an intake of 15 students in this branch (Electronics).

4.2 After taking a note of existing instructional facilities in the college and particularly in the Electrical

Engineering Department, the Committee recommended the provision of following additional instructional and physical facilities for the Electronics branch.

- A. Intake - 15 students per year
- B. Duration - 4 years
- C. Course to be affiliated with the Punjabi University, Patiala.

4.2.1 Non-Recurring.

a) Buildings.

i) Class Room-(One class room 450sq.ft.)	450 sq.ft.
ii) Staff Room	400 sq.ft.
iii) Line Communication Lab.	1,000 sq.ft.
iv) Radio, Television, Pulse Technique U.H.F. & Microwave Lab.	2,000 sq.ft.
v) Departmental Library	250 sq.ft.

Total Floor Area: 4,100 sq.ft.

Add 40% for wall thickness,  
verandahs, stair case,  
landing etc. 1,640sq.ft.

Total Plinth area: 5,740 sq.ft.

Cost @ Rs.42/-per sq.ft.(5,740  
x 42) Rs.2,41,080

(Note: The rate of construction mentioned above have been duly certified by the P.W.D.,Hydel Department of the Punjab State. This cost will include the charges for electric and sanitary fittings etc.)

b) Equipment.

i) Line Communication Lab.	Rs.1,50,000
ii) Radio, Television, Pulse Technique, U.H.F. and Microwave Lab.	Rs.3,00,000
iii) Devices	Rs. 50,000

Total: Rs.5,00,000

Add 10% for taxes, insurance, freight, installation etc. Rs. 50,000

	Total:	Rs. 5,50,000	Rs. 5,50,000
c)	Furniture	Rs. 40,000	
d)	Library	Rs. 50,000	
Total Non-recurring -			<u>Rs. 8,81,080</u>

4.2.2. Recurring.

The 1st year of the 4-year under-graduate programme will be common and Electronics students will branch out at the beginning of the 2nd year. The following additional teaching staff is recommended by the Committee for the Electronics branch:-

<u>Name of post</u>	<u>Number</u>	<u>Scale.</u> Rs.
Senior Professor	1	1600-2000
Associate Professor*	1	800-1600

(\*The Lecturers in this college have been designated as Assistant Professors and Assistant Professors have been designated as Associate Professors).

The following additional recurring expenditure is estimated by the Committee on the introduction of Electronics Engineering Course:-

1) Salary

<u>Name of Post</u>	<u>No.</u>	<u>Scale</u>	<u>Average annual expenditure.</u> Rs.
Senior Professor	1	1600-2000	21,600
Associate Prof.	1	800-1600	14,400
Pay of Teaching Staff :			<u>36,000</u>



Add 50% for Provident Fund, H.R.A., C.O.A. & D.A. etc.	18,000	
Salary of Teaching Staff	54,000	
Add 30% towards Technical Supporting staff like Technicians, Demonstrators, Technical Asstts., Drafts-men etc.	16,200	
Salary of Teaching & Technical Supporting Staff.	70,200	
Add 35% for Non-teaching staff including Stenographer, Clerical staff, Class IV, Mali, Chowkidar, Lab. Attendants, Library staff etc.	24,570	
Total salary of Teaching, Technical Supporting & Non- Teaching Staff.	94,770	Rs. 94,770 p.a.
ii) Maintenance Expenditure*(500x4x15)	30,000	"
iii) Library recurring	10,000	"
iv) Extension Lectures	2,000	"
Total Recurring per annum	1,36,770	"

at the rate of  
Rs. 330/- per student  
per annum. The  
Committee

\*Note- ~~Though~~ there is no increase in intake as 15 students in Electronics course are being diverted from the Electrical Engineering discipline. The per capita maintenance expenditure was being calculated previously/feels that for the proper upkeeps of the laboratories per capita expenditure may be calculated @ Rs500/- per student per annum in respect of other disciplines also.

#### 4.3 Hostel

Since there is no increase in intake and sufficient hostel facilities are already available, no additional hostel facilities are recommended by the Committee in respect of this course.

5. GENERAL RECOMMENDATIONS

- 5.1 The institute proposed that for the conductance of the Electronics course at the degree level the creation of a separate department for the purpose is not necessary. The Committee favours this view due to the following reasons:-
- 5.1.1 From the point of view of conservations of resources, a separate department for the conductance of this course should not be created. The facilities for the conductance of this course can fruitfully be created by adding some additional space by way of buildings, equipment, furniture and teaching staff positions within the existing Department of Electrical Engineering.
- 5.1.2 A composite department providing facilities for study of Electrical Engineering and Electronics disciplines would be necessary for improving of quality of teaching and Post-graduate courses in the institution.
- 5.1.3 The institution proposes to conduct the courses for B.E. Electrical(Power) ~~Elect. Engg.~~ and B.E. Electronics (Electrical Engineering).
- 5.1.4 The institution is following the semester system. About 34 courses for 2nd, 3rd and 4th year will be provided in the Electronics stream. Out of which 22 will be in the field of Electronics and 12 courses will be common for Electronics and Electrical(Power) streams.

- 5.2. The Committee noted that some sophisticated equipment for Electronics discipline have already been acquired by the institution for conducting the existing Electrical Engineering Course. Therefore, it is recommended that at the time of purchase, as far as possible, the equipment should not be duplicated.
- 5.3. On the introduction of a degree course in Electronics, the total intake of the institution will not increase. The new course in Electronics will be started by diverting 15 students from the Electrical Engineering discipline. Consequently, no additional provision have been made by the Committee under the Head : Scholarships, Educational Tours, Medical Expenses on students etc.
- 5.4. The Committee was informed that the per capita maintenance expenditure grant of the institution comes to Rs.330/-per student per annum. Notwithstanding this, the Committee has recommended Rs.500/-as per capita maintenance expenditure in respect of the students of Electronics Engineering discipline. This is in consonance with the latest norms of the All India Council for Technical Education. The Committee recommends that the per capita maintenance expenditure grant should be increased from Rs.330/- to Rs.500/- per student per annum in respect of other under-graduate discipline also.

6. SUMMARY OF ADDITIONAL PHYSICAL/INSTRUCTIONAL FACILITIES RECOMMENDED BY THE COMMITTEE.

6.1	<u>Non-Recurring</u>	Rs.
	a) Buildings(Plinth area 5,740 sq.ft.)	2,41,080
	b) Equipment	5,50,000
	c) Furniture	40,000
	d) Library	50,000
	Total Non-recurring:	<u>8,81,080</u>

6.2 Recurring.

i) Salary	94,770 per annum
ii) Maintenance Expenditure	30,000 "
iii) Library recurring	10,000 "
iv) Extension Lectures	2,000 "

Total Recurring Expenditure Rs 1,36,770 "

7.

A C K N O W L E D G E M E N T

The Committee is grateful to Dr.M.L.Jain, Principal, Thapar Institute of Engineering & Technology, Patiala and Professor P.B.Gupta, Professor & Head of the Electrical Engineering Department of the institute and his colleagues for extending the necessary help by way of providing all the material and information about the activities of the institution.

Sd/-(Dr.S.Venkateswaran)  
Member

Sd/-(Dr.J.S.Bajwa)  
Member

Sd/-(Narendra Singh)  
Member-Secretary.

Item 4 - To consider D.O. letter No.F.11-64/74-T.5 dated the 17th October, 1975 from Shri I.B. Sangal, Asstt. Educational Adviser (Technical) to the Govt. of India, Min. of Education & Social Welfare, New Delhi, regarding the question of restoration of admission in Technical Institutions -

The Regional Committee is aware that by the end of 1966-67 an admission capacity of 5558 for degree courses and 12293 for diploma courses in the Northern Region was reached. In 1968 due to the recession in industry and the consequent unemployment amongst the engineering graduates and diploma holders admissions to engineering colleges and polytechnics was reduced by about 30%. In most of the States this reduced level of admission was maintained for a few years. During the last 2-3 years, there has been a noticeable rise in the admissions to the technical institutions in the Northern Region. Against the actual admissions of 4265 to engineering colleges and 7412 to polytechnics in the year 1969-70, the actual admissions in 1974 were of the order of 4339 in engineering colleges and 12938 in polytechnics. The rise in admissions figure in polytechnics has been mostly due to the increase in the employment opportunities. The All-India Council for Technical Education at its meeting held in 1972 while considering a report on admission to technical institutions and its impact on the supply of engineering manpower in the Fifth Plan recommended that in view of the anticipated demand of engineers for the Fifth Five Year Plan, admissions to technical institutions may be restored to their full capacity, namely 25000 to the degree courses and 45000 to 50000 to the diploma courses, in stages after ensuring adequate instructional facilities in institutions. The Council also emphasized that the admission requirements should not be lowered.

This matter was again considered by the All-India Council for Technical Education at its meeting held in May, 1974. In this meeting the Council noted that the supply of technical manpower in the Fifth Plan is more or less pre-determined by the admissions already taken place into engineering colleges and polytechnics. As any increase in the present level of admissions, particularly in engineering colleges, will have an impact on the supply of engineers during the Sixth Plan only, the Council recommended that the manpower requirements during the Sixth Plan period should be more carefully assessed, on a disaggregated basis after taking into account the specific requirements, discipline-wise, State-wise and Region-wise. The Council further recommended that the selected institutions in the country may be assigned the responsibility to assess the manpower requirements in all principal sectors of employment.

The final allocation for the Fifth Five Year Plan have as yet not been decided. Due to the financial stringency the drive for economy has already started. In the circumstances, the realistic study to assess the technical manpower requirements can only be made when a clearer picture of the Fifth & Sixth Plan is available with us. A meaningful and comprehensive assessment of manpower requirements on the long term basis can be undertaken only after the Fifth Plan have been finalised and when the definite indication of the size and scope of Sixth Plan are available. Hence this matter was considered in a Committee meeting held on 16.11.1974 under the Chairmanship of Education Secretary. A copy of D.O. letter No.F.11-64/74-T.5 dated the 17th October, 1975 from Shri I.B. Sangal, Asstt. Educational Adviser (Technical), Ministry of Education & Social

Welfare, New Delhi is placed at Annexure. The Committee recommended as under :-

- i) Any realistic study to assess the technical manpower requirements should await the emergence of a clearer picture of the Fifth and Sixth Plans. In the meanwhile and for the next year or two, the actual admissions to technical institutions should be regulated within the existing total sanctioned admission capacities and in accordance with the instructional facilities available in each institution. The level of admissions should be left flexible enough so that all eligible students are admitted, within the existing sanctioned admission capacities.
- ii) A meaningful and comprehensive assessment of manpower requirements on a long term basis as recommended by All-India Council for Technical Education has to be undertaken only after the Fifth Plan has been finalised and also adequate indications of the size scope of the Sixth Plan are available. Meanwhile, however, the Institutes of Technology should actively involve themselves in studies on manpower planning and development in special areas which are of significance to their teaching and research activities. They should also apply some of their own resources, including faculty to those studies. The details of the studies to be undertaken, methodology, procedures, etc., should be settled in consultation with the Institute of Applied Manpower Research, New Delhi.

The Regional Committee is aware that in the recent past most of the State Governments of the Region have started a number of diploma and post-diploma courses under the scheme of diversification of diploma courses. In some cases the State Government have proposed that intake in the diversified courses should be over and above the sanctioned intake of the courses in conventional branches. These proposals are contrary to the recommendation made by the above Committee mentioned in point (i) above. The Regional Committee may, therefore, like to reiterate the recommendations made by the above Committee and advise the State Governments to regulate the admissions to technical institutions in the manner suggested by the above Committee.

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ANNEXURE  
 Item No.42.4

Copy of D.O. letter No.F.11-64/74-T.5 dated the 17th October, 1975 from Shri L.B.Sengal, Assistant Educational Advisor(Tech.), Ministry of Education and Social Welfare(Department of Education) Shastri Bhawan, New Delhi, addressed to Shri S.K.Handa, Asstt.Educational Adviser(Tech.), Ministry of Education and Social Welfare, Southern Regional Office, Shastri Bhawan, 1st Floor, No.35 Madhows Road, Nungambakkam, Madras 6 and copy endorsed to the Regional Offices of the Ministry.

\* \* \* \* \*

Please refer to the correspondence resting with your D.O. No.F.13-20/75-SRO dated June 25, 1975, regarding the question of restoration of admission in technical institutions.

The All India Council for Technical Education at its meeting held in April, 1972 while considering a report on admission to technical institutions and its impact on the supply of engineering manpower in the Fifth Plan recommended that in view of the anticipated demand for engineers for the Fifth Five-Year Plan, admissions to technical institutions may be restored to their full capacity, namely 25000 to the degrees courses and 45000 to 50000 to diploma courses, in stages after ensuring adequate instructional facilities in institutions. The Council also emphasized that the admission requirements should not be lowered. On the basis of these recommendations, your office vide letter No.F.1-123/72-SRO dated June 19, 1973, had communicated this recommendation to all the State Governments in the Southern Region and had recommended them to consider this recommendation of the Council.

This matter was again considered by the All India Council at its meeting held in May, 1974. In this meeting the Council noted that the supply of technical manpower in the Fifth Plan is more or less pre-determined by the admissions already taken place into Engineering Colleges and Polytechnics. As any increase in the present level of admission, particularly in Engineering Colleges, will have an impact on the supply of engineers during the Sixth Plan only, the Council recommended that the manpower requirements during the Sixth Plan period should be more carefully assessed, on a disaggregate basis, after taking into account the specific requirements, discipline-wise, State-wise and Region-wise. The Council further recommended that the selected institutions in the country may be assigned the responsibility to assess the manpower requirements in all principal sectors of employment. This matter was considered in a meeting held on November 16, 1974, under the Chairmanship of Education Secretary. This Committee decided as under:

- (i) Any realistic study to assess the technical manpower requirements should await the emergence of a clearer picture of the Fifth and Sixth Plans. In the meanwhile and for the next year or two, the actual admissions to technical institutions should be regulated within the existing total sanctioned admission capacities and in accordance with the instructional facilities available in each institution. The level of admissions should be left flexible enough so that all eligible students are admitted, within the existing sanctioned admission capacities.

- (ii) A meaningful and comprehensive assessment of manpower requirements on a long term basis as recommended by AICTE has to be undertaken only after the Fifth Plan has been finalised and also adequate indications of the size and scope of the Sixth Plan are available. Meanwhile, however, the Institutes of Technology should actively involve themselves in studies on Manpower Planning and development in special areas which are of significance to their teaching and research activities. They should also apply some of their own resources, including faculty to these studies. The details of the studies to be undertaken, methodology, procedures etc., should be settled in consultation with the Institute of Applied Manpower Research.

The above recommendations have been accepted by the Government and admission to technical institutions may be regulated according to recommendation at No.(i) above. You may advise the State Government of Karnataka accordingly.

With kind regards.

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Item 5 - To consider Ministry's letter No.F.9-8/71-T.2 dated 6.1.1975 regarding introduction of revised curriculum and syllabus for six years full time diploma course in Architecture on Sandwich pattern -

The All-India Council for Technical Education at its 22nd meeting held on 17th May, 1974 considered the recommendations of the All-India Board of Technical Studies in Architecture and Regional Planning regarding introduction of revised curriculum syllabus for six year full time diploma course in Architecture (equivalent to degree on sandwich pattern). The Council approved the revised curriculum syllabus for six years full time diploma courses in Architecture prepared by the Architecture Board and desired that the sandwich courses may be introduced on an experimental basis at selected centres where facilities for practical training are available, both in Government Departments and Architecture Firms. The students under this programme would also be eligible for stipends under the Programme of Sandwich courses. The Council also desired that the curriculum and syllabus of the existing courses in other institutions may be replaced by the new syllabus formulated by the Architectural Board.

A copy of the Ministry's letter No.F.9-8/71-T.2 dated 6.1.1975 along with a copy of the revised curriculum and syllabus for Architecture course formulated by the Architectural Board is placed at Annexure.

The Ministry has desired that suitable Architectural Institutions in the Region may be selected in consultation with the State Governments where the Architecture courses

on sandwich pattern could be organised. In the Northern Region, following institutions are conducting the degree course in Architecture:-

1. School of Planning & Architecture, Delhi.
2. Chandigarh College of Architecture, Chandigarh.
3. University of Roorkee, Roorkee.

The matter is placed before the Committee for its consideration.

Copy of letter No. F.9-8/71-T.2 dated 6th January, 1975 from Government of India, Ministry of Education & S.W., (Department of Education), New Delhi addressed to All Regional Officers.

\*\*\*\*

**Subject:** Introduction of revised curriculum and syllabus for six-year full-time Diploma Course in Architecture on sandwich pattern - regarding.

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Sir,

I am directed to state that the All India Council for Technical Education at its last meeting held on the 17th May, 1974 at New Delhi considered the recommendation of its All India Board of Technical Studies in Architecture and Regional Planning regarding introduction of revised Curriculum and syllabus for six-year full-time Diploma Course in Architecture (equivalent to a Degree) on the sandwich pattern. The Council recommended that the revised curriculum and syllabus for six-year full-time Diploma Course in Architecture prepared by the architecture Board be approved and that the sandwich course may be introduced on an experimental basis at selected centres where facilities for practical training are available, both in Government Departments and architectural firms. The students under this programme should also be offered stipends under the programme of sandwich courses. After this course has been introduced successfully at selected centres, it could be extended to more centres where suitable practical training facilities can be organised. The curriculum and syllabus of the existing courses in other Institutions may be replaced by the new syllabus formulated by the architectural Board.

2. A copy of the revised curriculum and syllabus for the Architectural course formulated by the Architectural Board is enclosed. You are requested kindly to select suitable Architectural Institutions in your region in consultation with the State Governments concerned where the architectural course on sandwich basis could be organised. This may be referred to the Regional Committee and its recommendations in the matter sent to the Ministry.

Kindly acknowledge receipt.

Copy to :-

- (1) All the State Government concerned. They are requested kindly to formulate proposals for the introduction of Architectural Courses on sandwich basis at suitable Architectural Institutions and forward the same to the Regional Officers concerned.
- (2) All the Directors of Technical Education concerned.
- (3) All architectural Institutions. They are requested to take necessary steps to replace the existing course with the new scheme and syllabus formulated by the Architectural Board.

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ALL-INDIA BOARD OF TECHNICAL STUDIES  
IN ARCHITECTURE AND REGIONAL PLANNING

Model Scheme of Study of Examinations for a Full-Time Course leading to a Degree/Diploma in Architecture

INTRODUCTION

Architectural education was started in India as early as 1927 and has had a long history. Prior to Independence generally followed the British practice prescribed by the Royal Institute of British Architects. Institutions in India were training students to appear in the examinations held by R.I.B.A. after the formation of the All India Council for Technical Education and Boards of Technical Studies for different aspects of technical education, architectural education underwent a basic change and conformed to a scheme of training formulated by the Architecture Board in consultation with professional bodies. The model syllabus of study and scheme of examinations for architectural education in India was adopted by practically all the institutions in the country with minor modifications to suit situations prevalent in any university or State. While the State Technical Educational Boards have followed closely the syllabus of study evolved by the All India Board, Universities have been making basic changes in the scheme and as a result over a period of time different types of courses have come into operation. The All India Board was keen to evaluate the experiences of the different institutions and the officers of the courses of training followed by them. This desire led to the organisation of a Workshop on Architectural Education in 1961 which reviewed in detail the various schemes of training the syllabi of studies followed by the institutions and scheme of examinations against the progressive thinking in regard to architectural education that had been developed in India and abroad. On the basis of its evaluation, the Workshop evolved certain basic requirements for architectural education which would ensure that the training was able to bring out the best in the students and reveal his latent talents fully leading to the build up of a well-trained architect. The Workshop also laid down guidelines in regard to syllabus, scheme of examination, practical training and other aspects.

Following the recommendations of the Workshop, the All India Board has attempted to revise the earlier model and the scheme that is presented is intended to replace the earlier scheme. It is hoped that the evolution of this scheme in general to be taught, the sequence of studies that have been recommended their own courses of studies and modify them in line with progressive thinking in the field.

GENERAL DESCRIPTION OF THE SCHEME

Any scheme of curriculum and syllabus of studies and systems of examination in architecture can be spelt out only as a general frame work within which each school depending on its environment, availability of staff and their experience,

student potentiality, etc., could frame its own courses of study, syllabus and scheme of examination. Architectural education is an ever expanding field and therefore no scheme can be static and improvements should be periodically made taking into account the experience of the faculty and the need of the students of each school. While syllabus and schemes can be perfected, the actual carrying out the scheme will depend solely on the teacher himself, his individuality, qualities, knowledge, practice and experience. What is attempted here is to set out broadly the general conditions which would go to meet the basic needs which a school should extend to the students.

The present scheme is for a full-time five years course leading to a diploma or degree in architecture. The full time course can be adopted on a part-time basis by making suitable adjustments; the Board will put forward separately such a part-time scheme shortly. The full-time scheme envisages five years instruction in architectural training and one year practical experience arranged in the middle of the course, between the third and the fourth years of study. Thus a student will take full six years after his higher Secondary Examination to obtain a degree in architecture.

The courses of study have been arranged in three streams; the main stream comprises of architectural design; construction and structures each of which progressively advance from year to year and gets to the fully developed stage by the end of the course. The main stream deals directly with the core programme. It is supplemented by a supporting stream of courses on a number of subjects which will build up the necessary basic knowledge and background for the architecture students. These extend from natural science and mathematics, to economics, sociology, building services and equipment, specifications and so on.

The main stream, and the supporting stream together constitute the minimum education needs for the architect. But they do not fully complete the education and for this purpose, a third optional stream has been evolved with a view to provide the architectural students opportunities to enrich himself with additional knowledge and skills in the field of study or in related subjects which will enable him to complete the education towards fuller understanding of the architect's role. These subjects of which there is good choice, are so arranged that the candidates get credits for taking one or two subjects as prescribed every year and he will get adequate credit for the work he does in this regard.

The practical experience of one year duration preferably between the third and the fourth year of the course is intended to enable students to work in an office or in the building industry to gain experience by observing the various aspects of architectural and building practice under the supervision of the School.

(3)

ENTRANCE QUALIFICATION

The entrance qualifications must be either Higher Secondary Certificate with (1) English; (2) Mathematics; (3) Physics; and (4) Chemistry as subjects of study and examination or an equivalent qualification followed by an aptitude test and interview. It is felt to the individual institutions to fix the minimum pass percentage of marks obtained in the entrance qualification for admission, as also qualifying marks to be obtained in the aptitude and interview.

COURSES OF STUDY AND SYLLABUS

The Courses of Study are organised in three streams. The main stream courses comprise Design, Construction and Structures, in all the five years, the suffixed numbers indicating the years in which they are to be taken. The syllabus for those courses will develop progressively to deal with more and more complex problems and these courses organised as to make it possible for the instructions in the supporting courses to be full made use of in practical application to design and construction problems.

The supporting courses may be considered in two parts viz., Applied Science Courses like Physics, Chemistry, Mathematics, Geography, Sociology and Economics and Supporting Courses to architecture and Building Services and Equipment. Wherever those courses extend beyond a year, the syllabus will be framed so as to be complementary from year to year.

The Optional Courses are of two kinds viz., those that add to the skills of the architectural student and those that supplement the knowledge acquired under the supporting stream of courses and tend to make the knowledge of the student more complete in selected areas.

The organisation of the Main; Supporting and Optional Courses for the Five year full time study and weightages given to the three streams from year to year is given in the enclosed chart.

An outline syllabus for each course of study together with a statement of objectives for each course is given only as an illustration of the type of syllabus that can be developed related to the overall objectives set forth for each school. Each school would need to work out, as stated earlier, its own detailed syllabus of studies suited to its specific requirements.

PRACTICAL TRAINING

Students are required to undergo practical training for one year preferably between the third and fourth year of the course. On their satisfactory completion of the practical training they will be admitted to the later part of the Course.



The practical training will be in an architect's office approved by the institution and in any building works/projects/design/construction which in the opinion of the institutions would enrich the knowledge of the student and benefit him.

The institution will appoint a Placement Officer who will be responsible for placing and supervising the students undergoing practical training. Quarterly progress reports on practical training should be submitted by the students.

Before taking up practical training, students are required to intimate the institution and the Placement Officer the type of placement they would like and they should only join the office/works/projects after the placement is approved. In case the student takes up practical training at an outstation away from the institution he will be placed under a guide who will advise him from time to time. In case the placement does not provide the student a salary or a stipend the institution will pay a suitable stipend.

The Placement Officer should be from amongst senior faculty members of the institution and will be responsible for looking after the welfare and progress of the students undergoing practical training.

#### ADOPTION AND INNOVATION

The course outline/and detailed syllabus as recommended herein are to serve as broad guidelines. They stipulate the minimum requirements and each institution is free to adopt it to suit the conditions in which they operate. The pattern is illustrative and flexible. Institutions are encouraged to attempt innovations so that the programme improves with experience.

#### SUPPORTING STREAM

(1)

#### MAIN STREAM

(2)

#### OPTIONAL STREAM

(3)

#### 1st Year

Physics applied to Architecture.

Design (including art & Theory of Design)

Chemistry of Building Materials

Construction and Materials

Mathematics Applied to Architecture

Structures

History of Civilisation

Marks : 25%

60%

15%

2ND YEAR

Geography Applied to Architecture (Geology and Climatology)

Design (including Art & Theory of Design)

One of the following  
Geography Applied to Architecture

History of Architecture and History of Civilization

Construction and Materials Structures

History of Architecture and History of Civilization.

Surveying and Levelling

Landscape Design

Marks : 25%

60%

15%

3rd YEAR

History of architecture

Design (including art)

Two of the following:

Specifications and quantities.

Construction and Materials

Study of Human Settlements.

Building Services and Equipment (including Light and Acoustics)

Structures

History of architecture.

Sociology

Advanced Building Services and Equipment.

Marks: 30%

50%

20%

4TH YEAR

## P R A C T I C A L E X P E R I E N C E

5TH YEAR

Building Services and equipment

Design

Two of the following  
Advanced Building Services and Equipment.

Building Economics

Construction and Materials.

Advanced Construction Techniques (Prefabrication, Modular Systems, etc.)

Introduction to City Planning & Urban Design

Structures

Elements of interior Design.

Theory of Design

Marks: 30%

50%

20%

6TH YEAR

Professional Practice and Office Management

Design

One of the following  
One Elective to be chosen by the Students (The subjects of the elective given below are only suggestive and more may be added)  
1. Low Cost Housing  
2. Landscape architecture

Structures

Thesis

(1)

(2)

(3)

- 
3. Advance Structures
  4. Study of a Historical Period in Architecture
  5. Computer Technology
  6. Industrialised Buildings
  7. Plastic-arts
  8. Building Science
  9. Etc.

Marks: 20%

70%

10%

Teaching Load and Staff Annual intake 30 students

Class	Subject	No. of teachers	No. of class hours per week	No. of teacher hour per week
(1)	(2)	(3)	(4)	(5)
<u>First Year</u>				
1.	Physics applied to Architecture			
	Theory	1 OL	1	1 OL
	Practical	1 OL	3	3 OL
2.	Chemistry of Building Materials			
	Theory	1 OL	1	1 OL
	Practical	1 OL	3	3 OL
3.	Mathematics applied to Architecture	1 OL	3	3 OL
4.	History of Civilization	1	1	1
5.	Design (including Art & Theory of Design)			
	Studio	2	15	30
	Art	2	5	10
	Theory of Design	1	1	1
6.	Construction & Materials	1	3	3
7.	Structures			
	Theory	1	2	2
	Laboratory	2	3	6

Second Year

1.	Geography applied to Architecture (Geology and Climatology)			
	Geology	1 OL	1	1 OL
	Climatology	1	1	1

(1)	(2)	(3)	(4)	(5)
2.	History of Architecture & History of Civilization			
	Architecture	1	2	2
	Civilization	1	1	1
3.	Surveying and Levelling			
	Theory	1	2	2
	Practical	2	3	6
4.	Design (including Art & Theory of Design)			
	Studio	2	15	30
	Art	2	5	10
	Theory of Design	1	1	1
5.	Construction and Materials			
		1	2	2
6.	Structurers			
	Theory	1	2	2
	Laboratory	2	3	6

### Third Year

1.	History of Architecture	1	2	2
2.	Specifications & Quantities	1	2	2
3.	Building Services and Equipment (including lighting and Acoustics)	1	2	2
4.	Sociology	1 OL	1	1 OL
5.	Design (including art)			
	Studio	2	16	32
	Art	2	3	6

(1)	(2)	(3)	(4)	(5)
6. Construction and Materials		1	2	2
7. Structures				
Theory		1	2	2
Laboratory		2	3	6

Fifth Year

1. Building Services & Equipment		1	2	2
2. Building Economics		1	1	1
3. Introduction to City Planning and Urban Design		1 OL	2	2 OL
4. Design		2	20	40
5. Construction and Materials		1	2	2
6. Structures				
Theory		1	2	2
Laboratory		2	3	6

Sixth Year

1. Professional Practice and Office Management		1	2	2
2. Structures				
Theory		1	2	2
Laboratory		2	3	6
3. Design		2	15	30
4. Thesis		4	15	60

Total Teacher Hours	Architecture	214
	Engineering	57
	art	20
	Outside	
	Lecture	15

Staff StructureTeaching StaffArchitecture

	<u>No. of Posts</u>	<u>Scale of Pay</u>
1. Professor and Head of Department	1	Rs. 1300-1800
2. Professor	1	Rs. 1100-1600
3. Assistant Professor	5	Rs. 700-1250
4. Lecturer	5	Rs. 400-950

Engineering

1. Professor	1	Rs. 1100-1600
2. Assistant Professor	2	Rs. 700-1250

Art

1. Lecturer	1	Rs. 400-950
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Depending upon the prescribed teaching loads per teacher in various categories in each institution, excess teaching load, if any, over and above that can be assigned to the staff structure as given above, should be assigned to visiting staff or outside lecturer.

1ST YEARSUPPORTING STREAM1. Physics applied to Architecture

Heat : Expansion and contraction of solids, liquids and gases. Conduction, Convection and radiation of heat. Good and bad conductors. Heat insulators. Hygrometry. Elementary principles of air conditioning and refrigeration.

Sound: Free and forced vibrations, frequency resonance beats, velocity of sound, noise level, elementary principles of architectural acoustics.

Light : Reflection and refraction of light (basic ideas of interference and diffraction), light sources, colour and spectrum. Elementary ideas of architectural illumination. Photometers.

Electricity and Magnetism: Principles of Wheatstone's bridge and potentiometer. Resistance thermometry, and thermo-electric thermometry. Electromagnetic induction, self and mutual, inductance of coils. Induction coil. Discharge through gases and its application. In. on signs and tube lighting: Elementary ideas of A.C. Circuits.

1. Coefficient of linear thermal expansion of a rod.
2. Comparison of the power of two light sources by Lummer photometer.
3. Velocity of sound by sonometer.
4. Determination of thermo e.m.f. temperature diagram.
5. Refractive index by spectrometer.
6. Determination of conductivity of materials like brick, stone concrete, wood, etc.
7. Comparison of capacities by ballistic galvanometer.
8. Absorption and reflection coefficients of radiated heat of various surface finished using thermo-couples.
9. Volumetric charges on moisture absorption by building materials.
10. Absorption coefficient of sound in different building materials.

2. Chemistry of Building Materials

Study of important Building Material including the following :

Cement, Lime and their mortars, stone, timber, Ceramics, Glass and Plastics. Protective finished Metals and their important alloys used in Building Construction. Manufacturing process of topics underlined above.

Deterioration of building materials and its prevention employing electroplating, surface coating, alloy formation, etc.

Analysis, treatment and disposal of water.



(12)

"Behaviour of Building Materials :

Lime : Test on building stones for the presence of lime; preparation of quick lime from Calcium Carbonate; Hydration and dehydration with Water and Quick Lime; Carbonation of Slacked Lime; preparation of Gypsum Plaster; setting time of hard burnt plaster.

Timber : Free moisture Content in timber.

Sand, Stone : Void percentage of Sand and coarse aggregate Determination of various building materials."

1. Qualitative analysis of important building materials and quantitative analysis using both gravimetric and volumetric methods.
2. Experiments on corrosion and its prevention.
3. Quantitative estimating of lime in a given sample.
4. Production of varnish and Analysis of commercial varnish.

5. Mathematics Applied to Architecture

Calculus : Limits and continuity. Differentiation and integration of simple elementary functions. Successive differentiations. Tangents and normals. Maxima and Minima. Curvatures. Integration by substitution and by parts. Definite integrals. Areas, Volumes and surfaces of revolution. Elementary differential equation as applicable.

Co-ordinate Geometry : Equations of straight line circles and simple conics. Equation of a plane. Direction cosines and projections.

1. History of Civilization

"Origins of art : Early Man's painting and sculpture; palaeolithic and neolithic art.

The first city civilizations: Egypt, Mesopotamia, India and China.

The Iron Age cultures; arrival of Aryans in Asia Minor, Greece, Iran and India

Civilization in Rome, Etruscan art, Hellenistic art, art in Greece and the colonies.

Buddhist art in India from the 3rd Century B.C. to the 3rd Century A.D., from the archaic to the classical style".

(13)

MAIN STREAM1. Design (including Art & Theory of Design)Theory of Design

(a) An introduction to the art and profession of architecture development of understanding of our physical environment through a study of the forms, functions and determinants of to-day's architecture, its continuity with the past, and its relation to the living present. A wide range of the historical, theoretical, and practical aspects of architecture as surveyed in lectures and discussions.

(b) A series of lectures devoted to the general principles of architectural design. Consideration of technical, academic and social factors which influence architectural form.

Elements of architectural Design.

Studies of the basic human form and environmental determinants of architectural design and the architectural means and forms which derive from such determinants.

• Studio-workshop course to be related with the above.

Architectural Design.

(a) Basic Design : Problems faced by the artist in the creation of significant form in architecture and the other visual arts.

Fundamentals of visual language on flat surfaces; studies in graphic expression, in colour, and composition, various techniques, conventional and experimental.

Workshop course designed to train the student to visualise in space and to develop his sensitivity to form, structure, space, texture and colour. Development/manual dexterity, with construction experiments employing different materials and forming process.

(b) Graphic Presentation : Exercises in graphic presentation of form, including the basic concepts of mechanical drawing, lettering, projections, perspective, shades and shadows, rendering techniques in colour, in order to develop the skills of presentation and visualise forms in space.

(c) Freehand Drawing and outdoor sketching from nature (skill life and landscapes) emphasizing the structure, order, and clarity of form.

ART

(a) Orientation-exercises in different mediums, pencil-inks, water colours, pastels, etc. Theory of composition.

(14)

Theory of colours. Drawing indoor and outdoor sketching - pencils and inks. Simple Designing - erecting curbs, pottery etc. Colour Composition (painting). Sculptures sketches - plasticine, clay etc. College paper and other materials.

### 2. Construction and Materials

(a) Properties, manufactures and uses of building materials, e.g. brick, stone, wood, lime, cement and concrete.

Brick and stone masonry - foundations, brick-laying, damp-proof courses, mortar joints, arches, carpentry and joinery, simple doors and windows, classification of roofs, single and double roofs, road coverings.

The studio and workshop periods are devoted to the solution of simple construction problems and preparation of details.

### 3. Structures

#### Structural Mechanics

Introduction to static behaviour of structures. Concurrent and non-concurrent forces. Laws of equilibrium. Graphic Statics. Definitions of statically determinate and indeterminate structure.

Bending moment and shearing force. Theory of simple bending. Definition of stress and strain at a point with an introduction to materials behaviour in elastic and plastic ranges. Application to stress distribution in twisting and bending.

Consideration of stability of structures in elastic and plastic situation.

#### Structural Mechanics Laboratory

The laboratory work is planned to verify principles taught in lecture classes.

#### Workshop

1. Carpentry : Introduction to carpentry tools and equipments. Making of various carpentry joints and most commonly used e.g. halving, mortice and tenon, mitre, dovetail, etc.

#### 2. Metal Shop :

(a) Fittings : Introduction to fitter's tools and instruments. Practice in different fitting operations.

(b) Sheet Metal : Practice in sheet metal operation including revetting.

3. Welding. General introduction to different welding technique (Gas, Arc, Forge, etc.). Practice in gas welding and cutting.

## 2ND YEAR

### SUPPORTING STREAM

1. Geography applied to Architecture (Geology and Climatology)

#### Geology

General Geology describing earth's crust modes of formation and the action of rivers, glaciers and the sea.

Rock forming minerals and their characteristics classification of rocks.

Factors governing selection of building stones.

Geological criteria that govern selection of sites.

#### Climatology

. Climate, geographical and physical factors, temperature, rainfall, wind, sky, ground, vegetation, micro-climate and climate, seasons, movement of the sun, sun-charts, use of climatic data, climate factors etc. Materials and techniques of control and survey of methods used in various regions, indigenous as well as modern.

2. History of Architecture and History of Civilization

i) The study of Indian Architecture, with special emphasis on the concept of form and structure, from the earliest times 1400 A.D. and to include Buddhist, Hindu and Jain periods.

ii) The study of the architectural development, with special emphasis on the concept of form and structure, in other countries Egyptian, West-Asiatic, Greek, Roman, Early Christian and Byzantine periods.

iii) A study of Architectural Development with special emphasis on the concept of form and structure in other countries such as North-West Frontier, China, Ceylon, Burma, Indonesia, Thailand, Cambodia, Japan etc.

iv) The year's work should include class assignments, sketches and a measured drawing of a historical building, presented in atleast two well composed sheets, showing details of construction.

3. Surveying and Levelling

Scales : E.M. or scale-Conventional signs.

(10)

Principles of Surveying:

Chain Survey: Different kinds of chains. Principles of chain survey. Equipment and instruments. The field book, methods of keeping the field book. Obstacles in chain survey. Correction of length and areas due to error in chain length from standard length.

Areas: Computation of areas of regular figure. Computation of areas of irregular figures by means of formulae. Mean ordinate method. Trapezoidal rule. Simpson's rule. Area by means of planimeter.

Compass surveying: Prismatic compass, its use. Whole circle bearings and reduced bearing. Magnetic variation. Local attraction and its elimination. Compass Traversing-Plotting and surveying by independent co-ordinate methods. Closing error and its adjustment by graphical and other method.

Plain Table Survey: Theory and use of simple plain table. Different methods of plain tabling. The two point problem and three point problem.

Levelling: Theory of levelling. Entering the readings in levelling book. Computing of RL by line of collimation method and rise and fall method. Curvature and Refraction. Reciprocal levelling. Temporary and permanent adjustments of Dumpy Levels, Contours and their uses.

Theodolite: The use of theodolite in taking horizontal and vertical angles. Traversing by means of theodolite plotting of a survey.

Interpretation of plans from architectural point of view.

Field work and consists of chain, compass and plane table surveys and preparation of maps of areas; levelling and preparation of contour maps. Finding out area by planimeter, measurement of angles by theodolite.

MAIN STREAM1. Design (including Art & Theory of Design)

Some aspects of the influence on architecture from the 18th century to the present times, with emphasis on those developments in design, theory, materials and techniques which have contributed most to the formation of contemporary architecture. The most relevant to the contemporary situation.

Class assignments and tests with individual or group presentations.

The design course at second year level should be directed to provide :-

- a) A basic understanding of constructional principles, methods and experience in the design of simple timber, bricks and steel structures, using calculations.
  - b) An appreciation of the need to develop a design method by which the various factors which affect design can be co-ordinated. In each project a realisation of the inter-dependence of the factors is vital.
2. Programmes to provide a period for technical assimilation by focusing particular attention on the study of three basic structural materials, timber, brick and steel.
  3. The limited attitude towards architecture that results from setting problems on island sites is to be avoided by relating most of the design subjects to the wider environment of a village.

Visits/tours to places in and around Delhi to a distance of about 500 kilometers.

Expression in Lines. Monochrome washes. Three dimensional exercises based on units; mobiles with wires and metal. Painting free expression. Drawing - indoor and outdoor, introduction to colour and life drawings. Sculpture exercises in paper, wood and plaster-of-paris. Design based on lettering, out-door wall mural, etc. Visits to the art museums - essay on subject relating to art.

## 2. Construction and Materials.

- 1) Properties and uses of building materials such as metals, asbestos, glass, timber, building boards, plywood, paints and varnishes, RCC etc.
- ii) A study of the elements of buildings such as foundation, D.P.C., walls-load bearing and panel-floors and flooring materials, windows, doors, staircases, partitions, ceiling etc. in various materials.
- iii) Studies with models, visits to construction sites. The studio workshop periods to be devoted to preparation of detailed construction drawings.

## 3. Structures

Rivets and Design of Riveted joints, Design of welded joints, Efficiency of joints;

Solution of determinate frames subjected to static load by method of joints and method of sections. Design of simple trusses of mild steel, timber and laminated wood.

Principles of super-position of moments and shears. Free body diagrams.

(10)

Design of flexural members in mild steel, timber and laminated wood. Flitched beams. Deflection of cantilevers and beams. Relation between curvature slope and deflection.

Bending and direct stresses. Short columns and piers with eccentric loading. Stability of walls against lateral loading.

Relevant extracts from I.S. Code of Practice for  
 a) Loading Standards; (b) Plain and reinforced concrete;  
 c) Structural steel; (d) Structural timber and its application to design.

Design of simple R.C. Slabs, one way and two way and rectangular beams. Methods of design of reinforced brickwork, composite structural steel and concrete. Design of axially loaded R.C. Short columns.

Elements of soil mechanics

Design of simple foundation for r.c. columns and masonry walls.

A term report on mix design, placing and curing of concrete.

Lectures to be supplemented by laboratory work.

Further laboratory work based on principles taught in the class contemporaneously.

### 3RD YEAR

#### SUPPORTING STREAM

##### 1. History of Architectures

i) The study of Indian Architecture, with special emphasis on the concept of form and structure, from 1400 A.D. to present times, to include the Islamic periods. A study of the influence of indigenous architecture on the architecture of the Islamic and Western periods in India and Vice-versa.

ii) The study of the architectural development, with special emphasis on the concept of form and structure in other countries; Romanesque,

iii) Gothic, Renaissance and modern.

iv) The year's work should include class assignments, sketches and an analytical study with sketches and reports.

##### 2. Specifications and quantities

i) Specification for materials and workmanship. Techniques of well written specifications. Some methods of the organisation of the building industry.

- ii) Instructions in methods of preparing estimates together with practice in taking off detailed quantities. A study of the factors affecting the code of construction and labour productivity. Relations of services and equipment to construction costs. Effect of design on ultimate costs.
- iii) Instructions to contractors, forms of building contracts measurement books, rate analysis and preparation of interim and final certificates of payments to contractors.

### 3. Building services and Equipment

- i) Drainage-internal and external, modern plumbing, sanitary fittings and fixtures. Drainage and plumbing bye-laws.
- ii) Domestic water supply; heating and hot water supply.
- iii) Class assignments and individual studies on specific design problems.

### 4. Lighting and Acoustics

Principles of design to achieve good hearing conditions, control of noise, reverberation, resources and echo in rooms and buildings, sound amplification and its effect on design.

- ii) Acoustic materials, their properties, uses and ratings.
- iii) A course of lectures introducing the nature, production and control of light, design for natural and artificial sources.
- iv) An analysis of an actual example and discussion of projects.

### 5. Sociology

- i) The general nature of sociology, man and his environment, man and society, types of social groups the concepts of social structure and culture.
- ii) The major types of groups in Indian society, the village, community, caste, family. The urban and rural ways of life, the problem of rural and urban distinction and some general features of urbanization in India.
- iii) Social aspects of housing, housing and the family. The residential neighbourhood.
- iv) Sociological understanding of slums, social problems - health, delinquency (as an illustration)



of the sociological approach to the understanding of such problems).

### MAIN STREAM

#### 1. Design :

1. The design course at the third year level should be directed to design of buildings of increasing complexity and should involve two or more floors. A programme should be carried through to the detailed design of the building and its components, with working drawings of a part of the building with specifications, structural calculations, study of services etc.
2. The students should next be introduced to general planning and circulation of people and vehicles. This should be done as a proposal for a development in a small town (group work). The students should present an individual design of a building within this group scheme, contributing clearly to the overall proposal.
3. Interspersed with the major design schemes atleast two small design proposals should be completed within the year.

Visits/tours to places in and around Delhi to a distance of about 1500 kilometers.

Creative Drawing based on life. Illustrated report on any aspect of fine arts - particular movement and style of painting and sculpture or on words of a painter or sculpture. Relative values in architecture and other fine arts, etc. Painting sculpture of design - posters, covers, murals, drapery etc.

#### 2. Construction and Materials

- i) Centering, shuttering, underpin shoring and scaffolding in timber and steel.
- ii) Foundations in steel and concrete, pile foundations
- iii) Build-up girders and trusses in steel and timber.
- iv) A study of the elements of buildings such as fire places, flues, chimneys, balconies and canopies, north light and skylight glazing, present steel sections, built-in furniture etc.
- v) Studies in models, visits to construction sites. The studio-workshop periods to be devoted to preparation of detailed construction drawings.

#### 3. Structures

R.C. Doubly reinforced, eil and tee beams. Composite

(21)

roofs such as hollow block roofs etc.

Development of composite girders in steel, plate girders - design principles. Advantages of cast sections.

Design of simple staircases in r.c. Description of spiral free standing and cantilever staircases, salient points in recent innovations.

Euler's theory, and design formulae. R.C., and steel long columns axially and eccentrically loaded. Use of design curves and graphs.

Fixed and continuous beams. Degree of indeterminacy. Theories for solution of indeterminate structures. Theories of three moments slope deflection and distribution methods. Analysis of a single storey frame with symmetrical loading. Methods of design of multi-storeyed structures. Effects of wind, earth-quake etc. on tall structures.

Foundations : Principles of design only of trapezoidal, cantilever and raft footings. Pile foundations. Grillage foundation. Examples - underpinning of foundations. Effects of settlement of foundations. Effect of variation in water table.

Lectures to be supplemented by laboratory work.

Students shall choose any suggested topic in structural design and submit a comprehensive report on present knowledge and future developments anticipated.

Experimental verification from scale models of principles of structural analysis.

Laboratory work includes testing of flexural members design of mixes etc. to illustrate theory taught in the class.

#### 4TH YEAR

##### PRACTICAL TRAINING

#### 5TH YEAR

##### SUPPORTING STREAM

##### 1. Building Services and Equipment

- (i) Sewage disposal and septic tanks. Sewage purification, refuse disposal. Water supply to cities.
- (ii) Air-conditioning-methods and equipment to maintaining the atmosphere at required temperature,

(ss)

humidity and cleanliness.

- (iii) Mechanical equipment—lifts and Faculators, Pumps etc.
- (iv) Electrical layouts and fittings for buildings.

## 2. Building Economics.

- (i) A general introduction to fundamental economic concepts.
- (ii) Property investments, returns, valuations and mortgages.
- (iii) Rent and its implications—economic, social and standard.
- (iv) Different factors affecting location, construction financing and marketing of building and low-cost housing.
- (v) Relative aspects of materials and labour affecting cost of construction.

## 3. Introduction to City Planning and Urban Design.

Objectives and scope of comprehensive physical planning as applied to Urban and Rural Areas. Basic concepts and theories of planning. Economic, Social and technological factors which effect the functions and physical environment of the city and region. Historical survey of city as an architectural form and as an expression of developing social structure. Current theories of City Planning. Discussions on contemporary Planning. New Town and Cities.

## MAIN STREAM

### 1. Design

Discussions and reports on theories and works of significant architect.

- 1) Problems of building in a city context. Design of a multistoreyed building with prefabricated elements. Studies of method and details of erection and assembly. Working drawings.
- 2) Housing in an urban area preferably within Delhi. Study and application of the City Master Plan. Individual and group projects. Design of buildings within the proposed developments.
- 3) Interspersed with the major design scheme one design proposal should be completed within the year.

(23)

### 2. CONSTRUCTION AND MATERIALS

- (i) Study of the elements of buildings such as prefabricated structures, curtain walls, insulating materials etc.
- (ii) Properties and uses of building materials such as laminates plastics, prestressed and light-weight concrete, modern finishes etc.
- (iii) Studies in detail including structural analysis of parts of buildings to be presented as detailed working drawings.

### 3. STRUCTURES

Elementary theory and simple illustrative examples of prestressed concrete flexural members; systems of prestressing; Economics of prestressed concrete; Prestressed trusses.

Study of the arch, the vault and the dome; principles of design of shell structures and examples.

Descriptive study of space structures; grid frame and suspension of structures; their use in covering large areas; examples of the techniques of renovation by additions and alterations to existing buildings.

Principles of design of storage and retaining structures in reinforced concrete.

Laboratory work includes demonstration of prestressing. Construction of structural models to study their behaviour.

### 6TH YEAR

#### SUPPORTING STREAM

##### 1. Professional Practice and Office Management

- (i) The Architect and his office; relationship with clients, consultants and contractors. Legal responsibilities of the architect. Code of professional practice. Fees.
- (ii) Principles of contracts and agreements. Tendering procedures. Control of constructional operations. Valuation and reports, Easements, arbitration and/

architectural  
part 2.  
t.

##### Structures

A comparative analytical study of structural systems and materials of contemporary architecture with particular emphasis on their application to advanced problems in architectural design.

(24)

Seminar to discuss the selection, calculation and construction of buildings and buildings elements. The student will examine the potentialities of various materials and the resulting forms in particular applications. Individual presentations on approved topics.

The student is allotted a suitable topic in structural design or construction such as multystoried structures, shaft spaces, frames, inlets and diaphragms etc. and shall prepare a paper from discussion before a Jury.

### MAIN STREAM

#### 1. Design

Design problems emphasising either of the following approaches :

- (i) Urban Design (ii) Structure and construction.

Development or re-development of an urban area. A large scale city complex involving problems of urban design, traffic, mass circulation and movement of vehicles and people in relation to the location as well as the city as a whole. A detailed architectural design of the complex. Individual and group projects. A complex building in a given site with scope and possibilities to explore and apply modern techniques of construction and structure. A detailed architectural design supplemented with careful studies of construction and structure.

#### 2. Architectural Thesis

Research and presentation of an architectural problem approved by the Head of the Department. It may be hypothetical problems but the presentation and solution must show an analytical understanding of the problems involved and a logical and technical competence to apply the various disciplines of architecture.

#### Optical Stream

Syllabus of courses indicated in the optical stream would need to be framed by respective/depending the courses they can offer.

Item 6 - To consider the report of the Expert Committee on the proposal received from the Secretary, Board of Technical Education, U.P., Lucknow, regarding the duration of diploma course in Costume Design and Dress Making at the Govt. Girls Polytechnic, Lucknow-

The All India Council for Technical Education has formulated a number of courses for the Women Polytechnics in India. One of the such courses relate to Costume Design and Dress Making. The minimum admission qualification laid down by the Council for entry into this course is High School/S.S.L.C. pass or higher secondary pass. The duration of the course suggested by the Council is three years. This course is being conducted by the Women Polytechnic, A.M.U., Aligarh ~~in accordance~~ as per pattern suggested by the All-India Council for Technical Education. The U.P. Government in 1922-23 introduced a diploma course in Costume Design & Dress Making, at Govt. Girls Polytechnic, Lucknow with an intake of 30. The minimum admission qualification for entry into this course at the Govt. Girls Polytechnic, Lucknow is High School pass/ Higher Secondary pass and the duration has been kept two years instead of three years as suggested by the Council. Since the pattern adopted at the Govt. Girls Polytechnic Lucknow is not completely in consonance with the scheme formulated by the All India Council for Technical Education, a reference was made by the Secretary, State Board of Technical Education, Uttar Pradesh, Lucknow to the Northern Regional Committee, for eliciting their recommendation with regard to duration of the course.

The Secretariat of the Northern Regional Committee collected the basic data in regard to this course conducted

Women Polytechnics conducting this course in India is given in Annexure A. From the list it will be observed that in the Western Region and Southern Region a number of Women Polytechnics are conducting this course and the duration of this course has been kept for two years. In this connection, it may be pointed out that the All India Council for Technical Education while formulating the scheme for the establishment of Women Polytechnics had suggested that the duration of the courses in the Women Polytechnics may vary from two to three years depending upon the field of training, nature and scope of training and the course contents etc.

The Northern Regional Committee at its 41st meeting held on 15th January, 1975, considered the proposal received from the Secretary, Board of Technical Education, Uttar Pradesh Lucknow. The Committee noted that the diploma course in Costume Design and Dress Making should be on a much broader higher pedestal than the popular short-term courses introduced by the private establishments and private manufacturers like Usha etc. The Committee thought that the diploma course in Costume Design & Dress Making can be of 2 years' duration with one year Post-diploma course for narrow specialisation.

The Committee desired that before taking any decision in this matter the full question of structure, duration and syllabus etc. be examined by an Expert Committee consisting of the following members:-

1. Shri S.A. Abbas,  
Principal,  
University Polytechnic,  
A.M.U. Aligarh.
2. Shri P.K. Vaidyanathan  
Principal,  
Technical Teachers' Training Institute,  
Chanaiygarh.

3. Shri B.K. Lohani  
Offg. Principal,  
Govt. Central Textile Institute,  
Kanpur.
  4. Miss. M.Y. Sule,  
Principal,  
Women Polytechnic,  
Kashmere Gate,  
Delhi.
  5. Smt. Umila Chandra,  
Principal,  
Govt. Girls' Polytechnic,  
Lucknow.
  6. \*A representative from Lady Irwin College, Delhi
  7. Member-Secretary,  
Northern Regional Committee.
- \* Mrs. Raushni Dashpande, Head of the Extension Department, Department of Rural Community Extension, Lady Irwin College, Sikandra Road, New Delhi acted as a representative from the Lady Irwin College, New Delhi.

The Committee met on 4th August, 1975 in the Office of the Secretary, Board of Technical Education, Uttar Pradesh, Lucknow. A copy of the report of the Expert Committee is placed at Annexure B. The committee after discussing the pros and cons of the course, made the following recommendations:-

- 1) For those girls who are interested in specialisation like Chikan work and embroidery or cutting of Churidar Pajama and Sherwani, one year post-diploma course may be started. Since this Post-diploma course will be practice-oriented course the syllabus should be designed keeping in view the time required for practice. It will be better if this course is conducted in institution having production centres and having good linking in tailoring and cutting.
- 2) The Committee noted that the course in Costume Design and Dress Making is practice oriented course and as



such the course content may be revised so as to have more emphasis on practice/practicals by suitable adjusting the theory content. The committee felt that the course contents for theory and practicals for this course should be in the ratio of 1: 3 or near about. The State Board of Technical Education, Uttar Pradesh, Lucknow may accordingly like to get present syllabus revised with the help of Curriculum Development Centre, Allahabad.

- 3) The examination scheme should also be suitably modified so as to allot more marks for practicals rather than theory.

Considering the above points, the Committee recommends that the duration of diploma course in Costume Design & Dress Making should be of two years duration only. The students who want to have specialised training in Chikan work, Embroidary etc. may undergo one year's additional course and be awarded post-diploma in their respective branch or field.

The matter is placed before the committee for its consideration.

**List of the Women Polytechnics Conducting  
Diploma Course in Costume Design & Dress  
Making in India.**

<u>NAME OF THE INSTITUTION</u>	<u>DURATION OF THE COURSE</u>	<u>GR. QUALIFICATION</u>
<u>NORTH-EASTERN REGION</u>		
1. Govt. Girls Polytechnic, Lucknow ( U.P. )	2 years	High School
2. Women Polytechnic, Aligarh Muslim University, Aligarh ( U.P. )	3 years	High School
<u>WESTERN REGION</u>		
1. Govt. Women Polytechnic, Mumbai ( M. )	3 years	B.S.S.C.
2. Govt. Polytechnic for Girls, Ahmedabad (Maharashtra)	3 years	S.S.C.
3. Senani Memorial Polytechnic, Raigarh.	2 years	S.S.C.
<u>SOUTH-EASTERN REGION</u>		
1. Govt. Polytechnic for Women, Guntur ( Andhra ).	3 years	S.S.L.C.
2. K. J. S. Nehru Polytechnic for Women, Hyderabad.	3 years	S.S.L.C.
3. Govt. Polytechnic for Women, Bangalore-1.	3 years	S.S.L.C.
4. Govt. Polytechnic for Women, Dudhgaon ( Karnataka ).	3 years	S.S.L.C.
5. Women Polytechnic, Kannur ( Kerala ).	2 years	S.S.L.C.
6. Women Polytechnic, Chennai ( Tamil Nadu ).	2 years	S.S.L.C.
7. Women's Polytechnic, Madurai, Trichur-7.	3 years	S.S.L.C.
8. Govt. Polytechnic for Women, Chennai ( Madras ).	3 years	S.S.L.C.

ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION

NORTHERN REGIONAL COMMITTEE

Report of the Expert Committee on the proposal received from the Secretary, Board of Technical Education, Uttar Pradesh, Lucknow, regarding the duration of diploma course in Costume Design & Dress Making at the Government Girls' Polytechnic, Lucknow.-

I. INTRODUCTION

The Government of India on the recommendations of the Northern Regional Committee made at its 27th meeting held on 12th March, 1966, approved the Scheme of establishment of a Government Girls' Polytechnic at Lucknow for the introduction of the following courses :-

<u>COURSES OF STUDY</u>	<u>DURATION</u>	<u>INTAKE</u>
Architectural Assistantship	3 years	20
Electronics	3 years	30
Stenography & Secretarial Practice	2 years	30

In the year 1972-73, the State Government of Uttar Pradesh introduced a diploma in Costume Design & Dress Making with an intake of 30 per year and discontinued admissions to architectural Assistantship course. The course in Costume Design & Dress Making introduced at Government Girls' Polytechnic, Lucknow is of 2 years' duration with High School or equivalent as the admission qualification. The first batch of 26 students have already passed out in the year 1974. The Secretary, Board of Technical Education, Uttar Pradesh, Lucknow has sought the approval of the Northern Regional Committee/All-India Council for Technical Education/Government of India to the introduction of a course in Costume Design & Dress Making of 2 years' duration instead of 3 years duration as approved by the

All-India Council for Technical Education.

2. APPOINTMENT OF THE EXPERT COMMITTEE

The matter was placed before the Northern Regional Committee at its 41st meeting held on 15.1.1975. The Committee noted that the diploma course in Costume Design and Dress Making should be on a much broader higher pedestal than the popular short-term courses introduced by the private establishments and private manufacturers like Usha etc. The Committee thought that the Diploma course in Costume Design and Dress Making can be of 2 years' duration with one year Post-diploma course for narrow specialisation.

The Committee recommended that before taking any decision in the matter the full question of structure, duration and syllabus be examined by an Expert Committee consisting of the following members :-

1. Shri S.A. Abbas,  
Principal,  
University Polytechnic,  
Aligarh Muslim University,  
Aligarh.
2. Shri T.K. Vaidyanathan,  
Principal,  
Technical Teachers' Training Institute,  
Chandigarh.
3. Shri B.K. Lohani,  
Principal,  
Government Central Textile Institute,  
Kanpur.
4. Miss M.Y. Sule,  
Principal,  
Women Polytechnic,  
Maharani Bagh,  
New Delhi.
5. Principal,  
Government Girls' Polytechnic,  
Lucknow.

6. Mrs. Raushni Deshpande,  
Head of the Extension Department,  
Department of Rural Community Extension,  
Lady Irwin College,  
Sikandra Road,  
New Delhi.
7. Member-Secretary  
Northern Regional Committee

The meeting of the above Expert Committee appointed by the Northern Regional Committee was held in the Office of the Secretary, State Board of Technical Education, Uttar Pradesh, Lucknow on the 4th August, 1975 and the following were present:-

1. Shri S.A. Abbas,  
Principal,  
University Polytechnic,  
Aligarh Muslim University,  
Aligarh.
2. Shri B.K. Lohani,  
Principal,  
Government Central Textile Institute,  
Kanpur.
3. Shri P.C. Dikshit,  
Principal,  
Government Polytechnic, Lucknow & Principal,  
Government Girls' Polytechnic,  
Lucknow.
4. Shri Y.Singh,\*  
Education Officer (Technical)  
Ministry of Education & S.W.,  
Northern Regional Office,  
Kanpur \*(acted as Secretary of the above Committee)

Shri J.B. Gupta, Secretary, State Board of Technical Education, Uttar Pradesh, Lucknow also attended the meeting by special invitation.

The following could not attend the meeting :-

1. Shri T.K. Vaidyanathan,  
Principal,  
Technical Teachers' Training Institute,  
Chandigarh.

2. Miss M.Y. Sule,  
Principal,  
Women's Polytechnic,  
Maharani Bagh,  
New Delhi.
3. Mrs. Raushni Deshpande,  
Head of the Extension Department,  
Department of Rural Community Extension,  
Lady Irwin College,  
Sikandra Road,  
New Delhi.

### III. GENERAL OBSERVATIONS

The Secretary briefed the Committee on the present state of women education in India. In an age, which not only promotes the equality of sexes but also tries to ensure equality of facilities for all, irrespective of sex or social status, the opportunities of learning have to be universally provided both for boys and girls. But for biological difference and the corresponding social obligations girls have to be prepared for assuming the responsibilities of house wife and motherhood. Thus, boys and girls need upbringing on slightly different lines. Every woman needs to be equipped to assume the responsibility of married life. The education of girls was planned in India during the last 50 years keeping in view the role to be played by the young girls in near future. Education has a close relationship with the history, culture and social institutions of a nation. In Vedic India women were enjoying some status in all walks of life like man. But in middle age's girls were denied their rightful place in the temporary society, being a weaker sex. The struggle for independence, influence of western thought and technological advancement led the educationist to review the situation and to assign new goals for women's education.

The recognition of woman as an individual and as a social unit is not new to India, because ancient sages and thinkers

endowed them with knowledge, equality and dignity. The need for enlightened wife, as an intelligent companion to the husband and the successful mother can not be minimised. The woman in post independence period have been asked to play a new role of bread earner which except those in indigent social situation none tried to perform in the past.

The women/girl students can be divided into three categories :-

- i) Those seeking careers like men.
- ii) Those seeking education/training to become good companion to husband able to augment the family income and to raise the standard of living.
- iii) Those seeking education/training like boys but being economically well off will never think to choose a career. After marriage their education will have only ornamental value.

For women of category (i), higher education or professional education leading to competition with men is essential. They should go to co-education at institutions for education and to equip themselves for competition in future with men.

For women in category (ii), one need specially designed course/ curriculum. The girls studying in girls/Women's Polytechnic generally fall in this category. Their syllabus and course content may invariably differ from that of boys. About 90% of these girls/women will marry and enter family life at about 18 years of age. Social conditions in India did not permit girls from middle class to avoid marriage after the age of 18 years. Such girls need a course which they can complete without incurring heavy expenditure on blocking them up for several years together.

Women in category (iii) coming from well to do families also need specialised education which can quench their thirst for higher learning and acquiring degrees, while educating them in behavioural sciences, medical, technology, child psychology etc. not much has been done in such direction so far. For girls and women studying in Girls' Polytechnics special craft courses recommended to make them successful house wives and also career girls if they like in future. As women are ideally suited for craft like tailoring, costume design and dress making. These courses can be taught to them in Women Polytechnics to best advantage. Girls combine aesthetics and functions. Their 'delicate touch', 'patience', 'aesthetic sense', 'flexible fingers' and 'greater endurance' are qualities essential for a good craft worker.

Shri S.A. Abbas, Principal, Girls Polytechnic, Aligarh Muslim University, Aligarh placed before the Committee a statement showing the working hours being devoted by the girls studying Costume Design and Dress Making in theory and practical classes. Annexure 'A' & 'B' at Aligarh and Lucknow. Tailoring and Dress Making being a practice oriented course require more practical work than theory. In Girls Polytechnic, A.M.U. Aligarh the ratio between practicals and theory is 3 : 1. Mr. Abbas emphasised that since the girls are asked to devote more time on practice, more marks should be allotted for practical and sessionals. The ideal situation will be if marks are allotted according to the time spent on teaching of theory and practice in the institution. In the curriculum being followed at Government Girls' Polytechnic, Lucknow, this ratio is about 2 : 1. The various topics being taught at Lucknow and Aligarh were compared and it was found that there is not much difference between them. At



Lucknow, they are devoting slightly more time on Textile Technology and Chemistry than at Aligarh.

Shri Abbas informed that at Aligarh, the girls are required to learn 34 garments which they can complete with great difficulty during three years stay in the institution. Result is that they could not concentrate on particular garment which may have ready market in the country. If they are taught tailoring and cutting of popular type of garments which can find a ready market, the course may be more popular among girls. There may be some girls who may like to study further or specialise in certain garments. Such girls may be allowed to stay for one or more years for some higher diploma if necessary.

#### IV. RECOMMENDATIONS :

The Committee after discussing the pros and cons of the course, made the following recommendations :-

- 1) For those girls who are interested in specialisation like Chikan work and embroidery or cutting of Churidar, Pajama and Sherwani, one year post diploma course may be started. Since this P.D. Course will be practice oriented course the syllabus should be designed keeping in view the time required for practice. It will be better if this course is conducted in institution having production centres and having good linkage in tailoring & cutting.
- 2) The Committee noted that the course in Costume Design and Dress Making is practice oriented course and as such the course content may be revised so as to have more emphasis on practice/practicals by suitably adjusting the theory content. The Committee felt

that the course contents for theory and practicals for this course should be in the ratio of 1 : 3 or near about. The State Board of Technical Education, Uttar Pradesh, Lucknow may accordingly like to get present syllabus revised with the help of Curriculum Development Centre, Allahabad.

- 3) The examination scheme should also be suitably modified so as to allot more marks for practicals rather than theory.

Considering the above points, the Committee recommended that the duration of diploma course in Costume Design & Dress Making should be of two years duration only. The students who want to have specialised training in Chikan work, Embroidery etc., may undergo one year's additional course and may be awarded Post-Diploma in their respective branch or field.

#### A C K N O W L E D G E M E N T

The Committee thanked Shri J.B. Gupta, Secretary, State Board of Technical Education, Uttar Pradesh, Lucknow for making nice arrangements for the meeting.

sd/-  
( S.A. ABBAS )  
MEMBER

sd/-  
( B.K. LOHANI )  
MEMBER

sd/-  
( P.C. DIKSHIT )  
MEMBER

sd/-  
( Y. SINGH )  
SECRETARY

ANNEXURE

I. PROPOSED 2 YEAR GENERAL COURSE

II. The course may be of a general nature providing mainly, introductory instruction as regards a number of techniques & garments.

PROPOSED SCHEME OF INSTRUCTION & EXAMINATION

TOPICS

S.No.	Name of Topics	No. of years	Written paper	Practical/ Sessional	Remarks
1.	Art/Drawing	I & II Yr	One in each Yr	Yes (Sessional only)	
2.	Theory of Garment Making	I & II Yr	-do-	Nil	Of use for ( )
3.	Embroidary, Hand	I Year	One in I Year	Yes (Sessional & Exam. both)	
4.	Embroidary, Machine	II Year	One in II Year	Yes ( " )	
5.	Drafting, designing, & Pattern making for standard measurements.	I & II Yr	One in each Yr.	Yes ( " )	
6.	Cutting, Stitching & Finishing, for standard measurements	I & II Yr	Nil	Yes ( " )	
7.	Elementary Textiles concerning fibres, Finishing & their identifications	II Year	One in II Yr.	Yes (Sessional only; No practical Exam)	
8.	English	I Year	One in I Year	Yes (Sessional)	

IMPORTANT RATIOS

- (1) Practice : Theory : : 3 : 1 (Time Allocation)
- (2) Sessionals : Written Exams : : 3 : 1 (Marks Allocation) including Practical Exams.

GIRLS' POLYTECHNIC, A.M.U., ALIGAH

EXISTING TIME ALLOCATION FOR PRACTICE & THEORY

( 3-YEAR COURSE )

I YEAR

<u>SUBJECTS</u>	<u>THEORY PERIODS</u>	<u>PRACTICAL</u>
English	5	-
Theory of Garment Making	2	-
Drafting, Designing & Pattern Making Theory	2	3
Embroidery	2	7
Geometrical Drawing	3	-
Cutting, Stitching & Finishing	-	15
TOTAL :	<u>12</u>	TOTAL : <u>25....(A)</u>

II YEAR

Theory of Garment Making	2	-
Drafting, Designing & Pattern Making Theory	2	4
Embroidery	2	7
Textiles	2	1
Cutting, Stitching & Finishing	-	13
Painting	<u>-----</u>	<u>4</u>
TOTAL :	<u>8</u>	TOTAL : <u>29....(B)</u>

III YEAR

Theory of Garment Making	2	-
Drafting, Designing & Pattern Making	2	4
Textiles & Laundry	2	2
Cutting, Stitching & Finishing	-	2
Embroidery	1	2
Painting	-	4
TOTAL :	<u>7</u>	TOTAL : <u>27....(C)</u>

TOTAL :

(A).....12	-	25	} Theory = 32.4%
(B)..... 8	-	29	
(C)..... 7	-	27	
TOTAL :	<u>27</u>	<u>81</u>	GRAND TOTAL = 108

PROPOSED 1-YEAR POST-DIPLOMA COURSE

I. The Course may be restricted to the following garments specialities only :-

- (i) Blouse (ii) Shirt, including bush shirts  
 (iii) Pant (iv) Coat

II.

PROPOSED SCHEME OF INSTRUCTION & EXAMINATION

TOPICS

<u>S.No.</u>	<u>NAME OF TOPIC</u>	<u>WRITTEN PAPER</u>	<u>PRACTICAL EXAMS/SESSIONS</u>	<u>REMARKS</u>
1.	Theory of Garment Making	One	Sessional only; no practical exams.	
2.	Drafting, Designing & Pattern Making of individual measurements.	One		
3.	Drafting of specialities for individual measurements.	-	Sessional & Practical Exam. both.	
4.	Cutting of specialities for individual Measurements.	-	" "	
5.	Stitching & Finishing for individual measurements.	-	" "	

IMPORTANT RATIOS

- (1) Practical ; Theory : : 4 : 1 (Time allocation)
- (2) Sessional including Practical Exam. ; Written Exam. : : 4 : 1 (Marks allocation (See appended scheme of Exams.))

SCHEME OF EXAMINATION  
OF  
PROPOSED POST-DIPLOMA COURSE IN COSTUME DESIGN & DRESS MAKING OF  
ONE YEAR DURATION

(A) WRITTEN PAPERS :

<u>Papers</u>	<u>Subjects</u>	<u>Duration of Exam.</u>	<u>Max. Marks.</u>
I	Theory of Garment Making	3 Hours	50
II	Drafting, Designing & Pattern Making	3 Hours	100
Total :			<u>150</u>

(B) PRACTICAL EXAMINATIONS  
SUBJECTS

	<u>Duration of Exam.</u>	<u>Max. Marks.</u>
1. Drafting & Designing of specialities for individual measurements.	4 Hours	150
2. Cutting of specialities for individual measurements.	4 Hours	100
3. Stitching & Finishing of specialities in individual measurements.	10 Hours	20
Total :		<u>450</u>

(C) SESSIONAL WORK

<u>Subjects</u>	<u>Max. Marks</u>	<u>Basis of Award</u>
1. Theory of Garment Making	30	Tutorials & Written Test.
2. Drafting, Designing & Pattern Making for individual measurements.	30	" "
3. Drafting, Designing & Pattern Making Practical of specialities for individual measurements.	30	Practical work in class.
4. Cutting of specialities for individual measurements.	30	" "
5. Stitching & Finishing of specialities in individual measurements.	30	" "
TOTAL :		<u>150</u>

GRAND TOTAL : (A) Plus (B) Plus (C) = 150+450+150=750

WOMEN'S POLYTECHNIC  
ALIGARH MUSLIM UNIVERSITY  
ALIGARH

MARKS ALLOCATION

	<u>Sessional</u>	<u>Practical</u>	<u>Theory</u>
1. First Year	400	400	500
2. Second Year	300	400	400
3. Third Year	300	300	300
	-----	-----	-----
	1,000	1,100	1,200
	-----	-----	-----

GOVERNMENT GIRLS' POLYTECHNIC  
LUCKNOW

MARKS ALLOCATION

	<u>Sessional</u>	<u>Practicals</u>	<u>Theory</u>
1. First Year	350	350	250
2. Second Year	350	250	350
	-----	-----	-----
	700	600	600
	-----	-----	-----

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Item 7 - To note Ministry's letter No.F.25-9/74-T.5 dated the 5th April, 1975 regarding education of Scheduled Castes and Scheduled Tribes candidates -

Keeping in view the constitutional provisions, efforts have been made regularly to admit scheduled caste/tribe members to higher and technical education during last twenty five years. It was, however, observed that reservation of seats for admission to a particular course is not sufficient to bring a scheduled caste/tribe member at par with students belonging to higher caste and well to do class. The candidates from scheduled caste/tribe communities need something more than reservation of seats.

The All-India Council for Technical Education at its 22nd meeting held on 17.5.1974 while noting down the progress of admission of Scheduled Castes and Scheduled Tribes students commended that apart from the reservation of seats and provision of scholarships to students belonging to Scheduled Castes and Scheduled Tribes, technical institutions should make determined efforts by organising special coaching and other methods to improve the performance of these categories of students. In this connection, the Council also noted that successful efforts already being made in the Indian Institutes of Technology, particularly at Madras.

The Council while appreciating these efforts recommended that other Engineering/Technological institutions and the State Governments may be requested to initiate such measures for the benefit of Scheduled Castes and Scheduled Tribes candidates. The Ministry of Education & Social Welfare New Delhi vide their letter No.F.25-9/74-T.5 dated the 5th April, 1975 (copy at Annexure) have requested all the

State Governments to look into the matter and take similar steps towards removal of deficiencies from the Scheduled Caste and Scheduled Tribe candidates being admitted to Engineering/Technological institutions.

The matter is placed before the Committee for information.

(dated 5.4.1975)

Copy of letter No.F.25-9/74-T.5/received from Ministry of Education & Social Welfare (Department of Education) New Delhi addressed to All the State Governments and Union Territories & All Directors of Technical Education,

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**Sub ; Education of Scheduled Castes and Scheduled Tribes**

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I am directed to say that the All India Council for Technical Education at its 22nd meeting held on 17.5.74 while noting down the progress of admissions of Scheduled Castes and Scheduled Tribes students, recommended that apart from the reservation of seats and provision of scholarships to students belonging to Scheduled Castes and Scheduled Tribes, technical institutions should make determined efforts by organising special coaching and other methods to improve the performance of these categories of students.

In this connection, the Council also noted that successful efforts already being made in the Indian Institutes of Technology, particularly at Madras. These are given below:-

1. The Scheduled Castes and Scheduled Tribes students admitted to the first semester of the B.Tech. degree course at Indian Institute of Technology, Madras are first given orientation course of 3 weeks during June-July in English, Mathematics, Physics and Chemistry in order to acquaint them with the programme of study and general preparatory background before joining the regular first semester course commencing from the middle of July, alongwith the other students.

2. A Standing Committee, with the Director of the Institute as Chairman, examine the cases of those Scheduled Castes and Scheduled Tribes students who fail in more than 2 subjects in first semester examinations held in December and are not eligible for promotion to second semester under the rules of the Institute. Suitable candidates as recommended by the Standing Committee are given a special programme of instructions in the first semester subjects during the period from January to March to make up their deficiencies in these subjects. Special efforts are made to bring the level of these students to that of others. In April, a semester examination in these subjects is conducted for those students. The result is reviewed and the students found unfit are asked to rejoin in first semester in July.

3. A coordinator to coordinate the programmes and an Adviser (who belongs to Scheduled Castes) to attend the problems of the Scheduled Castes/Scheduled Tribes students are nominated from among the faculty. They review the progress of the individual students and report to the Standing Committee.

4. A special second semester course in English, Mathematics, Physics and Chemistry for a period of 8 weeks commencing from 1st May is arranged for the students found eligible to proceed to second semester. These students are also attached to tutors in the concerned subjects, working outside the normal hours of instructions. Second semester examinations is conducted for these students in July. The successful students are allowed to proceed to the third semester alongwith the regular students but they are continued to be taken care of. The unsuccessful students are asked to rejoin in first semester in July.

5. The progress made through the above coaching efforts was reviewed by a Special Committee and on its recommendation the Senate decided that in future programmes, the Scheduled Caste/Scheduled Tribe students will be given special attention through, an integrated programme of study, right from the beginning of the First semester. They will have a continuous semester running to 10½ months with a recess of two weeks in December and four weeks of vacation at the end of the 10½ months period.

6. A separate curriculum and syllabus for the 10½ months period, together with a scheme for continuous evaluation during the period culminating in the Final Examination in the prescribed subjects of the First Year have been drawn up.

It is requested that similar efforts may please be made in the technical institutions under your control. Detail information, if needed, may be obtained direct from the Indian Institute of Technology, Madras. This Ministry may be informed of the action taken in the matter, at an early date.

Copy for information and necessary action forwarded to the following :-

- 1. Secretary, University Grants Commission, Bahadur Shah Zafar Marg, New Delhi.
- 2. All the Regional Offices.
- 3. T-1 Section
- 4. T-6 Section
- 5. Ministry of Home Affairs, New Delhi for information.
- 6. Indian Instt. of Technology, Madras.

To note replies received from the State Governments located in the Northern Region regarding adoption of per capita maintenance norms -

The Northern Regional Committee at its 41st meeting held on 15th January, 1975 noted the revised norms for calculating the recurring expenditure in Engineering Colleges and Polytechnics as recommended by the All-India Council for Technical Education. The revised norms recommended by the Council are as under :-

Sl.No.	Item	Engineering Colleges	Polytechnics
1.	Staff salary	Actual as per sanctioned posts.	Actual as per sanctioned posts.
2.	Library (Recurring)	Rs.50,000/- for an intake of 180 and Rs.75,000/- for higher intakes.	Rs.15,000/- for an intake of upto 120 and Rs.20,000/- for higher intakes.
3.	All other expenditure	Rs.550/- per student per year for an intake of upto 180 and Rs.500/- for higher intakes.	Rs.350/- per student per year for an intake of upto 120 and Rs.300/- for higher intakes.

The Committee while noting the above revised norms observed that per capita norms as recommended by the Northern Regional Committee/All-India Council for Technical Education are not being adopted by the State Governments inspite of the recommendations having been communicated to them by the All India Council for Technical Education/Secretariat of the Northern Regional Committee. The Committee desired that the Chairman, Northern Regional Committee should address the Secretaries of the State Governments dealing with technical education to adopt the per capita maintenance norms as recommended by the All-India Council for Technical Education from time to time to maintain the proper standards. In pursuance of this recommendation, the Chairman, Northern

Regional Committee has suitably addressed the Secretaries of Technical Education of all the States of the Northern Region. The information received from the various State Governments regarding per capita maintenance norms enforced at present is given at Annexure.

From the replies received it will be observed that none of the State Governments have as yet adopted the revised norms approved by the All-India Council for Technical Education. The main emphasis in the Fifth Five Year Plan is on the improvement of the quality of technical education rather than expansion. The Northern Regional Committee may like to make a strong recommendation to the State Governments to adopt these norms in accordance with the recommendation of the Council and accordingly make suitable provision for the same in their State Plans. In fact, top priority has to be given by the State Governments for properly maintaining the present institutions and thereby improving the quality and standard in the existing technical institutions.

The matter is placed before the Committee for its consideration.

ANNEXURE  
Item 42.8

STATEMENT INDICATING THE REPLIES RECEIVED FROM  
VARIOUS STATE GOVERNMENTS REGARDING ADOPTION  
OF PER CAPITA MAINTENANCE NORMS AS RECOMMENDED  
BY THE ALL INDIA COUNCIL FOR TECHNICAL EDUCA-  
TION AT ITS 22ND MEETING HELD ON 17TH MAY, 1974

Sr.No.	Name of the State/ Union Territory	Reply received
1.	Delhi	<p>Up to the last financial year, the budgetary provision in respect of Government institutions was made on the basis of actual expenditure incurred during the previous years, since it was felt that the institutions could not be run properly within the limits of the old norms of All India Council for Technical Education in respect of the maintenance expenditure. The budget provisions for the year 1975-76 also were made in the similar way, since at the time when proposals for budgetary provision were moved, the recommendations of Government of India regarding upward revision of maintenance expenditure had not been received.</p>

The per capita maintenance expenditure, however, compares favourably with the norms now prescribed by the All India Council

for Technical Education in most cases. The actual per capita budget provision for the year 1974-75 in respect of Government Polytechnics under this Directorate was as indicated below :-

Sr. Institution No.	Per capita maintenance expenditure
1. G.B. Pant Poly.	Rs.376/-
2. K.G. Polytechnic	Rs.210/-
3. Pusa Polytechnic	Rs.336/-
4. Women's Polytechnic	Rs.342/-

During the current financial year efforts will be made to provide maintenance expenditure according to the revised norms.

2. Himachal Pradesh                      Suitable provision of funds is being made in the budget for the year 1975-76 and 1976-77 in respect of the institutions under this Directorate for the purpose.
  
3. Union Territory Chandigarh                      The Chandigarh Administration has adopted the revised per capita maintenance expenditure norms in principle. Suitable provision of funds in Annual Plan to effect the increase in per capita expenditure norms is being made from the financial year 1975-76.

No information has been received from Uttar Pradesh, Haryana, Punjab, Rajasthan and Jammu & Kashmir States.



Item 9 .. To consider Ministry of Education & Social Welfare, New Delhi letter No.F.19-36/74-T.5 dated the 30th September, 1975 regarding the revision of salary scales of teachers in Engineering Colleges -

The All India Council for Technical Education at its 22nd meeting held on 17th May, 1974, recommended that the revised scales announced by the Central Government for teachers in Universities and Colleges should be <sup>made</sup> ~~made~~ applicable to teachers in Technical Institutions. Details of the revised scales and procedure for implementing them are given at Annexure 'A'. The Council, however, felt that before implementing the decision on the revised pay scales of teachers in Technical Institutions, 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.

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

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 scales obtaining in University Departments for its teaching staff before the recent revision, the revised scales adopted by State Governments for teachers in the University Deptts. in

their States should be made applicable to the teachers in Engineering Colleges.

2) Qualifications given in Appendix 'A' 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 Appendix 'B'.

4) The Government of India will assist the State Governments/Union Territories 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 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 Governments will take over the entire responsibility for maintaining the revised scales with effect from April 1, 1979.

The revision of pay scales as suggested by the Committee and payment of central assistance will be subject to the conditions annexed to Ministry's letter No.F.19-36/73-T.5 dated 30.9.1975, copy placed at Annexure 'B'.

The above decision of the Government of India have been communicated to all the State Governments for necessary

action to introduce the revised pay scales of teachers in Engineering Colleges.

The Northern Regional Committee may kindly note that the revision of pay scales suggested by the Central Government is only in respect of degree and post-graduate technical institutions. No decision as yet has been taken in regard to the revision of salary scales of the polytechnics' teachers. The salary scales of the diploma institutions have been revised by the State Governments recently on the basis of the recommendations of their own pay-commissions. Consequently, the pay scales of the polytechnics' teachers differ from State to State. The rising cost in prices affect the whole community including the polytechnic teachers. The Northern Regional Committee while considering the recommendations made by the All-India Council for Technical Education at its last meeting held on 17th May, 1974 regarding the revised pay scales of teachers in Engineering Colleges and Polytechnics had recommended that there should be parity in the scale of teachers in engineering colleges and polytechnics. The Regional Committee may like to make suitable recommendation to the Council to appoint a similar committee as in the case of engineering colleges to look into the question of revision of pay scales of teachers of diploma institutions also.

The matter is placed before the Committee for its consideration.

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No F.19-36/74-T.5  
Government of India  
Ministry of Education and Social Welfare  
(Dept. of Education)  
Shastri Bhawan

New Delhi, the 30th September, 1975

The Education Secretaries  
(Technical Education)  
All State Governments

**Subject:-** 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 Technical Institutions, 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.

In pursuance of this recommendations, 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 to the Committee and decided as under:-

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 scales obtaining in University Departments for its teaching Staff before the recent revision, the revised scales adopted by State Governments for teachers in the University Departments in their States should be made applicable to the teachers in engineering colleges.

2. Qualifications given in Appendix 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 Appendix II.

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

- i) Central assistance to this extent will be available for the period from January 1, 1975 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 Governments 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 **Appendix A & B.**

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.

Receipt of this letter may kindly be acknowledged.

Yours faithfully,

Sd/-

(V.R. REDDY)

DY. Educational Adviser(T)

Copy for information to:-

1. All State Directors of Technical Education
2. Regional Offices
3. Sections T.1/T.3/T.4 and T.6
4. The Secretary, University Grants Commission, Bahadur Shah Zafar Marg, New Delhi.
5. Director, University Division, Ministry of Education, and SW, New Delhi.

Sd/-

(V.R. Reddy)

Dy. Educational Adviser(T)

QUALIFICATIONS PRESCRIBED FOR TEACHING POSTS IN ENGINEERING COLLEGES  
AGAINST THE REVISED SCOPES

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 out-standing 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 Standards. 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.

Conditions for Introduction of  
the Revised Pay Scales.

- i) 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.
- ii) 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.
- iii) 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.
- iv) 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.
- v) The existing Lecturers in colleges who do not possess the prescribed qualifications may be allowed pay in the revised scales on 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.
- vi) No teachers/Principal shall be paid any remuneration for examination work including invigilation work within the University/Institution.
- vii) 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 1 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.

ANNEXURE A  
Item No. 12.9

REVISION OF SALARY SCALES

On the recommendation of the University Grants Commission, it has been decided to approve the revision of the pay scales of University and college teachers. The approved revised scales are as follows:

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. 1500-60-1800-100-2000-125/2-2500

Members of the academic staff in Indian Institutes of Technology and other autonomous organisations maintained by the Central Government, who are presently in receipt of pay on the University Grants Commission Scales, will also be entitled to the revised pay scales now approved.

The question of providing selection grade, if any, in the colleges of Delhi University, and of the revision of the pay scales of librarians and physical instructors will be considered by Government on receipt of the recommendations of the University Grants Commission, which are awaited.

In the case of the State Universities and colleges, Government of India will give special assistance to the State Governments for adopting the revised scales with effect from January 1, 1973, the date from which the recommendations of the Third Central Pay Commission are being implemented. The assistance from the Centre will be given to the State Governments for a period of five years in respect of 80% of the additional cost for posts in existence on January 1, 1973, on the State Government's assurance that, at the end of the five-year period, they will take over the entire responsibility for maintaining the revised scales without further Central assistance.





Item 10 - To consider the report of the Visiting Committee on the Scheme of establishment of Government Polytechnic for Women, Jullundur City -

The erstwhile State of Punjab had one Women Polytechnic namely - Government Polytechnic for Women, Chandigarh. With the re-organisation of the State into Punjab, Haryana, Himachal Pradesh and Union Territory Chandigarh, the administration of the Government Polytechnic for Women, Chandigarh came within the jurisdiction of Union Territory, Chandigarh. Consequently, the Punjab Government has been contemplating to start a Women Polytechnic for providing training courses for girls. The need for starting of such a Polytechnic for Women became all the more necessary in view of the rapid expansion in economic activity in the Punjab State and with the changing economic conditions of the Society therein. The Working Group, therefore, agreed to a provision of Rs.10.00 lakhs in the Fourth Five Year Plan of the State of Punjab for the establishment of such a Polytechnic. As a sequel to this recommendation, of the Working Group, the Punjab State Government established a Women Polytechnic at Jullundur City. This institution started functioning with effect from 1st August, 1970.

To begin with only three courses mentioned below with an annual intake of 30 students each were introduced from the year 1970-71 and 1971-72 :-

<u>Sr. No.</u>	<u>Courses of Study</u>	<u>Duration</u>	<u>Intake</u>	<u>Year in which introduced</u>
1.	Commercial Practice and Stenography	2 years	30	1970-71
2.	Library Science	2 years	30	1970-71
3.	Pharmacy	2 years	30	1971-72

The Punjab Government provided basic minimum physical and instructional facilities for the conductance of

these courses.

The institution was first inspected by the Evaluation and Accreditation Committee of the Punjab State Board of Technical Education on 7.7.1973. The report of this Committee high-lighted certain deficiencies. Consequently, the administrative department of this institution - Directorate of Industries and Industrial Training, Punjab - requested the Northern Regional Committee to appoint a Visiting Committee for assessing the requirements of this institution for the proper conduct of the above courses.

The Chairman, Northern Regional Committee constituted the following Visiting Committee to visit the Government Polytechnic for Women, Jullundur City and to give their recommendations with regard to the physical/instructional requirements of this institution by way of buildings, equipment, furniture, library, staff, students' amenities, hostel facilities, etc. :-

1. Dr. K.N. Gaiind,  
Head of the Deptt. of Pharmaceutical Sciences,  
Punjab University,  
Chandigarh.
2. Dr. J.S. Sharma,  
Head of the Deptt. of Library Science,  
Punjab University Library,  
Chandigarh.
3. Miss. M.Y. Sule,  
Principal,  
Women's Polytechnic,  
Maharani Bagh,  
New Delhi.
4. Shri Narendra Singh,  
Asstt. Educational Adviser (Technical),  
Member-Secretary,  
Northern Regional Committee.

The above Visiting Committee visited the Government Polytechnic for Women, Jullundur City on the 18th August, 1975 and assessed the following facilities required by the institution

for its establishment, and for the proper conduct of the courses :-

NON-RECURRING

A.	Buildings(Plinth area 25000 sq.ft.)	Rs. 10,00,000
B.	Equipme nt	3,79,500
C.	Furniture	50,000
D.	Library	1,00,000
E.	Students' Amenities	2,16,100
F.	Hostel	8,03,100

TOTAL : Rs.25,48,700

RECURRING

A.	Salary of Staff (Teaching, Technical Supporting and Non-Teaching Staff)	Rs. 4,03,600
B.	Maintenance Expenditure	63,000
C.	Stipend & Scholarships	36,000
D.	Library Recurring	15,000

TOTAL : Rs.5,17,600

A copy of the report of the Visiting Committee is placed at Annexure for consideration of the Committee.

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ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION  
NORTHERN REGIONAL COMMITTEE

Report of the Visiting Committee on the Scheme  
of establishment of Government Polytechnic for  
Women, Jullundur City -

I. INTRODUCTION

With the rapid expansion in economic activity in the Punjab State, and with the changing economic conditions of the Society therein, a large number of girls are increasingly coming forward for suitable jobs or work in the home, factory, offices, farms etc. It has, therefore become necessary to provide for new fields of gainful employment for women and arrange training courses for them. The Punjab Government, therefore, had been contemplating to start a Women Polytechnic for providing training courses for girls. With the re-organisation of the erstwhile State of Punjab into Punjab, Haryana, Himachal Pradesh and Union Territory Chandigarh and with the going over of the Government Polytechnic for Women, Chandigarh to the Union Territory of Chandigarh, the need for establishment of a Women Polytechnic in the Punjab State became all the more necessary. Consequently, on the request of the Punjab Government a provision of Rs.10.00 lakhs was agreed to by the Working Group in the Fourth Five Year Plan of the State of Punjab for the establishment of such a Polytechnic. As a sequel of this recommendation, the Government Polytechnic for Women was established at Jullundur City and started functioning with effect from 1st August, 1970.

To begin with only three courses mentioned below with an annual intake of 30 students each have been introduced

from the year 1970-71 and 1971-72 :-

Sr. No.	Courses of Study	Duration	Intake	Year in which introduced
1.	Commercial Practice and Stenography	2 Years	30	1970-71
2.	Library Science	2 Years	30	1970-71
3.	Pharmacy	2 Years	30	1971-72

This institution was first inspected by the Evaluation and Accreditation Committee of the Punjab State Board of Technical Education on 7.7.1973. As a result of this inspection, certain deficiencies came to the notice of the State Board. Consequently, the administrative department of this institution - Directorate of Industries and Industrial Training, Punjab requested the Northern Regional Committee to appoint a Visiting Committee for assessing the requirements of this institution for the proper conduct of the above courses.

## II. APPOINTMENT OF THE VISITING COMMITTEE

The Chairman, Northern Regional Committee constituted the following Visiting Committee to visit the Government Polytechnic for Women, Jullundur City and give their recommendations with regard to the physical/instructional requirements of this institution by way of buildings, equipment, furniture, library, staff, students' amenities, hostel facilities etc. :-

1. Dr. K.N. Gaird,  
Head of the Department of  
Pharmaceutical Sciences,  
Punjab University,  
Chandigarh.

2. Dr. J.S. Sharma,  
Head of the Deptt. of Library Science,  
Punjab University Library,  
Chandigarh.
3. Miss. M.Y. Sule,  
Principal,  
Women's Polytechnic,  
Maharani Bagh,  
New Delhi.
4. Shri Narendra Singh,  
Asstt. Educational Adviser (Technical)  
Member-Secretary,  
Northern Regional Committee.

### III. THE VISIT

The above Visiting Committee visited the Government Polytechnic for Women, Jullundur City on Monday, the 18th August, 1975. All the members of the Visiting Committee were present. The Visiting Committee visited the institute which is presently functioning in the buildings of the Wood Working Institute, Jullundur. The Visiting Committee was received by Shri R.S. Sharma, Principal of the Polytechnic and was shown round the Polytechnic. Shri Kirpal Singh. Sethi, Assistant Controller of Examinations, a representative of the Directorate of Industries and Industrial Training, Punjab was also present as a special invitee to help the Committee in its deliberations.

### IV. PRESENT COURSES

The present intake, duration and admission qualifications in respect of each course being conducted at this Polytechnic are as under:-

Sr. No.	Name of the Course	Intake	Duration	Minimum admission Qualifications
1.	Diploma in Commercial Practice & Stenography	30	2Yrs.	Matric or equivalent examination with Mathematics or House Hold and Arithmetic with more than 44% marks in aggregate i.e. 44% plus any fraction.



2. Diploma in Library Science	30	2 Years	Matric or equivalent examination with more than 44% marks in aggregate i.e. 44% plus any fraction.
3. Diploma in Pharmacy and Dressers Course	30	2 Years	Matric/High School examination or a Secondary School leaving Certificate with more than 44% marks in aggregate (i.e. 44% plus any fraction) with Mathematics and Science with any two of the following :- (i) Chemistry (ii) Physics (iii) Biology: (iv) Physiology and Hygiene:

#### V. GENERAL OBSERVATIONS

1) The Government Polytechnic for Women, Jullundur was established in the year 1970 (August). All the three courses mentioned above, right from their inception, were run and developed on the lines of Government Polytechnic for Women, Chandigarh. The syllabi and teaching plan have been adopted by the institution as prescribed by the State Board of Technical Education, Punjab. Since its first session, almost all the examinations and the results thereto have been conducted, compiled and formulated by the Board, but the formal results upto the session of 1972-73 were declared by the Directorate of Industries and Industrial Training, Punjab due to the non-affiliation of the Institute with the Board. Since, 1973, this Institute has been affiliated with the State Board of Technical Education, Punjab on annual basis.

- 2) Presently the institution is housed in the Wood Working Institute, Jullundur. Although some additions to the covered area for the use of the Government Polytechnic for Women, Jullundur City have been made to the existing space of the Wood Working Institute yet the minimum requirements for the conduct of such type of courses are yet to be met with in the true sense of the term. The Directorate of Industries and Industrial Training, Punjab, i.e. the Administrative Department of this institution, has two alternatives before it, namely (i) to make available the whole of the Wood Working Institute Building and Campus with a provision for rennovating it or (ii) to allot budget for the construction of new building at Kapurthala Road for which a piece of land of 10 acres area has already been purchased by the Government from the Improvement Trust, Jullundur. The Committee considered these alternatives and felt that the institution must be shifted to its new site at Kapurthala Road at the earliest so that the buildings etc. may be planned in accordance with the requirements of the present courses. The piecemeal additions here and there in the existing building of Wood Working Institute will not serve the purpose.
- 3) The State Government of Punjab has provided the funds for the running of this institution right from its inception. Some basic minimum physical/instructional facilities by way of building, equipment, furniture, library, staff, etc. have been created at the institution, still some additions by way of provision of additional teaching

staff, building, equipment, etc. is required for the proper conduct of the courses. The Visiting Committee, therefore, decided to assess the overall requirements of the institution for the proper conduct of the above courses.

#### VI. RECOMMENDATIONS OF THE VISITING COMMITTEE

The Secretary had circulated a working paper with regard to the salient features of the establishment of a Government Polytechnic for Women at Jullundur City. This working paper included rough cost estimates along with the details of the various physical/instructional facilities needed by the institution for the proper conduct of the courses.

The requirements of the institution were discussed by the members of the Visiting Committee with the Principal of the Polytechnic and the representative of the Directorate of Industries and Industrial Training, Punjab State. Arising out these deliberations, the Visiting Committee recommended the following non-recurring and recurring facilities at the estimated cost indicated against each:-

#### NON-RECURRING

##### A. Buildings

##### a) Administrative Block including Class Rooms etc.

		<u>Floor Area</u>
i)	Principal's Room	300 sq.ft.
ii)	Office	1200 "
iii)	Staff Rooms for Heads of Departments (3x200)	600 "
iv)	Staff Room & Common Room	1500 sq.ft.
v)	Library & Reading Room	1500 "
vi)	Stores	1500 "

vii)	Confidential Room	150 sq.ft.
viii)	Model Room and Museum	700 "
ix)	Students' Common Room	1000 "
x)	Visitors Room	600 "
xi)	Class Rooms (4x450)	1800 "
	Total :	<hr/> 10850 sq.ft.

b) Laboratories

i) Commercial Practice Course & Stenography

Type-writing Room 1000 sq.ft.

ii) Library Science Course

Workshop for practical work, 1000 sq.ft \*  
Cataloguing, Referencing  
including Technical Section

( \* Note: This place may be added  
in the general Library Room)

iii) Pharmacy Course

- 1) Pharmacology,  
Pharmacognology,  
Biology, Anatomy and  
Physiology Labs. 5000 sq.ft.
- 2) Dispensing Lab.
- 3) General Science Lab.

Total : 

---

7000 sq.ft.

Grand Total: 17850 sq.ft.  
(Floor Area)

Add 40% for conversion into Plinth area 7140 sq.ft.

Total : (Plinth Area) 

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24990 sq.ft.

Say : 

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25000 sq.ft.

Cost of construction @ Rs.40/- per sq.ft. ( 25000x40) Rs.10,00,000

NOTE:- The building should be constructed in such a way so as to keep in view the present working requirements of the institution, as also long term expansion and lay out of the entire institution, or, in other words, lay out of the institution should be such that it should be possible to construct additional areas in future as and when further courses are added to the Polytechnic without imparing the architectural beauty of the institution.

**B. EQUIPMENT**

a) Commercial Practice and Stenography	Rs. 1,00,000
b) Library Science	Rs. 75,000
c) Pharmacy	Rs. 1,50,000
d) Audio Visual Aids	Rs. 10,000
e) Office Equipment	Rs. 10,000
Total :	<hr/> Rs. 3,45,000

Add 10% for freight, insurance, taxes, installation etc. Rs. 34,500

Total Equipment : Rs. 3,79,500

**C. FURNITURE :** A lump sum provision for class rooms, laboratories etc. Rs. 50,000

**D. LIBRARY :** A lump sum provision is made for the library of the Instt. This will also include the furniture for the library. Rs. 1,00,000

Total : 

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Rs. 15,29,500

**E. STUDENTS' AMENITIES**

<u>Buildings</u>	<u>Floor Area</u>	<u>Plinth Area</u>	<u>Rate</u>	<u>Cost</u>
	Sq.ft.	sq.ft.	Rs. s.ft.	Rs.
i) Canteen & Tuckshop	1000	1200	35/-	42,000
ii) Dispensary	350	490	40/-	19,600
iii) Cycle Shed for 90 cycles (50% of the student body)			50/- (per cycle)	4,500
iv) N.C.C. Block	2500	3500	40/-	1,40,000
v) Water Cooler	-	-	-	10,000

Total provision for Students' Amenities : Rs. 2,16,100

**F. HOSTEL :** The institution is at present housed in the building of Wood Working Institute, Jullundur located at Ladowali Road. At the moment, no facilities are available in the institution under this head. The Principal of the

Total: (G/o) 

---

Rs. 17,45,600

Total: b/f Rs. 17,45,600

institution pointed out that this institution is expected not only to cater educational needs of girls from urban areas but in future perhaps emphasis may have to be given to the girls of the rural and sparsely populated areas. The new site at Kapurthala Road is located outside the city. When the polytechnic is shifted to the new site, the provision of hostel facilities will become absolutely essential for the institution. In the context of this position, the Committee recommended that the hostel facilities for 50% of the student body may be made in the scheme. These facilities may, however, be created by the institution at a later stage after assessing the actual needs. Accordingly the hostel facilities for 90 students have been assessed as under:-

- a) Number of student body accommodated: 90
- b) Nature of accommodation : Tripple seated rooms
- c) Plinth area of the main Hostel building (90x180) : 16,200 sq.ft.
- d) Estimated cost of construction Rs.6,48,000 @ Rs.40/-per sq.ft.(16x200x40)
- e) Plinth area for one Warden's Quarter : 1,200 sq.ft.
- f) Estimated cost of construction of Warden's Quarter( 1200x40 ) Rs.48,000
- g) Plinth area for 8 servant Quarters(8x270 sq.ft.): 2,160 sq.ft.
- h) Estimated cost of construction of 8 servant Quarters(Rs.35x2160) Rs.75,600
- i) Estimated cost of furniture and Mess Equipment @ Rs.350/-\* per student (Rs.350x90) Rs.31,500

\* NOTE:- This includes Rs.250/-for furniture of living room and Rs.100/- furniture for Dining Hall & Common Room.

Total Cost of Hostel : Rs. 8,03,100

TOTAL: NON-RECURRING : Rs. 25,48,700

**RECURRING**

**A. STAFF**

Sr. No.	Name of the post	No. of post	Scale of pay Rs.	Average annual expenditure Rs.
1.	Principal <u>Commercial Practise &amp; Stenography</u>	1	1300-1600	17,400
1.	Head of the Deptt./ Senior Lecturer	1	750-1300	12,300
2.	Lecturers <u>Library Science</u>	3	800-1100	27,000
1.	Head of the Deptt./ Senior Lecturer	1	750-1300	12,300
2.	Lecturers	3	800-1100	27,000
<b><u>PHARMACY</u></b>				
1.	Head of the Deptt./ Senior Lecturer	1	750-1300	12,300
2.	Lecturers	3	800-1100	27,000
3.	Lecturer for Science	1	800-1100	9,000
<b><u>COMMON</u></b>				
1.	Lecturer for English/ Humanities common to all courses.	1	800-1100	9,000
Pay of teaching staff :				Rs. 1,53,300
Add 50% for Provident Fund, H.R.A C.D.A., D.A., etc.				76,650
<b>Salary of Teaching Staff :</b>				<b>2,29,950</b>
Add 30% towards Technical Supporting Staff like Technicians, Demonstrators, Tech. Asstts. Draftsmen etc.				68,985
<b>Salary of Teaching &amp; Tech. Supp. Staff :</b>				<b>2,98,935</b>
Add 35% for non-teaching staff including Stenographer, Clerical Staff, Post IV, Mali, Chowkidar, Lab. Attendant, Library staff. etc.				1,04,627
<b>Total Salary of Teaching, Tech. Supporting &amp; Non-Teaching Staff :</b>				<b>4,03,562</b>
SAY :				4,03,600
Say G/o				4,03,600

Say b/f Rs. 4,03,600

B. Maintenance Expenditure @ Rs. 350/- per student per annum (Rs. 350 x 180)	63,000
C. Stipend and Scholarships @ Rs. 50/- per month for 1/3 of the student body. (Rs. 50 x 60 x 12) *	36,000
D. Library Recurring	15,000
	<hr/>
Total Recurring :	Rs. 5,17,600
	<hr/>

NOTE:-1. \* This is in accordance with the norms prevalent in the other technical institutions of the Punjab State, and this provision is besides the Scholarships already received by the Instt. from the Harjan Welfare Deptt. and other sources.

2. For teaching certain topics included in the curriculum of Pharmacy Course, the institution has to invite M.B., B.S. Doctors to deliver lectures on part-time basis. The expenditure on this account may be met out of the provision earmarked for Technical Supporting Staff/Non teaching staff.

## VII. REMARKS

1) In respect of the Pharmacy Course, the recognition have to be obtained by the Institution from the Pharmaceutical Council of India. The Committee had the benefit of advice of Dr. K.N. Gaird in planning the estimates. Dr. K.N. Gaird has already inspected the institution on behalf of the Pharmacy Council of India. The estimates in respect of the Pharmacy Course have been made keeping in view the norms laid down by the pharmacy Council of India.

2) As is the normal practice, the State Government of Punjab must provide developed land measuring not less than 10 to 12 acres and must also arrange for water supply, power supply, Compound Wall, development of land, approach road, drainage system within the campus etc.



3) Scales of pay : The scales of pay of the staff have been taken on the basis of the existing scales of pay in the Government Polytechnics of the Punjab State.

4) The rates of construction have been taken as prevalent in and around Jullundur City.

VIII. SUMMARY OF RECOMMENDATIONS

NON-RECURRING

	Rs.
A. Buildings (Plinth area 25000 sq.ft)	10,00,000
B. Equipment	3,79,500
C. Furniture	50,000
D. Library	1,00,000
E. Students' Amenities	2,16,100
F. Hostel	8,03,100
<hr/>	
TOTAL: NON-RECURRING	Rs. 25,48,700

RECURRING

	Rs.
A. Salary of Staff (Teaching, Technical Supporting & Non-Teaching Staff)	4,03,600
B. Maintenance Expenditure	63,000
C. Stipend & Scholarships	36,000
D. Library Recurring	15,000
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TOTAL: RECURRING	Rs. 5,17,600

IX. A C K N O W L E D G E M E N T

The Committee is thankful to Shri R.S. Sharma, Principal, Government Polytechnic for Women, Jullundur City and Shri Kirpal Singh Sethi, Assistant Controller of Examinations

a representative of the Directorate of Industries and Industrial Training, Punjab for all the courtesy and help extended to the members during the visit to the Polytechnic and in its deliberations.

Sd/-  
(Dr. K.N. GAIND)  
MEMBER

Sd/-  
(DR. J.S. SHARMA )  
MEMBER

Sd/-  
(Miss. M.Y. SULE)  
MEMBER

Sd/-  
(NARENDRA SINGH)  
MEMBER-SECRETARY

jjk/19975/\*

Item 11 - To consider the question of fixing the optimum size of intake of the diploma institutions -

The 41st meeting of the Northern Regional Committee held on 15.1.1975 while considering the report of the Visiting Committee on the introduction of three year diploma courses in Construction Technology, Automobile Engineering, Production Technology, Instrumentation and Control, Public Health Engineering, Plastic Technology, Tool Engineering and 2-year diploma course in Commercial Practice at Allahabad Polytechnic, Allahabad noted that in a number of polytechnics a large number of diversified courses have been introduced recently by the State Governments under the Scheme of Diversification of Diploma Courses. In most of the cases, the intake for such diversified courses is in addition to intake already approved for the conventional courses. This is contrary to the recommendations made by the Committee on restoration of admissions in Technical Institutions (Item No.4). A stage has now reached when a deeper study, as to what should be the optimum size of intake for the polytechnic, has to be made by an Expert Committee so as to avoid the deterioration in the quality of technical education and other disciplinary problems.

The matter is placed before the Committee for its consideration.

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Item 12 - To receive a note for the provision of necessary funds for Sandwich Programme in the Scheme of Chemical Operators and Supervisors Course approved by the Northern Regional Committee at its 41st meeting held on 15th January, 1975 for Government Polytechnic, Kanpur -

The Northern Regional Committee at its 41st meeting held on 15th January, 1975 considered the report of the Visiting Committee and recommended additional physical/instructional facilities on the introduction of diploma courses in Electronics, Chemical Operators & Supervisors Course and Post-Diploma Course in Instrumentation Technology at Government Polytechnic, Kanpur. The following additional recurring expenditure was recommended by the ~~Visiting~~ Committee on the introduction of new courses :-

Salary of Staff	-	Rs. 3,13,500
Maintenance Expenditure	-	Rs. 63,000
Library Recurring	-	Rs. 6,000
TOTAL :		Rs. 3,82,500

The recommendations of the Committee were forwarded to the All-India Council for Technical Education for its consideration. The Council has pointed out that in the report of the Visiting Committee no provision has been made for meeting the expenditure for running the Chemical Operators & Supervisors Course on Sandwich pattern. The diploma course in Chemical Operators and Supervisors is to be run on Sandwich pattern in collaboration with the industry. The duration of this course is of 4 years which include one year practical training in industry in different spells. The training in industry is to be arranged in suitable spells sandwiched between the institutional training.

According to the provision made in the Scheme of Sandwich Courses, a stipend of Rs.150/-p.m. is paid to each

sandwich diploma course student for one year training in industry. This amount was utilised by the institutions by giving the stipend of Rs.100/-p.m. to the sandwich diploma course student for the actual period of practical training in industry and the rest Rs.50/-p.m. was utilised by the institutions concerned for meeting the expenditure on the payment of the additional staff wherever necessary and for other items of expenditure like T.A./D.A., consumable material for project work in industry etc. The expenditure on this account was met from the funds provided by the Government of India for the Practical Training Stipends Scheme.

The amended Apprenticeship Act 1973 has come into force w.e.f: 1st December, 1974 and rules framed thereunder are effective from 27th May, 1975. According to the rules of the Apprenticeship Act (2nd Amendment) 1975, the actual stipend amount of Rs.100/- is to be paid to the sandwich course students from the diploma institutions out of which 50% will be borne by the industry and the balance 50% is to be borne from the funds provided for the Apprenticeship Training Programme.

Thus in the report of the Visiting Committee approved by the Northern Regional Committee at its last meeting for the Chemical Operators & Supervisors Course at Government Polytechnic, Kanpur, provision is to be made for the cushion money for the Institute @ Rs.50/-p.m. for each sandwich course student for one year i.e. during which the student will go for industrial training.

The intake for Chemical Operators & Supervisors Course is 30 per year. It is proposed that a provision of Rs.18,000/- (Rs.50x30x12) per annum may be made in the recurring

expenditure of the institution for meeting the expenditure of the type mentioned in para 3 above on training of students admitted to Chemical Operators & Supervisors Course.

The matter is placed before the Committee for its consideration.

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- Item 13 - To consider the request from the State Government of Uttar Pradesh for appointment of a Visiting Committee to assess the teaching staff requirements of Madan Mohan Malaviya Engg. College, Gorakhpur-

The Government of India on the recommendations of the Northern Regional Committee made at its 17th meeting held on 29.12.1961 approved the scheme of establishment of Madan Mohan Malaviya Engineering College, Gorakhpur. Subsequently, the Northern Regional Committee at its 26th meeting held on 2nd August, 1965 approved the expansion scheme of Madan Mohan Malaviya Engineering College, Gorakhpur for increase in intake from 120 to 250. However, due to unemployment of engineers, the expansion programme for increase in intake from 120 to 250 was not implemented by the institution.

The scheme of establishment of Madan Mohan Malaviya Engineering College, Gorakhpur for an intake of 120 (Civil 30, Mechanical & Electrical 45 each) interalia provides for the following teaching posts :-

Principal	-	1
Professors (Civil 1, Mech. 1, Elect. 1)	-	3
Asstt. Professors (Civil 3, Elect. 3, Mech. 4, Science 1)	-	11
Lecturers (Civil 4, Elect. 5, Mech. 5, Science 5)	-	19
Demonstrators Instructors (Civil 5, Mech. 5, Elect. 4, Science 4)	-	18
<u>Workshop Staff</u>		
Workshop Superintendent	-	1
Senior Workshop Ins. Instructors	-	5
Workshop Instructors	-	11

In 1973 the institution with the approval of Central/State Government started an Under-graduate course in Electronics. Consequently, the Government of India on the recommendations of the Northern Regional Committee made at its 39th meeting held on 17th October, 1973 approved the following additional teaching posts for Electronics course:-

Professor	-	1
Assistant Professors	-	3
Lecturers	-	5

Due to the change in syllabus etc. the institution is now experiencing difficulties to conduct the courses on the proper lines with the above complement of staff. The institution has therefore made request for revision of staff structure. The State Government of Uttar Pradesh has accordingly requested the Northern Regional Committee to appoint a Visiting Committee to re-assess the requirements of teaching staff for the above institution.

In this connection, it will be worth-while to mention that the Northern Regional Committee at its 38th meeting held on 3rd April, 1973 while considering the recommendations of the Madan Committee on staff structure suggested that the various State Governments and the authorities of the institutions may work out the staff structure with regard to the under-graduate courses and include the same in their respective 5th Five Year Plan proposals. No follow up action could be taken up on this issue as the question of providing necessary funds for the purpose is still under consideration of the Government of India. The question whether funds for the purpose shall be



provided under Central Sector or Centrally sponsored Sector or State Sector is yet to be decided. The Ministry has desired that if the State Governments could provide funds for the purpose they may implement the revised staff structure in the institutions located in their States. Therefore, the State Government will have to provide necessary funds for the purpose, in case the Visiting Committee recommends additional posts for this institution.

The matter is placed before the Committee for its consideration.

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Item 14 - To receive a report on the Programme of Apprenticeship Training in the Northern Region -

The Board of Apprenticeship Training (Northern Region) set up by the Government of India in consultation with the Northern Regional Committee during the year 1969 continued to administer the Apprenticeship Training Programme during the year 1974-75 also. The Board procured 4993 training places (2155 for degree holders and 2838 for diploma holders) for the year 1974-75. In response to their circular, 5309 applications (1883 from degree and 3426 from diploma holders) were received for the seats procured by the Board. Against these seats 1841 trainees (519 degree and 1325 diploma holders) joined the scheme before 31.3.1975. The stipend of Rs.250/- and Rs.150/- p.m. are being paid to Graduate Engineers and diploma holders respectively under this Programme.

The members are aware that the Apprentices (Amendment) Act 1973 was passed by the Parliament and it has received the assent of the President of India on 7th June, 1973. The Government of India has fixed 1st December, 1974 as the date on which the above Act has come into force. Notification issued by the Government of India in this behalf is reproduced below :-

"GSR-1293: In exercise of the powers conferred by Sub-Section (2) of Section 1 of the Apprentices (Amendment) Act, 1973 (27 of 1973), the Central Government hereby appoints the 1st December, 1974 as the date on which the said Act shall come into force."

The actual implementation of the various provisions of the Act have also been covered under the rules framed under

the Act. With the amendment of Apprenticeship Act, the erstwhile Programme of Apprenticeship Training has been discontinued. Under the Apprentices (Amendment) Act the Director of Training has been designated as Regional Central Apprenticeship Adviser for the purpose of implementation of Act. Under the Apprentices (Amendment) Act 1973, the minimum rates of stipend prescribed are as under :-

Graduates	- Rs.250/- per month
Technicians(Diploma-holders)	- Rs.150/- per month
<u>Sandwich Course Students</u>	
Graduates	- Rs.150/- per month
<u>Diploma-holders</u>	- Rs.100/- per month

It is also laid down under Section 9(8)(c) that the cost of stipend will be shared equally between the Central Government and the employer upto to such limit as will be laid down by the Central Government and beyond that limit by the employer alone. The limit prescribed for sharing the cost of stipend amount is given above.

The Board of Apprenticeship Training (Northern Region) has contacted the training establishments in the Northern Region for procurement of training places. The selection against these places have been left with the training establishments. The establishment will inform the Board after recruiting suitable number of trainees and will claim stipend by reimbursement on quarterly basis. <sup>521</sup> Degree holders and 970 diploma-holders as on 31.10.1975 have already joined the training establishments located in the Northern Region under the provision of the Amendment Act. Every efforts is being made to increase the utilisation of requisitioned seats.

The matter is reported to the Committee for information.

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Item 15 - To receive a note on progress of Quality Improvement Programme in the Northern Region -

One of the main inadequacies of our engineering education system is that it lacks adequate practical contents. This is primarily due to the fact that large number of our serving teachers do not have any worthwhile industrial experience. To correct this deficiency the All India Council for Technical Education which looks after the development of technical education in the country has strongly recommended that the teachers in technical institutions should spend a period not exceeding 3 months for training in industry so that they could gain practical knowledge which would assist them in imparting instructions to the students in more effective way. The Government of India, Ministry of Education & Social Welfare has taken a number of measures through their schemes of Quality Improvement Programme for raising the standard of technical teachers. Under one of the Schemes of the Quality Improvement Programme, the teachers are sent for training in Industries for a period ranging from one to three months. A stipend of Rs.300/- per month is being paid to a teacher trainee for the period of training in addition to his pay and allowances. His actual train fare from the place of his institution to the place of training is also borne by the Central Government. Most of the teachers prefer to go for industrial training during the summer vacations and other holidays. Provision of Rs.1,00,000/- have been made by the Government of India for this Programme for the year ending 31.3.1976. During the year 1975-76, 46 teachers as on

31.10.1975 have already undergone training under this Programme. The statement giving the number of teachers who have undergone training during the last five years is given at Annexure.

The matter is placed before the Committee for information.

STATEMENT SHOWING THE NUMBER OF TEACHERS WHO  
HAVE UNDERGONE TRAINING UNDER QUALITY IMPROVE-  
MENT PROGRAMME ( SHORT-TERM INDUSTRIAL TRAIN-  
ING FOR TEACHERS OF ENGINEERING & TECHNOLOGY)  
DURING THE LAST FIVE FINANCIAL YEARS -

<u>1. Name of the State</u>	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	<u>1974-75</u>	<u>1975-76</u>	<u>Grand Total (as on 31.10.75)</u>
DELHI	8	6	17	22	10	63
PUNJAB	2	13	8	5	-	28
HARYANA	-	-	-	-	-	-
UTTAR PRADESH	-	8	6	6	31	51
RAJASTHAN	3	18	23	8	1	53
JAMMU AND KASHMIR	-	2	-	-	-	2
HIMACHAL PRADESH	-	2	-	-	1	3
UNION TERRITORY CHANDIGARH	6	3	8	3	3	23
<b>TOTAL :</b>	<b>19</b>	<b>52</b>	<b>62</b>	<b>44</b>	<b>46</b>	<b>223</b>

Item 16 - To receive a note regarding grant of academic autonomy for technical institutions -

In the recent years there has been some criticism of the quality and standard of polytechnic diploma courses. Industry and other employing organisations are of the view that the courses lack adequate practical content and that the polytechnics are not training the correct type of technicians needed by them. In order to carry out a comprehensive study of the polytechnic education system and to suggest measures for its improvement, the All India Council for Technical Education appointed an Expert Committee under the Chairmanship of Prof. Damodaran in 1970. The Damodaran Committee submitted its report in May, 1971. The report was sent to all State Governments' Polytechnics and other educational authorities for their consideration. These recommendations were also considered by the All-India Council for Technical Education. As a result of the deliberation a concrete "Plan of Action" was evolved. One of the suggestions given in the Plan of Action related to autonomy to some selected institutions. The relevant extract from the Plan of Action is reproduced below:-

" On the advice of the Standing Evaluation & Assessment Committee each Board should identify well-established polytechnics which can be granted academic autonomy to evolve new types of technicians courses in consultation with industry, and become pace-setting instts. The academic autonomy to the polytechnics should include powers to formulate their own curriculum of courses to evolve their own teaching methods, to make assessment of the performance of the students and to conduct final examinations. The diplomas, however, should be awarded

by the State Boards to the candidates completing the courses and examinations conducted by the polytechnics. Maintenance of the standards of the courses offered and overall assessment of the institutions, however, would be the responsibility of the Standing, Evaluation and Assessment Committee of each State Board".

The Hon'ble Education Minister of the Central Government requested all the State Chief Ministers/Commissioners of Union Territories to implement the plan of action, as approved by the Council. As a follow up action, the Secretariat of the Regional Committee requested the State Governments to implement recommendations made under the plan of action and to earmark one or two well developed diploma institutions in their respective States as ~~"MODEL POLYTECHNICS"~~ <sup>for giving Autonomy</sup>. It was suggested that the State Boards of Technical Education may evolve a suitable machinery to ensure that such ~~Model~~ <sup>Autonomous</sup> Institutions maintain the proper standard of evaluation.

The most of the State Governments have not as yet taken concrete steps to implement the broad recommendations regarding grant of autonomy to selected polytechnics in their respective States. In the State of Uttar Pradesh, of course, partial autonomy have been accorded to Allahabad Polytechnic, Allahabad in conductance of examination in respect of 1st year <sup>3rd yr</sup> ~~and 2nd yr~~ students. Meanwhile, the University Grants Commission finalise a detailed scheme for granting academic autonomy to the affiliated colleges within the University system. This scheme is already available with all the State Governments and Universities. A copy of criteria, guidelines and pattern of assistance to autonomous colleges as evolved by the University Grants Commission is placed at Annexure.



The idea of autonomous colleges represent a radical departure from the existing structure of the university system in India in which undergraduate or collegiate education which caters to more than 80% of students in higher education at university level, does not enjoy any academic freedom because of the prevailing affiliation system. The Education Commission regarded the exercise of academic freedom and critical scholarship on the part of teachers as crucial to the "promotion and development of an intellectual climate in the country which is conducive to the pursuit of scholarship and excellence."

The All India Council for Technical Education at its meeting held on 17th May, 1974, while considering the programme of development to be taken up during the 5th Plan period, expressed a view that technical institutions should be encouraged to initiate innovative programmes which are relevant to industrial and economic development. To enable these institutions to do so, the Council recommended that the concept of autonomy of technical institutions, both at the degree and diploma levels, should be supported. The Council also recommended that the State Governments and Universities should be requested to make suitable provisions in the relevant Acts and Statutes for grant of such autonomy to institutions. The Ministry has desired that the question of making suitable provision for the grant of academic autonomy to selected engineering colleges and polytechnics may be considered by the State Governments in accordance with the broad pattern recommended by the University Grants Commission for granting autonomy to colleges. Since the polytechnics do not fall within the university system, it has been suggested that the State Boards of Technical Education may make a similar provision for granting autonomy to polytechnics.

The criteria laid down by the University Grants Commission for selection of the institutions for grant of autonomy would cover the following;-

- a) Academic reputation and previous performance in University examination and other academic, cultural activities.
- b) Academic attainments of the staff.
- c) The mode of selection of students and teachers viz., whether such selection is without regard to caste, or social class.
- d) Physical facilities, i.e. library, accommodation and equipment.
- e) Institutional management viz; whether it is motivated by and responsive to academic or non-academic consideration.
- f) The financial resources that the management can provide for the development of the Institution.
- g) The responsiveness of the administrative structure to the views of staff and students.
- h) Extent of freedom enjoyed by the staff for advanced scholarship, research and experimentation and involvement in educational innovation and reforms.

Autonomy may be granted initially for a period of five years and a review should be undertaken every three years. In case of evidence of deteriorating standards, it should be open to the university/Boards after careful scrutiny to revoke the autonomous status.

The matter is placed before the Committee for its information.

ANNEXURE  
Item. 42

CRITERIA, GUIDELINES AND PATTERN OF ASSISTANCE  
TO AUTONOMOUS COLLEGES

Objectives

Autonomous colleges represent a radical departure from the existing structure of the university system in India in which undergraduate or collegiate education which caters to more than 80% of students in higher education at university level, does not enjoy any academic freedom because of the prevailing affiliation system. The Education Commission regarded the exercise of academic freedom and critical scholarship on the part of teachers as crucial to the "promotion and development of an intellectual climate in the country which is conducive to the pursuit of scholarship and excellence". All attempts at reform of university education in the way of curriculum development, changes in the system of examination, promotion of research and its subsequent feed-back into the teaching process, and changes in teaching methods in keeping with changing times and the changing content of university education, have tended in the last few years to get defeated by the existing rigidity in the structure of universities, particularly because of the absence of academic autonomy of the institutions. The large majority of teachers and teaching institutions, viz., colleges have never experienced the freedom and innate responsibility to design the courses of study, to devise appropriate teaching methods and technology and to plan academic development or measures which would help to improve the quality of instruction as well as the learning process.

Distortions and Consequences of Affiliation System

The system of affiliation was designed at a time when the number of universities and colleges was small and the functions of universities was limited to conducting standardised examinations in order to qualify and grade the products for purpose of general employment, mainly in the secretarial services. Universities at that time were not teaching institutions nor was the promotion of scholarship and research considered to be one of their major functions. The situation today is vastly different. The number of students seeking higher education and the number of colleges and universities have multiplied at a phenomenal rate and the expectations of public authorities and the society at large are far more complex, demanding scholarship and training of high calibre. But the systems of affiliation and mass examination with all their backwash effects have not only distorted the learning process but have created enormous social problems in the way of corruption, terrorism and violence in the conduct of examination. They have encouraged impersonalization of teaching and administration, academic stultification and cynicism and alienation of students and teachers from the learning and teaching process. In the case of universities

the existence of these large number of colleges with unacceptably low standards of teaching and facilities has become a definite drag on processes of modernization, reform and improvement of standards. In the case of the better colleges which have both the resources and the determination to do quality teaching, the control of the university in matters of curricula and examination has curbed all initiative and imposed rigid structure of courses and examinations on even such institutions which realise the irrelevance and lack of purpose of much of the work that they are doing. Such colleges feel that the affiliation system has prevented all their efforts towards modernization and improvement. Academic autonomy has always been regarded as a functional necessity for institutions of higher education. The conspicuous absence of this academic freedom and institutional autonomy in the case of colleges in India has been the greatest disfunctional factor responsible for the gradual decline in standards.

### Relationship of Autonomous Colleges with the University

In the context of the general situation prevailing in India the conferment of degrees can be done by a University established by an Act of the legislature or an institution deemed to be a university under the U.G.C. Act. It would, therefore, be necessary for the autonomous colleges to preserve this link with the university. The college should enjoy autonomy in framing its courses of studies, devising its methods of evaluation and its principles for admission of students. This would require the constitution of its own academic bodies. The relationship with the university should be one of association and exchange. The college may draw on the university departments for expertise in framing its curricula, devising evaluation methods and conduct of examination, selection of teachers etc., but the autonomy of the college should not be solely dependent on university leadership. It must also have an academic council on lines similar to the academic council of a unitary university and must ensure involvement of faculty at all levels, senior as well as junior teachers, in the framing of the academic policies, courses of study etc. The boards of studies constituted by the autonomous colleges may have external experts including a representative of the university to which the college is affiliated. The decisions taken by the academic council of the college need not be subject to any further ratification by university academic council or other statutory bodies of the university. The functions of the academic council of an autonomous colleges could also be defined by university statutes. The university degree will continue to be conferred by the university concerned but the name of the autonomous college will be mentioned.

The freedom to design courses would necessarily extend to provision of new courses and combination of courses not provided for within the existing university curriculum. This would encourage experimentation with desirable.

educational ideas, and initiate a process for broadening the frame work of courses to make them more meaningful and relevant in the context of local and regional requirements for skilled manpower. It may be easier for an autonomous college to respond to such local requirements than for a university with large territorial jurisdiction and the need to ensure uniformity or standardise the provision of courses in institutions of varied resources and capacity, generally at the level of lowest common measure.

Autonomous status may be conferred on the college as a whole or in the case of postgraduate colleges on an individual department or faculty for postgraduate course. It is essential to involve the university as well as the State Government in the process of identification of colleges which are to be conferred such an autonomous status. The proposals for autonomous status should, therefore, as far as possible be sponsored by the university concerned. The criteria for selection should be as under:

- (a) Academic reputation and previous performance in university examination and other academic, cultural activities.
- (b) Academic attainments of the staff.
- (c) The mode of selection of students and teachers viz., whether such selection is without regard to caste, creed or social class.
- (d) **Physical** facilities, i.e., library, accommodation and equipment.
- (e) Institutional management, viz., whether it is motivated by and responsive to academic or non-academic considerations.
- (f) The financial resources that the management can provide for the development of the institution.
- (g) The responsiveness of the administrative structure to the views of staff and students.
- (h) Extent of freedom enjoyed by the staff for **advanced** scholarship, research and experimentation and involvement in educational innovation and reforms.

An autonomous college would be ordinarily expected to have plans to shed its pre-university/intermediate classes when the 10+2+3 scheme becomes operational, so as to devote its efforts primarily to the development of academic programmes at the degree and postgraduate levels.

### Procedure for Conferment of Autonomous Status

The proposals for autonomy may have to be normally sponsored by the university though the Commission may, on the basis of identifications made by expert bodies from time to time, suggest to the university the desirability of such colleges to be considered. All proposals received from the universities would be examined by the U.G.C. and its decision communicated to the universities. It would also be desirable to provide in the Statutes of the university relating to the autonomous colleges that conferment of autonomous status will be subject to the concurrence of the U.G.C. In order to ensure concurrence of the State Government, the State Government may be associated, wherever required, in this connection. In the case of Government colleges, it would be necessary to obtain an assurance from the State Government that the competent staff will not be transferred from the institutions after the conferment of autonomous status and an advisory board constituted on lines similar to that in other autonomous colleges.

The functions and powers of the Governing Body Management Committee should be clearly defined so as to ensure that decisions taken by the academic council of the autonomous colleges are accepted for implementation by the college. However, in case of any dispute in such matters, the Vice-Chancellor of the University may be requested to take decision keeping in view the need for ensuring academic freedom in all such matters.

The privilege of autonomy may not be conferred once for all but will have to be continually earned and deserved. The status may be granted initially for a period of five years but a review should be undertaken after three years by the university and U.G.C. in collaboration. In case of evidence of deteriorating standards, it should be open to the university after careful scrutiny to revoke the autonomous status.

### Pattern of Assistance

Conferment of autonomous status on a college will not be itself entitle the college to any extra financial privileges; nor does autonomy mean an transfer of financial commitments to U.G.C. from the Management or the State Governments. Any extra assistance arising out of the autonomy would be only marginal and related to the special academic programmes developed by such colleges. This extra assistance would become available from the U.G.C. on a cent per cent basis for a period of five years. The question of continuation of such assistance beyond a five-year period either as developmental assistance or as maintenance assistance would be reviewed, taking all relevant aspects into consideration. These colleges would also continue to be eligible for assistance from the U.G.C. in respect of all development programmes applicable to other colleges.

Item 17 - To receive a note regarding Model Bill for establishment of State Boards of Technical Education as Statutory Bodies

The All India Council for Technical Education at its 21st meeting held on 22nd April, 1972 decided that for coordinated development of Polytechnic Education and improvement of the quality and standard of diploma courses, a Board of Technical Education as a Statutory Body should be set up in each State and the Central Government should prepare a Model Bill for the guidance of the State Governments/Union Territories.

In consonance with the above recommendation of the Council, the Ministry of Education & Social Welfare has prepared a Model Bill in consultation with the Ministry of Law. A copy of the Model Bill is placed at Annexure.

The Model Bill inter alia provides for the composition of the Board in the following manner :-

- a) A Chairman to be nominated by the State Govt.;
- b) A Vice-Chairman to be appointed by the State Govt.;
- c) One member elected by the members of each House of the Legislature of the State from amongst themselves/one member elected by the members of the Legislative Assembly of the State from amongst themselves;
- d) the Vice-Chancellors of not more than five Universities, established by law in the State, to be nominated by the State Government, ex-officio;
- e) the Director of Technical Education of the State, ex-officio;
- f) the Director incharge of School Education in the State;

- g) three persons to be nominated by the State Government from amongst technical experts connected with any industry;
- h) not more than nine persons to be nominated by the State Government from amongst the teachers, Heads of Departments and Principals of recognised Polytechnics in the State, out of whom not more than three persons shall be from each category and not more than one shall be from the same institution;
- i) a District Vocational Education Officer to be nominated by the State Government,
- j) an officer of the Central Government to be nominated by that Government;
- k) a representative of the All-India Council for Technical Education nominated by that Council;
- l) the Chairman of the local centre of the Institution of Engineers located at \* \_\_\_\_\_;  
(\*Name of the Centre in the State to be mentioned)
- m) the Principal of the Technical Teachers Training Institute of the region, ex-officio;
- n) a representative of the Indian Society for Technical Education;
- o) where any technical institution in any Union Territory is a recognised polytechnic under this Act, one person to be nominated by the Government of the Union Territory or by the Central Government, as the case may be; and
- p) a nominee of the body dealing with Vocational Education in the State.



The Board shall exercise its powers through the following committees/authorities :-

- a) the General Body of the Board consisting of the Chairman, Vice-Chairman and all other members of the Board;
- b) an Executive Committee consisting of such number of members selected in such manner as the Board may, subject to rules made under this Act, determine;
- c) an Academic Council consisting of such number of members selected in such manner as the Board may, subject to rules made under this Act, determine;
- d) a Standing Committee consisting of such number of members selected in such manner as the Board may, subject to rules made under this Act, determine; and
- e) such other committees as may be prescribed consisting of such number of members selected in such manner as the Board may, subject to rules made under this Act, determine.

The powers and duties of the Board as indicated in the Model Bill are as under :-

- a) to recognise or affiliate any polytechnic whether situated within or outside the State;

Provided that, where any polytechnic situated outside the State is recognised or affiliated, an intimation of such recognition shall forthwith be given by the Board to the Government of the State in which such recognised or affiliated polytechnic is situated;

- b) to specify the nature of study and instructions and instructional facilities to be provided in the recognised polytechnic and the examinations to be conducted by them;
- c) to specify the educational and other qualifications of persons to be appointed on the staff of recognised polytechnics;
- d) to specify the educational and other qualifications for admission of students to recognised polytechnics and the terms and conditions upon which, and manner in which, such students shall be admitted to such polytechnics;
- e) to specify the equipment to be provided in general in the recognised polytechnics and in special in any such polytechnic having regard to the courses of education provided in that polytechnic;
- f) to conduct examinations for the promotions of students belonging to recognised polytechnics from lower to higher classes;
- g) to provide for the conditions subject to which students shall be admitted to examinations conducted by it;
- h) to provide for the publication of the results of the examinations and ~~for~~ the grant of certificates and diplomas to students who have satisfactorily completed the course of study in any recognised polytechnic and passed the examination conducted for the purpose;
- i) to advise the State Government on all matters relating to technical education and training in the State at polytechnic level;

- j) to co-ordinate and maintain standards of technical education at polytechnic level and to effect reorientation of such education on the prescribed lines so as to serve the needs of commerce and industry and to promote cooperation amongst recognised polytechnics and industrial and commercial organisations;
- k) to institute and award fellowships (including travelling fellowships), scholarships, studentships and to award prizes and distinction certificate;
- l) to cooperate with the All-India Council for Technical Education and its regional committees and boards of studies and other All-India organisations and authorities for the purpose of effective functioning of the Board to effect uniformity in standards as far as possible in recognised polytechnics and to increase the potential for the employment of those successfully completing the course in any such polytechnic;
- m) to inspect any recognised polytechnic or any other institution seeking recognition;
- n) to exercise disciplinary jurisdiction over the students with regard to any matter pertaining to the conduct of examination or the award of certificates or diplomas;
- o) to create technical, professional, administrative, ministerial and other posts required for the performance of its duties and responsibilities and to appoint persons in such posts;

- p) with the prior approval of the State Government and on the security of its property, to borrow money for carrying out its duties imposed by or under this Act;
- q) to delegate by notification such of its powers and subject to such conditions as it may think fit, to any recognised polytechnic;
- r) to refer any question arising in the course of exercise of its powers or the discharge of its duties and functions under this Act to any appropriate committee constituted under section 12 and consider the committee's recommendations or suggestions thereon;
- s) to exercise such other powers and to perform such other duties as may be conferred or imposed on it by or under this Act or as may be necessary for carrying out the purposes of this Act;
- t) to cooperate and collaborate in such manner, as it may deem fit, with any authority or body established by State Legislature in promoting general Higher Secondary/Agriculture/Art/Commercial/Medical/Vocational education; and
- u) to authorise a Polytechnic to conduct examinations in respect of any course and to specify the manner of holding such examination and the standards to be maintained by the institution.

The Model Bill have been circulated by the Central Government to all the State Governments and Union Territories with the request to adopt the same.

The matter is placed before the Regional Committee for its information.

MODEL BILL

## A

## B I L L

to provide for the establishment of State Board of Technical Education for the promotion and co-ordination of technical and vocational education and training at the polytechnic level in the State of.....and for matters connected therewith.

BE it enacted by..... in the Twenty-sixth Year of the Republic of India as follows:-

Short title  
and  
commencement.

1. (1) This Act may be called the.....State Board of Technical Education Act, 1975.

(2) It shall come into force on such date as the State Government may, by notification in the Official Gazette, appoint.

Definitions.

2. In this Act, unless the context otherwise requires:-

(a) "Academic Committee" means the Academic Committee of the Board;

(b) "All India Council for Technical Education" means the All India Council for Technical Education, for the time being, set up by the Government of India;

(c) "Board" means the Board of Technical Education established under section 3;

(d) "Bye-law" means a bye-law made by any authority of the Board under Section 36;

(e) "Chairman" means the Chairman of the Board;

(f) "Executive Committee" means the Executive Committee of the Board;

(g) "member" means a member of the Board;

(h) "prescribed" means prescribed by rules made under this Act;

- (i) "recognised polytechnic" means a technical institution conducting any diploma course or certificate course in engineering, technology, commercial subjects, applied arts, industrial arts and other vocational fields, and recognised by the Board for the purposes of admission to the privileges of the Board and includes an institution deemed to be a polytechnic recognised by the Board under clause (f) of section 4;
- (j) "regulations" means the regulations made by the Board under this Act;
- (k) "Secretary" means the Secretary of the Board;
- (l) "Standing Committee" means the Standing Committee of the Board;
- (m) "Vice-Chairman" means the Vice-Chairman of the Board.

Establishment of State Board of Technical Education.

3 (1) The State Government may, by notification in the Official Gazette, establish a Board of Technical Education with effect from such date and under such name as may be specified in the notification.

(2) The Board shall be a body corporate by the name notified under sub-section (1) with perpetual succession and a common seal and shall have power to acquire, hold and dispose of property and to enter into contracts and may, by the said name, sue or be sued.

Consequences of establishment of Board.

4. On the establishment of the Board under section 3-

- (a) the.....State Board of Technical Education (hereinafter in this section referred to as "the dissolved Board"/the.....  
.....State Council of Technical Education (hereinafter in this section referred to as "the dissolved Council") established by the State Government/ under the.....  
.....\*.....Act, ..  
.....shall stand dissolved;

\*Here mention the title of the State Act if the dissolved Board or dissolved Council was established by the State Act.

- (b) any reference to the dissolved Board/the dissolved Council in any contract or other instrument shall be construed as a reference to the Board;
- (c) all property, movable or immovable, if any, of, or belonging to, the dissolved Board/the dissolved Council shall vest in the Board;
- (d) all the rights and liabilities of the dissolved Board/the dissolved Council shall be transferred to, and be the rights and liabilities of the Board;
- (a) Every person in the employment of the dissolved Board/the dissolved Council immediately before the date of establishment of the Board shall be deemed to be employed by the Board and shall hold his office under the Board by the same tenure, at the same remuneration and upon the same terms and conditions and with the same rights and privileges as to pension, leave, gratuity, provident fund and other matters as he would have held the same if this Act had not been passed, and shall continue to do so unless and until such tenure remuneration and terms and conditions are duly altered by regulations.

Provided that, if the alteration so made is not acceptable to such employee, his employment may be terminated by the Board in accordance with the terms of the contract entered into by the dissolved Board/the dissolved Council with the employee or, if no provision was made therein in this behalf, on payment to him of compensation equivalent to three months' remuneration in the case of permanent employees and one month's remuneration in the case of other employees;

- (f) subject to the provisions of this Act every technical institution which stands recognised by, or affiliated to, the dissolved Board/the dissolved Council immediately before the date of establishment of the Board shall be deemed to be a polytechnic recognised by the Board.

Composition of the Board.

5. The Board shall consist of the following, namely:-

- (a) a Chairman to be nominated by the State Government.
- (b) A Vice-Chairman to be appointed by the State Government;
- (c) one member elected by the members of each House of the Legislature of the State from amongst themselves/ one member elected by the members of the Legislative Assembly of the State from amongst themselves;
- (d) the Vice-Chancellors of not more than five Universities, established by law in the State, to be nominated by the State Government, ex-officio;
- (e) the Director of Technical Education..... State, ex-officio;
- (f) the Director incharge of School Education in the State;
- (g) three persons to be nominated by the State Government from amongst technical experts connected with any industry;
- (h) not more than nine persons to be nominated by the State Government from amongst the teachers, Heads of Departments and Principals of recognised polytechnics in the State, out of whom not more than three persons shall be from each category and not more than one shall be from the same institution;
- (i) a District Vocational Education Officer to be nominated by the State Government;
- (j) an officer of the Central Government to be nominated by that Government;
- (k) a representative of the All-India Council for Technical Education nominated by that Council;
- (l) the Chairman of the local centre of the institution of Engineers located at \* \_\_\_\_\_ ;
- (m) the Principal of the Technical Teachers Training Institute of the region, ex-officio;
- (n) a representative of the Indian Society for Technical Education;

\*Name of the Centre in the State to be mentioned



- (o) where any technical institution in any Union Territory is a recognised polytechnic under this Act, one person to be nominated by the Government of the Union Territory or by the Central Government, as the case may be; and
- (p) a nominee of the body dealing with vocational education in the State.

Term of office of members.  
\*To be filled in by the Department.

6. The ~~term~~ term of office of the members referred to in clause .....\*.....of section 5 shall be three years and the term of office of the other members(not being ex-officio members)shall be such as may be prescribed;

Provided that, a person shall cease to hold office as a member of the Board if he ceases to hold the office by virtue of which he is appointed or nominated or elected, as the case may be, as a member of the Board;

Provided further that, unless the State Govt. otherwise directs, the term of office of the outgoing members shall extend to, and expire on, the day immediately preceding the date on which their successors are appointed or nominated or elected, as the case may be.

Resignation of member.

7. Any member of the Board, not being a member ex-officio, may resign his office at any time by tendering his resignation in writing to the Secretary of the Board; and such member shall be deemed to have vacated his office as soon as the Board has accepted his resignation.

Removal of member.

8. The State Government may, by order in writing, remove any member of the Board from office on all or any of the following grounds, namely:-

- (1) that the member has abused his position;
- (2) that the member has been convicted by a court of law of an offence involving moral turpitude;
- (3) that the member is guilty of disgraceful conduct which in the opinion of the State Government renders him unfit to continue as member;
- (4) that the member has continuously absented himself from three consecutive meetings of the Board without the permission of the Board;

Provided that, before, issuing such order, the State Government shall give such member an opportunity of being heard and the reasons for the removal of such member shall also be stated in the order.

Casual vacancies.

9. All casual vacancies among the members of the Board shall be filled, as soon as may be, by appointment or nomination or election, as the case may be, and the person appointed or nominated or elected in the casual vacancy shall hold office only so long as the member in whose place he is appointed or nominated or elected, as the case may be, would have held it, if the vacancy had not occurred.

Acts and Proceedings of Board not to be invalidated by vacancy, etc.

10. No act of the Board shall be invalid merely by reason of-

- (a) any vacancy or defect in the constitution thereof, or
- (b) any defect in the election, nomination or appointment of a person acting as a member thereof, or
- (c) any irregularity in its procedure not affecting the merits of the case.

Salary and allowances.

11. The office of the Vice-Chairman shall be whole-time and salaried, and subject thereto the terms and conditions of service of the Chairman, Vice-Chairman and other members shall be such as may be prescribed.

Constitution of authorities of Board.

12. The Board shall exercise its powers through the following authorities, that is to say:-

- (a) the General Body of the Board consisting of the Chairman, Vice-Chairman and all other members of the Board;
- (b) an Executive Committee consisting of such number of members selected in such manner as the Board may, subject to rules made under this Act, determine;
- (c) an Academic Council consisting of such number of members selected in such manner as the Board may, subject to rules made under this Act, determine;
- (d) a Standing Committee consisting of such number of members selected in such manner as the Board may, subject to rules made under this Act, determine; and
- (e) such other committees as may be prescribed consisting of such number of members selected in such manner as the Board may, subject to rules made under this Act, determine.

Powers and duties of Board.

13. Subject to the provisions of this Act, the powers and duties of the Board shall be the following, namely:-

-7-

- (a) to recognise or affiliate any polytechnic whether situated within or outside the State:

Provided that, where any polytechnic situated outside the State is recognised or affiliated, an intimation of such recognition shall forthwith be given by the Board to the Government of the State in which such recognised or affiliated polytechnic is situated;

- (b) to specify the nature of study and instructions and instructional facilities to be provided in the recognised polytechnic and the examinations to be conducted by them;
- (c) to specify the educational and other qualifications of persons to be appointed on the staff of recognised polytechnics;
- (d) to specify the educational and other qualifications for admission of students to recognised polytechnics and the terms and conditions upon which, and manner in which, such students shall be admitted to such polytechnics;
- (e) to specify the equipment to be provided in general in the recognised polytechnics and in special in any such polytechnic having regard to the courses of education provided in that polytechnic;
- (f) to conduct examinations for the promotions of students belonging to recognised polytechnics from lower to higher classes;
- (g) to provide for the conditions subject to which students shall be admitted to examinations conducted by it;
- (h) to provide for the publication of the results of the examinations and for the grant of certificates and diplomas to students who have satisfactorily completed the course of study in any recognised polytechnic and passed the examination conducted for the purpose;
- (i) to advise the State Government on all matters relating to technical education and training in the State at polytechnic level;
- (j) to co-ordinate and maintain standards of technical education at polytechnic level and to effect reorientation of such education on the prescribed lines so as to serve the needs of commerce and industry, and to promote cooperation amongst recognised

polytechnics and industrial and commercial organisations;

- (k) to institute and award fellowships (including travelling fellowships), scholarships, studentships and towards prizes and distinction certificates;
- (l) to cooperate with the All-India Council for Technical Education and its regional Committees and boards of studies and other All-India organisations and authorities for the purpose of effective functioning of the Board to effect uniformity in standards as far as possible in recognised polytechnics and to increase the potential for the employment of those successfully completing the course in any such polytechnic;
- (m) to inspect any recognised polytechnic or any other institution seeking recognition;
- (n) to exercise disciplinary jurisdiction over the students with regard to any matter pertaining to the conduct of examination or the award of certificates or diplomas;
- (o) to create technical, professional, administrative, ministerial and other posts required for the performance of its duties and responsibilities and to appoint persons in such posts;
- (p) with the prior approval of the State Government and on the security of its property, to borrow money for carrying out its duties imposed by or under this Act;
- (q) to delegate by notification such of its powers and subject to such conditions as it may think fit, to any recognised polytechnic;
- (r) to refer any question arising in the course of exercise of its powers or the discharge of its duties and functions under this Act to any appropriate committee constituted under section 12 and consider the committee's recommendations or suggestions thereon.
- (s) to exercise such other powers and to perform such other duties as may be conferred or imposed on it by or under this Act or as may be necessary for carrying out the purposes of this Act;
- (t) to cooperate and collaborate in such manner, as it may seem fit, with any authority or body established by State Legislature in promoting general Higher Secondary/Agriculture/Art/Commercial/Medical/Vocational education; and

- (u) to authorise a polytechnic to conduct examinations in respect of any course and to specify the manner of holding such examination and the standards to be maintained by the institution.

Powers and functions of Executive Committees.

14. Subject to the control of the Board, the Executive Committee-

- (i) shall be responsible for making all arrangements in accordance with the recommendations of the Academic Committee for the conduct and supervision of examinations (including moderation of papers and publication of results and for appointments of examiners);
- (ii) shall exercise disciplinary jurisdiction over the employees of the Board in all matters;
- (iii) may, after making due inquiry and after giving an opportunity to show cause, impose on any of the employees of the Board, the punishment of dismissal from service or stoppage of increment;
- (iv) may, in relation to students, impose any of the following punishments after making due enquiry and after giving an opportunity to show cause, namely:-
  - (a) debarring from appearing for examinations conducted by the Board or any of its authorities for such period as it may deem appropriate but not exceeding three years,
  - (b) admonishing in writing,
  - (c) making such remarks in the diploma or certificate, if any, held by a student as may seem appropriate to the Executive Committee having regard to the nature of misconduct committed by the student.

Powers and functions of other committees.

15. Subject to the control of the Board,

- (a) the Academic Committee shall be responsible for laying down the academic policies of the Board;
- (b) The standing Committee shall be responsible for inspecting and submitting a report to the Board on the working of all recognised polytechnics and for taking all steps necessary for the enforcement of standards of teaching and instructional facilities as recommended by the Board, and
- (c) Any prescribed committee appointed by the Board shall exercise such powers and discharge such functions as may be laid down by the Board.

Powers and duties of Chairman.

16. (1) The Chairman shall, subject to the superintendence, control and direction of the Board, have power to do all acts required for implementing the decisions of the Board and shall exercise such other powers and perform such other duties in relation thereto as may be prescribed.

(2) The Chairman shall, if present, preside over the meetings of the Board and at any convocation held by the Board for the purpose of awarding diplomas or certificates, as the case may be.

(3) The Chairman shall, subject to the superintendence, control and direction of the Board, have power to make such orders, as he may deem fit, on the decisions of the Committees appointed under section 12 on any matter falling within the jurisdiction of the Board.

(4) Subject to the provisions of this Act and the rules and regulations made thereunder, if the Chairman is satisfied that immediate action has to be taken on any matter which is within the superintendence of the Board, he may, by order in writing, take such action as he may deem necessary.

(5) The Chairman shall at the earliest meeting thereafter of the Board inform the Board of every action taken by him under sub-section(3) or sub-section(4).

Powers and duties of Vice-Chairman.

17. (1) The Vice-Chairman shall be the Chief executive and academic officer of the Board and shall, subject to the supervision, control and direction of the Chairman, exercise such powers of the Chairman as may be delegated to him by the Chairman in writing.

(2) The Vice-Chairman shall, subject to the provisions of this Act and the rules and regulations made thereunder, exercise general supervision and control over the affairs of the Board and give effect to the decisions of all authorities of the Board.

(3) The Vice-Chairman shall exercise such other powers and discharge such other duties as may be prescribed or as may be laid down by regulations.

Appointment of Secretary and his powers and duties.

18. (1) There shall be a Secretary to the Board who shall be appointed by the Board.

(2) The Secretary shall, subject to the superintendence, control and direction of the Chairman and the Vice-Chairman, be the principal executive officer of the Board and shall:-

- (a) be responsible for the preparation of the estimates of accounts and annual statement of income and expenditure of the Board;
- (b) be responsible for ensuring that all moneys allotted to the Board are spent for the purposes for which they are allotted;
- (c) be responsible for keeping the minutes of the meetings of the Board; and
- (d) be entitled to be present at the meetings of the Board and take part in its proceedings, but shall not have the right to vote.

Conditions of service of new employees.

19. (1) Every person who is appointed to the services of the Board after the establishment of the Board, shall be appointed on a written contract which shall be lodged with the Board and a copy thereof furnished to the employee concerned.

(2) Every dispute arising out of a contract between the Board and any of its employees, shall be referred for arbitration to a Tribunal consisting of one member appointed by the Executive Committee, one member nominated by the employee concerned and a third person who shall be the umpire appointed by the State Government.

(3) Every decision taken by the Tribunal, and where there is difference of opinion amongst the members thereof, by the majority of the members of the Tribunal, shall be final.

(4) Every arbitration under this section shall, as far as may be, be governed by the provisions of the Arbitration Act, 1940 for the time being in force.

10 of 1940

Pension, Provident fund and insurance. 20. (1) The Board shall constitute for the benefit of its employees, in such manner and subject to such conditions as may be prescribed by regulations, such pension, insurance and provident fund as it may deem fit.

(2) Where any such provident fund has been so constituted, the State Government may declare by notification in the Official Gazette that the provisions of such law relating to provident fund as may be specified in the notification shall apply to such fund; and thereupon, notwithstanding any thing contained in any such law, that law shall apply to the provident fund so constituted.

Fund of Board.

21. (1) The Board shall have its own fund, and the following moneys shall be credited thereto:-

- (a) amounts placed at its disposal, from time to time, by the State Government by way of grants;
- (b) the fees and other charges leviable under this Act;
- (c) the other moneys received by or on behalf of it such as interests on investments made by it.

2 of 1934

(2) The Fund shall be kept in any Scheduled Bank as defined in the Reserve Bank of India Act, 1934 or at the discretion of the Board, be invested in securities authorised by the State Government.

(3) The Fund of the Board shall be utilised only for the payment of charges and expenses authorised by or under this Act or for carrying out any of the purposes of this Act.

Annual report.

22. (1) The Annual Report of the Board shall be prepared by the Secretary under the directions of the Executive Committee and shall be submitted to the General Body of the Board within such time as may be prescribed and the General Body of the Board shall consider the same at its annual meeting.

(2) The Board shall submit the Annual Report, together with its comments, to the State Government.

Annual accounts.

23. (1) The annual accounts and balance-sheet of the Board shall be prepared by the Secretary under the supervision of the Executive Committee.

(2) The annual accounts and balance-sheet as prepared by the Secretary shall be audited every year by such auditor as may be appointed by the State Govt. from amongst persons qualified for appointment as auditors of companies under section 226 of the Companies Act, 1956; and there shall not be an interval of more than fifteen months between two successive audits.

1 of 1956

(3) The audited annual accounts shall be published by the Secretary in the Official Gazette and a copy thereof together with the auditor's report shall be presented by him to the General Body of the Board and forwarded to the State Government together with the comments of the Executive Committee, if any.



(4) The State Government may make such comments on the annual accounts as it may deem appropriate and every such comment shall be placed by the Secretary before the Chairman and the General Body of the Board for their observations. The observations made by the Chairman and the General Body of the Board shall be placed by the Secretary before the Executive Committee which shall duly consider them and make its own observations and forward them to the State Government.

Authentic-  
ation of  
decisions  
and other  
instruments  
of the  
Board.

24. (1) All the decisions of the Board shall be taken by the Board by passing resolutions and shall be authenticated by the signature of the Chairman or in his absence by such other member as may be authorised by the Board in this behalf.

(2) All instruments on behalf of the Board shall be authenticated by the signature of the Secretary :

Provided that the Board may, by order, authorise any member or officer of the Board to authenticate an instrument by affixing signature in the absence of the Secretary or where the Board considers it necessary under the circumstances of any case that the instrument should be authenticated by any such member or officer of the Board.

Withdrawal  
of  
recognition  
of recognis-  
ed poly-  
technics  
under certain  
circums-  
tances.

25. (1) The Board may, by order in writing, withdraw the recognition of any recognised polytechnic if in its opinion such polytechnic fails to comply with any order passed by or under this Act or intentionally disobeys any directions given by the Board in pursuance of the powers conferred on it by or under this Act:

Provided that before passing any order as aforesaid an opportunity shall be given to the polytechnic to represent its case.

(2) Every order of withdrawal of recognition made by the Board under sub-section(1) shall be communicated to the polytechnic concerned.

Control of  
State Govern-  
-ments over  
Board.

26. (1) The State Government may at any time arrange for an inspection of, or inquiry into, the affairs of the Board, by such authority or person as it may specify, to satisfy itself about the proper and effective functioning of the Board and also upon any matter connected with the administration and finances of the Board.

(2) Before taking any action under sub-section(1), the State Government shall give reasonable notice thereof to the Board and give it an opportunity to make any representation.

(3) The Board may appoint any person to represent the Board at the inspection or inquiry arranged by the State Government.

(4) On receipt of the report of inspection or inquiry arranged under sub-section(1), the State Government shall examine it and shall give such directions as it may think appropriate to the Board by addressing a communication in that behalf to the Chairman of the Board.

(5) The Chairman of the Board shall, within the prescribed period, send an intimation to the State Government about the action taken by the Board in pursuance of the communication.

(6) On the expiry of the period specified in sub-section(5), the State Government may, after considering the intimation, if any, received from the Chairman of the Board, issue such directions to the Board as it may think appropriate and any such directions shall be binding on the Board.

Powers of revision by State Government.

27. Without prejudice to the generality of the powers conferred on it under the other provisions of this Act, the State Government may, by order in writing annul any proceeding of the Board, or of any of its authorities, which on the face of it is not in conformity with the provisions of this Act or the rules or regulations or bye-laws made thereunder:

Provided that before making any such order the State Government shall give the Board an opportunity to show cause why such an order shall not be made.

Finality of orders passed by State Government. \*To be filled in by Department. Appeals.

28. Every order passed by the State Government under section.....\*..... and section shall be final and binding.

29. (1) Any employee of the Board or any student of a recognised polytechnic who is aggrieved by any action taken by the Executive Committee in exercise of the powers conferred on it by section 14 may, within thirty days from the date on which he receives a communication about the action taken, appeal to the Chairman who shall pass such orders thereon as he may deem fit.

(2) Any person who is aggrieved by any action taken by the Vice-Chairman in exercise of the powers conferred on him by section 18 may, within three months from the date on which he receives a communication about the action taken, appeal to the Executive Committee which may confirm, modify or revise the action taken by the Vice-Chairman.

(3) Any recognised polytechnic whose recognition is withdrawn by the Board under section 26 may, within thirty days from the date on which it receives a communication about the withdrawal of the recognition, appeal to the State Government which may after making such inquiry as it may deem fit and after giving the Board and the polytechnic a reasonable opportunity to state their case, pass such order as it may deem fit and every such order shall be binding on the Board and the polytechnic concerned.

Directions  
by the  
State  
Government.

30. (1) In the discharge of its functions under this Act, the Board shall be guided by such directions on questions of policy relating to national purposes as may be given to it by the State Government.

(2) If any dispute arises between the State Government and the Board as to whether the question is or is not a question of policy relating to the national purposes, the decision thereon of the State Government shall be final.

Certain  
persons to  
be public  
servants.

31. Every person entrusted with the duty of supervising or doing invigilation work at any centre where an examination is conducted by the Board shall, during the period of such examination and for a period of one month prior to the date of commencement of, and two months immediately after the closing of, such examination, be deemed to be a public servant within the meaning of section 21 of the Indian Penal Code.

45 of 1860

(2) An assault on, or the use of criminal force to, every person entrusted with the duty of supervising or doing invigilation work at any such centre shall, during the period mentioned in sub-section (1), be deemed to be an obstruction voluntarily caused to a public servant in the discharge of his public functions, punishable under section 186 of the Indian Penal Code and shall, notwithstanding any thing contained in the Code of Criminal Procedure, 1973, be a cognizable offence.

45 of 1860

2 of 1974

Protection of  
action  
taken in  
good  
faith.

32. No suit or other legal proceeding shall lie against the Board, its authorities, or any employee or officer of the Board for anything which is in good faith done or intended to be done in pursuance of the provisions of this Act or of the rules, regulations or bye-laws made thereunder.

Removal of  
difficulties.

33. (1) If any difficulty arises in giving effect to the provisions of this Act, particularly in relation to the first constitution of the Board and its functions, the State Government may, by order published in the Official Gazette, make such provisions not inconsistent with the purposes of this Act as appear to it to be necessary or expedient for removing the difficulty.

(2) An order made under sub-section(1), may be made so as to have retrospective effect from a date not earlier than the date of commencement of this Act.

(3) No order under sub-section(1) shall be made after the expiration of three years from the commencement of this Act.

Power to make rules.

34. (1) The State Government may, by notification in the Official Gazette, make rules to carry out the purposes of this Act.

(2) Without prejudice to the generality of the foregoing power, such rules may provide for the following matters, namely :-

- (a) the term of office of the members (not being ex-officio members) under section 6;
- (b) the salary payable to the Vice-Chairman and the allowances payable to the Chairman, Vice-Chairman and other members under section 11;
- (c) the number of members of the Executive Committee, Academic Committee, Standing Committee and other Committees referred to in section 12 and the manner of their selection;
- (d) the powers which the Chairman shall exercise and the duties which he shall perform under sub-section(2) of section 16;
- (e) the powers which the Vice-Chairman shall exercise and the duties which he shall perform, under sub-section (4) of section 17;
- (f) the time within which the Annual Report of the Board shall be submitted to the General Body of the Board under Section 22;
- (g) the period within which the intimation referred to in sub-section(5) of section 26 shall be sent to the State Government;
- (h) any other matter in relation to which a rule is required to be or may be made.

\*To be retained when the State Legislature has two houses.

\*(3) Every rule made under this Act shall be laid as soon as may be, after it is made before each House of the State Legislature while it is in session for the total period of thirty days which may be comprised in one session or in two successive sessions, and if, before the expiry of the session in which it is so laid or the session immediately following, both Houses agree in making any modification in the rule or both Houses agree that the rule should not be made, and ifly such decision

in the Official Gazette, the rule shall, from the date of publication of such notification, have effect only in such modified form or be of no effect, as the case may be, so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done or omitted to be done under that rule.

To be retained-  
ed where the  
State  
Legislature  
has only one  
House.

\*(3) Every rule made under this Act shall, as soon as may be after it is made, be laid before the Legislative Assembly while it is in session for a total period of fourteen days which may be comprised in one session or in two or more successive sessions, and if before the expiry of the session in which it is so laid, or the session immediately following, the Legislative Assembly makes any modification in the rule or decides that the rule should not be made or issued, the rule shall therefore have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule.

Power to  
make  
regulations.

35. (1) The Board may make regulations consistent with this Act and the rules made thereunder.

(2) Without prejudice to the generality of the foregoing power, such regulations may provide for:-

- (a) the admission of students to recognised polytechnics;
- (b) the courses of study and training to be provided by recognised polytechnics;
- (c) the award of diplomas, certificates and other academic distinctions and the requirements which students should fulfil for obtaining the same;
- (d) the fees to be charged for admission to the examinations leading to diplomas and certificates of the Board;
- (e) the conditions for the award of fellowships, scholarships, studentships and academic distinctions;
- (f) the conduct of examinations, including the terms of office, manner of appointment and duties of the examining bodies, examiners and moderators;

- (g) the remuneration to be paid to examiners, moderators, supervisors, invigilators and tabulators who assist in the conduct of the examination;
- (h) the manner of recognition of the courses of study and the type of training and examinations to be conducted by recognised polytechnics for the purposes of eligibility for the diplomas, certificates and other academic distinctions;
- (i) the collaboration with universities with a view to effecting co-ordination and avoiding conflict;
- (j) any other matter which may be connected with, or incidental to, any of the matters aforesaid.

(3) No regulation shall take effect until it has been confirmed by the State Government and published in the Official Gazette, and the State Government in confirming the regulation may make any change therein which appears to be necessary.

(4) The State Government may, by notification in the Official Gazette, cancel any regulation which it has confirmed and thereupon the regulation shall cease to have effect.

Bye-laws.

36. Every authority of the Board may make its own by-laws, not inconsistent with the provisions of this Act or the rules or regulations made thereunder for the following matters, namely:-

- (a) the procedure to be followed at its meetings;
- (b) the number of members required to constitute a quorum at its meetings;
- (c) the manner in which decision shall be taken at any of its meetings on any subject coming before it for decision;
- (d) the manner of keeping record of the proceedings of the meetings;
- (e) the period of notice to be given to the members regarding the dates fixed for meetings and the agenda for the same;
- (f) any other matter solely concerning the conduct of its proceedings and matters connected therewith;
- (g) any matter which is required to be laid down in the bye-laws in accordance with the provisions of the Act, rules or regulations made thereunder.

Saving.

37. Notwithstanding anything contained in this Act, where a technical institution, which is or which is deemed to be a recognised polytechnic under this Act, has granted a diploma or certificate or conferred a distinction on any student before the technical institution became a recognised polytechnic, such diploma, certificate or distinction, shall be as valid and effective as if the same was granted to, or as the case may be, conferred on, him by the Board under this Act.

Item 10 - To receive a note regarding adoption of revised scheme and syllabus for Diploma Course in Architectural Assistantship -

The All-India Board of Technical Studies in Architectural and Regional Planning at its meeting held on the 8th January, 1971, while reviewing the existing scheme and syllabus for the Diploma course in Architectural Assistantship, felt that the curriculum and syllabus for the Architectural Assistantship course needed to be revised so that the candidates qualifying from the course could be better equipped for employment and have avenues for acquiring higher qualifications for improving their prospects. The Board accordingly prepared the revised scheme and syllabus for the Architectural Assistantship Course. The revised scheme and syllabus for the course prepared by the Board was considered by the All India Council for Technical Education at its meeting held on the 17th May, 1974 at New Delhi. The Council approved the revised scheme and syllabus for Diploma course in Architectural Assistantship formulated by the Architectural Board and recommended that the revised scheme and syllabus be brought to the notice of all institutions conducting this course.

A copy of the revised scheme and syllabus for the Diploma course in Architectural Assistantship formulated by the Architectural Board is placed at Annexure.

The Ministry of Education & Social Welfare, New Delhi has requested all Architectural Institutions offering Diploma Course in Architectural Assistantship to adopt the revised scheme and syllabus in their institutions.

The matter is placed before the Committee for its



ANNEXURE

43.18

REVISED SCHEME AND SYLLABUS FOR DIPLOMA  
COURSE FOR ARCHITECTURAL ASSISTANTSHIP

for At its 28th meeting of the All India Board of Technical Studies in Architecture and Regional Planning, held on 8th January, 1971, the Board approved the recommendations of the Implementation Committee that the Architectural Assistantship Course being conducted at several institutions in the country should continue. The Board further decided that the curriculum and syllabus of the Course in Architectural Assistantship needs to be revised so that the candidates qualifying from the course may be better equipped/employment and have avenues for acquiring higher qualifications for bettering their prospects. The Board decided that the Course should be revised. Amongst other things, it was decided that it may cover the syllabus and curriculum of the first two year of the full-time course. The students should acquire sufficient knowledge in Mathematics and Sciences to be able to pursue further studies at the university undergraduate or equivalent level. The product of such course be admitted to the third year of the 5-year full-time course, provided the candidates have passed the Higher Secondary Examination and qualified in entrance examination to be conducted by the School for the purpose. The Board has also recommended that the institutions offering the architectural assistantship course should employ teachers of the required qualifications prescribed for the purpose.

The proposed revised course will be as follows:-

Minimum Admission Qualification:- Matriculation with Mathematics, Physics and Chemistry.

SubjectsFirst Year

1. English
2. Physics Applied to Architecture
3. Chemistry Applied to Architecture.
4. Mathematics Applied to Architecture.
5. Construction and Materials-A
6. Architectural Design - A  
(Studies, Art, Workshop)

Second Year

1. Geography Applied to Architecture  
(Geology and Climatology)
2. History of Civilization and Architecture - A
3. Surveying - A  
(Theory and Practicals)
4. Construction and Materials - B
5. Structures - A
6. Architectural Design - B  
(Studio, Theory of Design,  
Art, Workshop)

Third Year

1. History of Civilisation and Architecture - B
2. Surveying - B  
(Theory and Practicals)
3. Construction and Materials - C
4. Structures - B
5. Services
6. Architectural Design - C  
(Studio, Theory of Design, Art)

Teaching Work Load

Class	Subject	No. of Teachers	No. of Class Hours Per Work	No. of Teacher Hour per Week
1	2	3	4	5

First Year

1.	English	1 OL	2+4 Tutorial	6 OL
2.	Physics Applied to Architecture	1 OL	5	5 OL
3.	Chemistry Applied to Architecture	1 OL		
4.	Mathematics Applied to Architecture	1 OL	2+2 Tutorial	4 OL
5.	Construction and Materials -A	1	2	2
6.	Architectural Design-A (Studio, Art, Workshop)			
	Studio	2	14	28
	Art	2	6	12
	Workshop	2	3	6

Second Year

1.	Geography Applied to Architecture (Geology and Climatology)	1	2	2
2.	History of Civilization and Architecture-A	1	2	2
3.	Surveying-A (Theory and Practicals)			
	Theory	1	2	2
	Practicals	2	3	6

1	2	3	4	5
	4. Construction and Materials -B	1	2	2
	5. Structures-A	1	2	2
	6. Architectural Design -B (Studio, Theory of Design, Art Workshop)			
	Studio	2	16	32
	Theory of Design	1	2	2
	Art	2	6	12
	Workshop	2	3	6

### Third Year

	1. History of Civilization and Architecture -B	1	2	2
	2. Surveying-B(Theory & Practicals)			
	Theory	1	2	2
	Practicals	2	6	12
3.	3. Construction and Materials -C	1	2	2
	4. Structures-B	1	2	2
	Lab.	1	3	6
	5. Services	1	2	2
	6. Architectural Design.-C (Studio, Theory of Design, Art)			
	Studio	2	13	26
	Theory of Design	1	2	2
	Art	2	6	12
	Total Teacher Hours			
			Architecture	104
			Engineering	44
			Art	36
			Outside	
			Lecturers	15

Staff Structure

<u>Teaching Staff</u>		<u>No. of Posts</u>	<u>Scale of Pay</u>
<u>Architecture</u>			
1.	Professor and Head of the Department	1	Rs. 1000-1400
2.	Lecturers	2	Rs. 400-950
3.	Assistant Lecturers	3	Rs. 350-850
<u>Engineering</u>			
1.	Lecturer	1	Rs. 400-950
2.	Assistant Lecturer	1	Rs. 350-850
3.	Instructor	1	Rs. 270-575
<u>Art</u>			
1.	Lecturer	1	Rs. 400-950
2.	Assistant Lecturer	1	Rs. 350-850
<u>Technical and Supporting Staff</u>			
<u>Designation</u>	<u>No. of Posts</u>		
1.	Assistant	1	
2.	Librarian	1	
3.	Stenographer	1	
4.	Photographer	1	
5.	Workshop Attendant	1	
6.	Clerks	2	
7.	Survey Attendant	1	
8.	Peons	6	

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SYLLABUSFirst Year1. English

Courses in grammar and syntax. Exercises in precise writing, Composition, letter writing and essays.

Practice in speech during tutorial classes to attain competency to explain in precise and simple language.

2. Physics applied to Architecture.

Heat: Expansion and contraction of solids, liquids and gases. Conduction, Convection and radiation of Heat. Good and bad conductors. Heat insulators. Hygrometry. Elementary principles of air conditioning and refrigeration.

Sound: Free and forced vibrations, frequency resonance beats, Velocity of sound, noise level, elementary principles of architectural acoustics.

Practicals.

1. Co-efficient of linear, thermal expansion of a rod.
2. Comparison of the power of the light sources by Lummer photometer.
3. Velocity of sound by sonometer.
4. Determination thermo e.m.f. temperature diagram.
5. Refractive index by spectrometer.
6. Determination of conductivity of materials like brick, stone concrete, wood etc.
7. Comparison of capacities by ballistic galvanometer.
8. Absorption and reflection co-efficients of radiated heat of various surface finishes using thermocouples.
9. Volumetric charges on moisture absorption by building materials.
10. Absorption co-efficient of sound in different building materials.

3. Chemistry Applied to Architecture

Study of important Building Material including the following :-

Cement :- Lime and their mortars, stone, timber, Ceramics Glass and Plastics. Protective finished Metals and their important alloys used in Building Construction. Manufacturing processes of topics underlined above.

Light: Reflection and refraction of light (basic ideas of interference and diffraction), light sources, color and spectrum. Elementary ideas of architectural illumination. Photomers.

Deterioration of building materials and its prevention employing electroplating, surface coating, alloy formation etc.

Analysis, treatment and disposal of water.

### "Behaviour of Building Materials"

Lime: Test on building stones for the presence of lime, preparation of quick lime from Calcium Carbonate; Hydration and dehydration with Water and Quick Lime; Carbonation of slacked Lime; preparation of Gypsum Plaster; setting time of hard burnt plaster.

Timber : Free moisture Content in timber.

Sand, Stone: Void percentage of Sand and coarse aggregate, Determination of silt in sand.

Insulation Properties: Thermal insulating and conducting properties of various building materials".

### Practicals

1. Qualitative analysis of important building materials and quantitative analysis using both gravimetric and volumetric methods.
2. Experiments on corrosion and its prevention.
3. Quantitative estimating of lime in a given sample.
4. Production of varnish and analysis of commercial varnish.

### 4. Mathematics Applied to Architecture

Elementary Mathematics - Simultaneous equation, Quadratic equation, plane and solid geometry, mensuration, trigonometry.

Calculus: Limits and continuity. Differentiation and integration of simple elementary functions. Successive differentiations. Tangents and normals. Maxima and Minima. Curvatures. Integration by substitution and by parts. Definite integrals. Areas, volumes and surfaces of revolution. Elementary differential equations as applicable to problems of bending.

Co-ordinate Geometry. Equations of straight line, circle and simple conics. Equation of a plane. Direction cosines and projections.

## 5. Construction and Materials - A.

(a) Properties, manufacture and uses of building materials e.g. brick, stone, wood, lime, cement and concrete.

Brick and stone masonry - foundations, brick-laying damp-proof courses, mortar joints, arches, carpentry and joinery, simple doors and windows, classification of roofs, single and double roofs, roof coverings.

The Studio and workshop periods are devoted to the solution of simple construction problems and preparation of details.

## 6. Architectural Design - A. (Studio, Art, Workshop)

(a) Basic Design: Problems faced by the artist in the creation of significant form in Architecture and the other visual arts.

Fundamentals of visual language on flat surfaces; studies in graphic expression, in colour, and composition; various techniques, conventional and experimental.

Workshop course designed to train the student to visualise in . . . space and to develop his sensitivity to form, structure, spaces, texture and colour. Development of manual dexterity with construction experiments employing different materials and forming process.

(b) Graphic Presentation Exercises in graphic presentation of form, including the basic concepts of mechanical drawings, lettering, projections, perspective, shades and shadows, rendering techniques in colour in order to develop the skills of presentation and visualise forms in space.

### Art

Orientation - exercises in different mediums, pencil-inks water colours pastels etc. Theory of composition. Theory of colours. Drawing in floor and outdoor sketching - pencil and inks. A simple designing - greeting cards, pottery etc.

### Workshop

Carpentry : Introduction to carpentry tools and equipments. Making of various carpentry joints most commonly used e.g. halving, mortice and tenon, mitre, dovetail, etc.

Metal Shop : Fittings: Introduction to fitter's tools and instruments. Practice in different fittings operations.

### Second Year

1. Geography Applied to Architecture (Geology and Climatology)

#### Geology

General Geology describing earth's crust, modes of rocks formation and the action of rivers, glaciers and the sea.

Rock forming minerals and their characteristics classification of rocks.

Factors governing selection of building stones.

Geological criteria that govern selection of sites.

### Climatology

Climate, geographical and physical factors, temperature, rainfall, wind, sky, ground, vegetation, micro-climate and macro-climate, seasons, movement of the sun, suncharts use of climatic data, climate factors, etc. Materials and techniques of control and survey of methods used in various regions, indigenous as well as modern.

## 2. History of Civilization and Architecture

- (i) Early Christian Art, Byzantine, Romanesque and Gothic.
- (ii) Mannerisms in the 16th and 17th centuries.
- (iii) The Renaissance, from medieval beginnings to Leonardo and Michelangelo.
- (iv) The Baroque in Europe.
- (v) Classic Art in India from 300 A.D to 700 A.D., South India.
- (vi) Islamic Art before and during the Mughals and Baroque in India.
- (vii) Academicism in 19th Century Europe; the arrival of Impressionist.

## 3. Surveying A (Theory and Practicals)

### Theory

- (i) Scales: R.F. of scale - Conventional signs

### Principles of Surveying

Chain Survey. Different kinds of chains. Principles of chain survey. Equipment and instruments. The field book, methods of keeping the field book. Obstacles in chain survey. Correction of length and areas due to error in chain length from standard length.

- (ii) Areas: Computation of areas of regular figures. Computation of areas of irregular figures by means of formulas. Mean ordinate method. Trapezoidal rule. Simpson's rule. Area by means of planimeter.



- (iii) Compass surveying : Prismatic compass, its use. Whole circle bearing and reduced bearing. Magnetic variation. Local attraction and its elimination. Compass Traversing - Plotting and surveying by independent co-ordinate methods. Closing errors and its adjustment by graphical and other method.
- (iv) Plain Table Survey: Theory and use of simple plain table. Different methods of plain tabling. The two point problem and three point problem.

### Practical

Field work consists of chain, compass, and plain table surveys and preparation of maps of areas.

### 4. Construction and Materials

Properties, manufacture and uses of building materials e.g. brick, stone, wood, lime, cement and concrete.

Brick and stone masonry-foundations, brick-laying damp-proof courses, mortar joints, arches, carpentry and joinery, simple doors windows, classification of roofs; single and double roofs; roof coverings.

The Studio and workshop period are devoted to solution of simple construction problems and p details.

### 5. Structures - A

Introduction to static behaviour of structures. Concurrent and non-concurrent forces. Laws of equilibrium. Graphic Statics. Definitions of statically determinate and indeterminate structures.

Bending moment and shearing force. Theory of simple beams. Definition of stress and strain at a point with an introduction to materials behaviour in elastic and plastic ranges. Application to stress distribution in twisting and bending.

Consideration of stability of structures in elastic and plastic situation.

### 6. Architectural Design - B

(Studio, Theory of Design, Art Workshop)

- (a) Basic Design: Problems faced by the artist in the creation of significant form in architecture and the other visual arts.

Fundamentals of visual language on flat surfaces; studies in graphic expression, in colour, and composition; various techniques, conventional and experimental.

Workshop course designed to train the student to visualize in space and to develop his sensitivity to form, structure, spaces, texture and colour. Development of manual dexterity with construction experiments employing different materials and forming process.

(b) Graphic Presentation: Exercises in graphic presentation of form, including the basic concepts of mechanical drawings, lettering, projections, perspective, shades and shadows, rendering techniques in colour, in order to develop the skills of presentation and visualization of forms in space.

(c) Freehand Drawing and outdoor sketching from nature (still life and landscapes) emphasizing the structure, order, and clarity of form.

(d) A basic understanding of constructional principles, methods and experience in the design of simple timber, brick and steel structures, using calculations.

### Theory of Design

(a) An introduction to the art and profession of architecture, development of understanding of our physical environment through a study of the forms, functions and determinants of today's architecture, its continuity with the past, and its relation to the living present. A wide range of THE HISTORICAL, theoretical, and practical aspects of architecture as surveyed in lectures and discussions.

(b) A series of lectures devoted to the general principles of architectural design. Considerations of technical, academic and social factors which influence architectural form.

### Elements of Architectural Design.

Studies of the basic human forms and environmental determinants of architectural design and the architectural means and forms which derive from such determinants.

Studio-Workshop course to be related with the above.

### Art

Colour composition (painting). Sculpture sketches - Plasticine, clay etc. College paper and other materials.

Expression in Lines. Monochrome washes. Three dimensional mobiles based on units, mobiles with wires and metal. Painting, free expression.

### Workshop

Sheet Metal: Practice in sheet metal operation including rivetting.

Welding: General introduction to different welding techniques (Gas, Arc, Forge, etc.) Practice in gas welding and cutting.

### Third Year

#### 1. History of Civilization and Architecture -B

The study of Indian Architecture, with special emphasis on the concept of form and structure, from the earliest times to 1400 A.D and to include Buddhist, Hindu and Jain periods.

The study of Indian, Architecture, with special emphasis on the concept of form and structure, from 1400 A.D. to present times, to include the Islamic periods. A study of the influence of indigenous architecture on the architecture of the Islamic and Western periods in India and vice-versa.

The study of the Architectural development, with special emphasis on the concept of form and structure in other countries; Romanesque, Gothic, Renaissance and modern.

The year's work should include class assignments, sketches and an analytical study with sketches and reports.

#### 2. Surveying-B (Theory and Practicals)

##### Theory

Levelling: Theory of levelling. Entering the readings in levelling book. Computing of RL by line of collimation method and rise and fall method. Curvature and Refraction, Reciprocal levelling. Temporary and permanent adjustments of Dumpy levels, and their uses.

Theodolite: The use of theodolite in taking horizontal and vertical angles. Traversing by means of theodolite plotting of a survey.

Interpretation of plans from architectural point of view.

##### Practicals

Levelling and preparation of contour maps. Finding out areas by planimeter, measurement of angles by theodolite.

#### 3. Construction and Materials - C

Properties and uses of building materials such as castles, asbestos, glass, timber, building boards, plywood, paints, and varnishes, R.C.C. etc.

A study of the elements of buildings such as foundations, D.P.C walls-load bearing and panel-floors and flooring materials, windows, doors, staircases, partitions, ceiling etc. in various materials.

Studies with models, visits to construction sites. The studio workshop periods to be devoted to preparation of detailed construction drawings.

#### 4. Structures - B

Rivets and Design of Rivets joints, Design of welded joints, Efficiency of joints;

Solution of indeterminate frames subjected to static loads by method of joints and method of sections. Design of simple trusses of mild steel, timber and laminated wood.

Principles of super-position of moments and shears. Free body diagrams.

Design of flexural members in mild steel, timber and laminated wood. Flitched beams. Deflection of cantilevers and beams. Relation between curvature slope and deflection. Tropic loading, Stability of walls against lateral loading.

Relevant extracts from I.S. Code of Practice for

(a) Loading standards; (b) Plain and reinforced concrete; (c) Structural steel; (d) Structural timber and their application to design.

Design of simple R.C. Slabs, one way and two way and rectangular beams. Methods of design of reinforced brick-work, composite structural steel and concrete. Design of axially loaded R.C. short columns.

Elements of soil mechanics.

Design of simple foundation for R.C. columns and masonry walls. A term report on mix design, placing and curing of concrete.

Lectures to be supplemented by laboratory work.

#### Laboratory

Further laboratory work based on principles taught in the class contemporaneously.

#### 5. Services

Drainage internal and external, modern plumbing, sanitary fittings and fixtures. Drainage and plumbing bye-laws.

Domestic water supply; heating and hot water supply.

Class assignments and individual studies on specific design problems.

6. Architectural Design - C  
(Studio, Theory of Design, Art)

An appreciation of the need to develop a design method, by which the various factors which affect design can be co-ordinated. In each project a realisation of the interdependence of these factors is vital.

Programmes to provide a period for technical assimilation by focussing particular attention on the study of three basic structural materials, timber, brick and steel.

The limited attitude towards architecture that results from setting problems on inland sites is to be avoided by relating most of the design subjects to the wider environment of a village.

Visits/tours to places in an around Delhi to a distance of about 500 kilometers.

Theory of Design

Some aspects of the influence on architecture from the 18th century to the present times, with emphasis on these developments in design theory, materials and techniques which have contributed most to the formation of contemporary architecture or are most relevant to the contemporary situation.

Class assignments and tests with individual or group presentations.

Art

Drawing - indoor and outdoor, introduction to colour and life drawings. Sculpture exercises in paper, wood and plaster-of parts. Design based on lettering, cut-outs, walls mural etc. Visits to the art museums - essay on subjects related to art.

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Item 19 - To receive a report on the Survey facilities for Technical Education in the Northern Region for 1975 -

The Secretariat of the Northern Regional Committee every year conducts the Survey of Facilities available for study of Engineering & Technological subjects in the various institutions located in the Northern Region. This year also, a similar survey is being carried out. A summary of actual admissions made (discipline wise) in the technical institutions of the Northern Region is given in Annexure for information of the Committee. The information regarding out-turn figures is still awaited from some of the institutions and the same is being compiled.

The matter is placed before the Committee for its information.

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SUMMARY OF FACILITIES AVAILABLE  
IN THE NORTHERN REGION-1975-76  
(Degree)

Subject	Sanctioned intake	Intake proposed 1975-76	Actual admissions 1975-76
Civil	1130	874	955
Mechanical	1345	953	934
Electrical	1370	998	947
Chemical	375	325	310
Text. Tech/Chem.	160	145	151
Architecture	115	115	87
Metallurgy	230	160	154
Elec. Comm/Electronics	165	200	217
Aeronautics	50	35	35
Pharmacy	77	75	110
Production Engg.	37	20	20
Agricultural Engg.	210	174	175
Minine	65	28	39
Coramics	22	20	25
Sugar Technology	40	40	53
Sugar Engineering	12	12	14
Alcohol Tech. & Ind. Fermentation	25	25	30
Oil Technology	15	15	12
Vis Chem.	15	15	-
Elastics	15	15	15
Adnts	15	15	13
Food	15	15	14
Mech. Industrial	20	20	20
<b>Total :</b>	<b>5516</b>	<b>4294</b>	<b>4324</b>

**SUMMARY OF FACILITIES AVAILABLE IN THE  
NORTHERN REGION - 1975 - 76**

(  D I T L C M A  )

Subject	Sanctioned intake	Intake proposed 1975-76	Actual admissions 1975-76
Civil	3280	3385	3827
Mechanical	4145	3252	3439
Electrical	3940	3209	3503
Auto/Auto(P.D)	410	375	330
Electronics/Ind.Electronics/ Elect. Comm.	280	285	550
Instrumentation	55	55	67
Leather & Footwear Tech.	110	110	64
Printing technology	100	100	36
Paper & pulp Technology	90	100	94
Text. Tech./Chem.	90	93	95
Chemical	40	40	45
Ceramics	30	30	31
Commercial Practice	60	60	54
Construction Technology	30	30	41
Production Technology	30	30	43
Foundry Technology	10	10	-
Tool Technology	30	30	30
Plastic Technology	30	30	31
Public Health Engg.	30	30	31
Design & Drafting	10	10	10
Agricultural Engineering	30	30	33
Ref. & Air-Cond. (Dip. & P.D)	75	45	21
Machine Tool Oper. & Maint.	30	30	30
Welding & Sheet Metal Tech.	15	15	7
Elec. Mech. & Appl.	30	30	30
Radio & Telo. Comm.	15	15	15
Knitting Tech.	30	30	34
Garment Technology	20	20	24
Mining	20	20	21
	<u>13065</u>	<u>11190</u>	<u>12926</u>



Item 20: - To receive a note on the staff structure for diploma institutions of the Northern Region.

The Committee is aware that the All India Council for Technical Education while considering the recommendations of the Regional Committees for the provision of staff structure for Engineering Colleges and Polytechnics appointed an expert Committee headed by Prof. P.J. Madan, Pro-Vice-Chancellor, M.S. University, Baroda. The Council while considering the recommendations of the Expert Committee recommended that the Regional Committees should formulate detailed proposals for evolving suitable staff structures of technical institutions in accordance with the broad principles laid down by the Madan Committee. The Northern Regional Committee at its 38th Meeting held on 3rd April, 1973 desired that as far as the diploma institutions are concerned the Directors of Technical Education in the Northern Region may work out the desired staff structure. As regards the degree institutions, the Committee had suggested that the various State Governments and authorities of the institutions may work out the staff structure with regard to the degree and post-graduate courses on the above basis and include the same in their respective 5th Five Year Plan proposals.

The Northern Regional Committee at its 40th Meeting held on 29th May, 1974 considered the note prepared by the Secretariat of the Northern Regional Committee on the basis of the information received from the different States. After discussing the pros and cons, the Committee decided that the Chairman should appoint Sub Committees in respect of each State of the Region to evolve the suitable staff

structure for diploma institutions for various intakes. The Sub Committee was to consist of the following :-

1. A representative of the Directorate of Technical Education of the respective State.
2. A principal of the Diploma Institution located in the State.
3. Member-Secretary,  
Northern Regional Committee.

In pursuance of this recommendation, the Chairman, Northern Regional Committee appointed Sub Committees for various States. The Sub Committees for Rajasthan and Uttar Pradesh have met on 14th August, 1974 and 3rd September, 1974 respectively. The other States namely - Union Territories of Delhi and Chandigarh, Himachal Pradesh, Punjab, Haryana and Jammu & Kashmir are following a common syllabus prepared by the Technical Teachers' Training Institute, Chandigarh. Accordingly, the Technical Teachers' Training Institute, Chandigarh was requested to work out the tentative staff structure for the Diploma Institutions of these States in accordance with the Madan Committee's recommendations. The staff structure worked out by the Technical Teachers' Training Institute, Chandigarh is on the higher side. The matter is being examined and the report on staff structure for these States will be put up before the Committee at its next meeting.

A copy each of the report of the Sub Committee appointed to work out staff structure for Uttar Pradesh and Rajasthan is placed at Annexure.

The <sup>earlier</sup> recommendations of the Northern Regional Committee with regard to the formulation of staff structure for Degree and Diploma Institutions were intimated to the Ministry. The Ministry was also asked to indicate whether

the expenditure on the improvement of staff structure in consonance with the Madan Committee's recommendations will be totally financed by the Centre or the State. The Ministry has informed that the question of implementation of these recommendations and the out-lay proposed for it as well as the sector under which the scheme is implemented, it is to be decided whether the out-lay for the scheme has to be in the Central or Centrally sponsored or State Sector.

The Northern Regional Committee is aware that the total out-lay for the Fifth Five Year Plan of Technical Education has not been decided so far, although tentative allocations have been indicated. This is mainly because that the total out-lay of the Fifth Five Year Plan itself has yet not been decided by the Government of India. The finalisation of the Fifth Plan will take some time. In the meanwhile, drive for economy has started. In the context of present situation we can not hope to get optimum allocation for the development of Technical Education in the Fifth Plan. We have, therefore, no alternative but to brave this challenge and evolve new strategies which would enable us to secure maximum development in the field of Technical Education inspite of inevitable reduction in the financial resources.

The faculty development is an important aspect of improvement of quality of Technical Education and can not be allowed to hang on with out detriment to the growth of Technical Institutions. The Northern Regional Committee may, therefore, like to make suitable recommendations to the effect that the State Governments should explore the possibility of earmarking suitable provisions in their State Plan for the purpose under the head 'Faculty Development'.

The matter is placed before the Committee for its consideration.

ALL-INDIA COUNCIL FOR TECHNICAL EDUCATIONNORTHERN REGIONAL COMMITTEEREPORT OF THE SUB-COMMITTEE OF THE NORTHERN  
REGIONAL COMMITTEE APPOINTED TO WORK OUT  
SUITABLE STAFF STRUCTURE FOR DIPLOMA  
INSTITUTIONS IN U.P. STATE

The All-India Council for Technical Education requested the Regional Committees to consider the question of provision of staff structure in Engineering Colleges and Polytechnics in all its aspects and work out the requirements of the teaching staff at various levels for different intakes. The recommendations of the Regional Committees were considered by an Expert Committee of the All India Council for Technical Education headed by Prof. P.J. Madan, Pro-Vice-Chancellor, M.S. University, Baroda. The report of the Expert Committee of the A.I.C.T.E. was considered by the All India Council for Technical Education at its meeting held on 22nd April, 1972. The All India Council for Technical Education had recommended that the Regional Committees should formulate detailed proposals for evolving staff structure of Technical Institutions in accordance with the broad principles laid down by the Expert Committee of the All India Council for Technical Education. The guidelines laid down by the Madan Committee were considered by the Northern Regional Committee at its 38th meeting held on 3rd April, 1973. The Committee discussed the matter in detail and desired that the Directors of Technical Education of the various States of

the Northern Region should work-out the desired staff structure for diploma institutions for various intakes of 120, 180, 240 and 300. On the basis of the staff structure worked-out by the Directors of Technical Education, the Northern Regional Committee Secretariat worked-out the model staff structure keeping in view the recommendations of the Madan Committee. This staff structure was considered by the Northern Regional Committee at its 40th meeting held on 29th May, 1974. After discussing the pros and cons of the issue, the Committee decided that the Chairman should appoint sub-Committee in respect of each State of the Region to evolve a suitable staff structure for diploma institutions for various intakes. This Sub-Committee will consist of the following:-

1. A representative of the Director of Technical Education of the respective State.
2. A Principal of the diploma institution located in that State.
3. Member-Secretary, Northern Regional Committee.

#### APPOINTMENT OF THE SUB-COMMITTEE.

In pursuance of the recommendations of the Northern Regional Committee made at its 40th meeting, the Chairman, Northern Regional Committee appointed a Sub-Committee consisting of the following to work-out the suitable staff structure for diploma institutions located

in U.P. State:-

1. Shri R.N.Kapoor,  
Director of Technical Education,  
Uttar Pradesh,  
Kanpur.
2. Shri S.K.Jaiman,  
Principal,  
Lucknow Polytechnic,  
Lucknow.
3. Shri Narendra Singh,  
Member-Secretary,  
Northern Regional Committee.

The above Sub-Committee met at Allahabad Polytechnic, Allahabad on 3rd September, 1974. Shri S.K. Jaiman, Principal, Lucknow Polytechnic, Lucknow could not attend the meeting. Therefore, Shri S.C.Jain, Principal, Allahabad Polytechnic, Allahabad was associated in the Committee. Shri J.B.Gupta, Secretary, State Board of Technical Education, Uttar Pradesh, Lucknow; Shri A. Chakravorty, Incharge, Curriculum Development Centre, Allahabad Polytechnic, Allahabad and Shri S.V.Patwardhan, Professor of Civil Engineering, University of Roorkee Roorkee participated in the deliberations of the Committee on special invitation. Shri B.D.Tandon, Assistant Education Officer(Technical) also participated in the deliberations of the Committee.

#### OBSERVATIONS.

The Member-Secretary gave a brief resume of the guide-lines laid down by the Madan Committee for the formation of model staff structure for polytechnics. He also informed the Sub-Committee about the modifications suggested

by the All India Council for Technical Education at its 21st meeting held on 17th May, 1974 at New Delhi, according to which in determining the work load of staff no distinction has to be made between tutorial and laboratory work on the one hand and lecture classes on the other. The Committee then had lively discussions on the issue. During the course of discussions, the following points emerged:-

1) Madan Committee has recommended that the lowest post of teaching in the teaching cadre should be that of Lecturer instead of Instructor. The staff structure in Polytechnics should provide for the following 3 categories of teachers:-

- i) Head of the Department.
- ii) Senior Lecturer
- iii) Lecturer

The workshop instruction in the polytechnic will be under the overall supervision of a Workshop Superintendent who will be of the rank of Senior Lecturer. Provisions will have to be made for four Foremen Instructors at the level of Lecturer for handling practical classes.

Existing cadre of Instructors in the Polytechnics should be given opportunities to improve their qualifications so as enable them to acquire the minimum qualifications laid down for the post of Lecturers. ~~In other words,~~ The Madan Committee itself has suggested that the conversion of the post of Instructor to that of Lecturer can be done in stages only and the existing cadre of Instructors can not be abolished with a stroke of pen till the last person

holding the post of Instructor in Polytechnics has either retired or acquired necessary qualifications for selection to the post of Lecturer. It would therefore naturally follow that, for some time to come, even after the introduction of new model staff structure, cadre of Instructors, though in a depleted form, will continue to exist in the polytechnics.

2) Ratio of Senior Teacher to Junior Teacher

The Madan Committee has suggested a ratio of 1 : 3 for Senior teacher to Junior teacher in the polytechnics. Head of the Department and Senior Lecturer are accounted for as Senior Teacher for the purpose. The Sub-Committee accept this ratio for purpose of calculation of staff structure.

3) Model staff structure to be evolved on the basis of the guide-lines of the Madan Committee will entail considerable financial inputs. In the context of the present financial stringency, Government will be hard put to provide additional funds on massive scale for the improvement of staff structure of the polytechnics. In order to avoid heavy expenditure on this account and also keeping in view the point made at '1' above, Committee thought it necessary to work-out the staff structure for the transitory period also.

RECOMMENDATIONS.

For working out the staff structure for the transitory period, the Committee laid down the following



guide-lines:-

1) Distribution of work-load of Workshop Practicals, Survey Practicals and Drawing Practicals between Lecturers and Instructors-

The total teaching load on the basis of revised curriculum and syllabus of the State Board of Technical Education, Uttar Pradesh comes to about 40 hours per week. The break-up of this load is as under:-

Lectures	- 18 hours
Tutorials	- 6 hours
Lab. Practicals	- 4 hours
Drawing, Workshop and Survey Practicals	- 12 hours

---

Total: - 40 hours

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During the transitory period, some posts of Instructors will continue to exist in the institutions. Consequently, the Lecturers would not be required to take full load of Survey, Drawing and Workshop practicals. Therefore, it can safely be assumed that during the transitory period the work load for above type of practicals between Instructors and Lecturers will be in the ratio of 3 : 1 i.e. only 25% of the teaching load on Drawing, Survey and Workshop practicals will be assigned to Lecturers.

2) Grouping of students

The Madan Committee has suggested the following grouping of students in the lecture classes, tutorials, laboratory, drawing and practicals:-

i) Lecture Classes	-60
ii) Tutorial, Laboratory, Drawing and Practical.	-20

The above norms should be adopted for the purpose

of working out the staff structure for the transitory period

On the basis of the point N . 1 & 2 above, the average weekly teaching load transitory period will be as under:-

Intake	Lecture hours	Tutorial hours	Lab. hours	Draw- ing Survey & W/shop hours	Draw- ing Survey & w/shop hours	Total teach- ing load (Col. 1. 2+3+4 +5)	Total teaching load dur- ing transi- tory period (Col. 2-3+ 4+6)
1.	2.	3.	4.	5.	6.	7.	8.
120	144	96	64	192	48	496	352
180	162	162	108	324	81	756	513
240	252	204	136	408	102	1000	694
300	270	270	180	540	135	1260	855

### 3) Teaching Load

The Madan Committee has suggested the following teaching load for the various categories of teachers:-

<u>Designation</u>	<u>Average teaching hours per week</u>
Principal	4 hours
Head of Department	12 hours
Senior Lecturer	14 hours
Lecturer	16 hours

The above teaching load should be accepted for working out the staff structure for transitory period.

### 4) Duties to be assigned to the Science and Humanities teachers-

General consensus was that Science and Humanities teachers in the polytechnics are not fully loaded. A way should be found to tap creative talent amongst the

teachers. For this purpose, the Committee suggested that the Science teachers should also be assigned the responsibility of teaching engineering subjects of the following type:-

Chemistry Teacher	- Engineering materials (theory classes), Public Health Engg. (practicals).
Physics Teacher	- Mathematical portion of Applied Mechanics (theory classes), Mechanics (practicals), Engg. Materials (theory classes), Thermodynamics (portion of Mechanical Engineering).
English Teacher	- Special drafting, History of Science, Extra Curricular Activities.

5) Training and Placement Officer

A post of Training and Placement Officer may be provided in the institutions having total student population of 900 and above in regular classes. The institutions where the student population is less than 900, the duties of Training and Placement Officer may be assigned to one of the Heads of the Department.

6) Leave and Training Reserves.

Only 10% of the total teaching staff position should be provided for creating leave and training reserves in the institutions during the transitory period. Under this head, the post should be created at the level of Lecturer only.

7) Provision for Technical Supporting Staff.

In order to avoid the difficulty in getting financial sanctions from the Government, the Committee

thought it advisable to pinpoint the different posts required at the lower level for the proper conductance of work in laboratories and workshops etc. The Committee suggested that the following posts may be provided for the purposes:-

Workshop Instructors	-	9
Mechanics	-	9
Engg./Drawing/Science Instructors	-	7
Draftsmen(Artists)	-	2
		<hr/>
Total:	-	<u>27</u>

Out of these 30% posts should be in the grade of instructors.

#### 8) Non-Teaching Staff

i) A post of Administrative Officer and Accounts Officer should be sanctioned for those polytechnics where total sanctioned student body in regular courses is 1500 or more. Where the total sanctioned student population is less than 1500 but more than 900, a post of Accounts Officer and Accountant may be provided.

ii) For institutions having an intake of 300 and above, a post of Librarian in a suitable grade may be sanctioned.

THE EXPENDITURE ON THE SALARY OF TECHNICAL SUPPORTING AND NON-TEACHING STAFF SHOULD NOT EXCEED THE 25% OF THE CEILING OF THE SALARY OF TEACHING STAFF.

#### 9) Provision for Experts from Industry

The Committee is convinced that for the proper organisation of the courses innovation etc. it would be essential to invite experts from industry to deliver lectures

from time to time. Expenditure to be incurred on this account may be met from the provision made for leave and training reserves.

Based on above, the Committee worked out the staff structure for the transitory period as well as the model staff structure in accordance with the guide-lines laid down by the Madan Committee/All India Council for Technical Education. These are given below :-

STAFF STRUCTURE BASED ON THE GUIDE-LINES  
OF THE MADAN COMMITTEE-

Sanctioned Intake	<u>120</u>	<u>180</u>	<u>240</u>	<u>300</u>
Civil	30	60	60	60
Mechanical	45	60	90	120
Electrical	45	60	90	120
TOTAL :	<u>120</u>	<u>180</u>	<u>240</u>	<u>300</u>
Principal	1	1	1	1
Head of Department	3	3	3	4
Senior Lecturers	4	8	11	14
Lecturers	25	38	50	63
TOTAL :	<u>33</u>	<u>50</u>	<u>65</u>	<u>82</u>
Add 20% for leave and training reserve at the level of Lecturer.	7	10	13	16
TOTAL :	<u>40</u>	<u>60</u>	<u>78</u>	<u>98</u>

Provision for Technical Supporting and Non-Teaching Staff suggested by Sub-Committee of N.R.C.    0 25% of the ceilings of expenditure on the salary of Teaching Staff.

STAFF-STRUCTURE WORKED OUT  
FOR THE TRANSITORY PERIOD-

Sactioned Intake	<u>120</u>	<u>180</u>	<u>240</u>	<u>300</u>
Civil	30	60	60	60
Mechanical	45	60	90	120
Electrical	45	60	90	120
TOTAL :	<u>120</u>	<u>180</u>	<u>240</u>	<u>300</u>
Principal	1	1	1	1
Head of Department	3	3	3	4
Senior Lecturers	3	4	7	9
Lecturers	17	26	35	42
TOTAL :	<u>24</u>	<u>34</u>	<u>46</u>	<u>56</u>
Add 10% for leave and Training reserve at the level of Lecturer.	2	3	5	6
TOTAL :	<u>26</u>	<u>37</u>	<u>51</u>	<u>62</u>

Provision for Technical Supporting and Non-Teaching Staff.      0      25% of the ceilings of expenditure on the salaries of Teaching Staff.

NOTE : The detailed staff structure calculations based on the guide-lines of Madan Committee and those for transitory period are given at **Appendix 'A' & 'B'** respectively.

A C K N O W L E D G E M E N T

The Committee is thankful to Shri S.C. Jain, Principal, Allahabad Polytechnic, Allahabad and Prof. S. Chakravarti, Incharge, Curriculum Development Centre, Allahabad Polytechnic, Allahabad for their valuable advice and help in the deliberations of the Committee.

Sd/-  
R.N. KAPOOR  
MEMBER

Sd/-  
NARENDRA SINGH  
MEMBER SECRETARY.

STAFF STRUCTURE CALCULATIONS WORKED OUT BY THE SUB COMMITTEE OF THE NORTHERN REGIONAL COMMITTEE, APPOINTED TO WORK OUT SUITABLE STAFF STRUCTURE FOR DIPLOMA INSTITUTIONS IN U.P. STATE IN ACCORDANCE WITH THE M.A.D.N COMMITTEE'S RECOMMENDATIONS -

<u>INTAKE</u>	<u>120</u>	<u>180</u>
Civil	30	60
Mechanical	45	60
Electrical	45	60

Teaching Load per week

Theory	18 hrs.	18 hrs.
Tutorial	6 "	6 "
Laboratory	4 "	4 "
Drawing, Survey & Workshop.	12 "	12 "

Grouping of students

Theory	60	60
Tutorial, Lab., Drawing & Practicals	20	20

Number of Groups

	Theory	Tutorial, Lab. & Practicals	Theory	Tutorial, Lab. & Practicals
Ist Year	2	6	3	9
IIInd Year	3	5	3	9
IIIrd Year	3	5	3	9
Total No. of Groups:	8	16	9	27

Total Teaching Load per week for 3 years

Theory	18x8 = 144 hrs.	18x9 = 162 hrs.
Tutorial	6x16 = 96 hrs.	6x27 = 162 hrs.
Laboratory	4x16 = 64 hrs.	4x27 = 108 hrs.
Drawing, Survey & Workshop	12x16 = 192 hrs.	12x27 = 324 hrs.
	<u>496 hrs.</u>	<u>756 hrs.</u>

Staff Required

	No. of posts	Teaching load	No. of posts	Teaching load
Principal/Head of Deptt.	1	1x4 = 4 hrs.	1	1x4 = 4 hrs.
Senior Lecturers	4*	4x14 = 56 hrs.	8*	8x14 = 112 hrs.
Lecturers	25£	25x16 = 400 hrs.	38£	38x16 = 608 hrs.
Total:	33	<u>496 hrs.</u>	50	<u>760 hrs.</u>

Add 20% posts for  
leave & training  
reserve at the level  
of Lecturer

	<u>7</u>	<u>10</u>
Total	<u>40</u>	<u>50</u>

- \* Includes 1 post of Workshop Superintendent.
- £ Include posts of Foreman Instructors.



STAFF STRUCTURE CALCULATIONS WORKED OUT BY  
THE SUB-COMMITTEE OF THE NORTHERN REGIONAL  
COMMITTEE APPOINTED TO WORK OUT SUITABLE  
STAFF STRUCTURE FOR DIPLOMA INSTITUTIONS  
IN U. P. STATE IN ACCORDANCE WITH THE  
MADAN COMMITTEE'S RECOMMENDATIONS-

<u>Intake</u>	<u>240</u>	<u>300</u>
Civil	60	60
Mechanical	90	120
Electrical	90	120

Teaching Load per week

Theory	18 hrs.	18 hrs.
Tutorial	6 hrs.	6 "
Laboratory	4 "	4 "
Drawing, Survey & Workshop	12 "	12 "
	<u>40 hrs.</u>	<u>40 hrs.</u>

Grouping of students.

Theory	60	60
Tutorial, Lab., Drawing & Practicals	20	20

Number of Groups

	<u>Theory</u>	<u>Tutorial, Lab. &amp; Practical</u>	<u>Theory</u>	<u>Tutorial, Lab. &amp; Practical</u>
1st Year	4	12	5	15
2nd Year	5	11	5	15
3rd Year	5	11	5	15
Total No. of Groups:	<u>14</u>	<u>34</u>	<u>15</u>	<u>45</u>

Total Teaching Load per week for 3 years.

Theory	18x14 = 252 hrs.	18x15 = 270 hrs.
Tutorial	6x34 = 204 hrs.	6x45 = 270 hrs.
Laboratory	4x34 = 136 hrs.	4x45 = 180 hrs.
Drawing, Survey & Workshop	12x34 = 408 hrs.	12x45 = 540 hrs.
	<u>1000 hrs.</u>	<u>1260 hrs.</u>

Staff Required.

	<u>No. of posts</u>	<u>Teaching Load</u>	<u>No. of posts</u>	<u>Teaching Load</u>
Principal Head of Deptt.	1	1x4 = 4hrs.	1	1x4 = 4hrs.
Senior Lecturers	3	3x12 = 36hrs.	4@	4x12 = 48hrs.
Lecturers	11*	11x14 = 154 hrs.	14*	14x14 = 196hrs.
Lecturers	50@	50x16 = 800hrs.	63@	63x16 = 1008hrs.
Total	<u>65</u>	<u>994 hrs.</u>	<u>82</u>	<u>1256 hrs.</u>

Add 20% posts for  
leave & training  
reserve at the level  
of Lecturer.

	<u>13</u>	<u>16</u>
Total:	<u>78</u>	<u>98</u>

- @ Includes 1 post of Training & Placement Officer.
- \* Includes 1 post of Workshop Superintendent.
- £ Include posts of Foreman Instructors.

STAFF STRUCTURE CALCULATIONS WORKED OUT BY THE SUB-COMMITTEE OF THE NORTHERN REGIONAL COMMITTEE APPOINTED TO WORK OUT SUITABLE STAFF STRUCTURE FOR DIPLOMA INSTITUTIONS IN U.P. STATE, FOR THE TRANSITORY PERIOD -

<u>INTAKE</u>	<u>120</u>	<u>180</u>
Civil	30	60
Mechanical	45	60
Electrical	45	60

Teaching Load per week

Theory	18 hrs.	18 hrs.
Tutorial	6 "	6 "
Laboratory	4 "	4 "
Drawing, Survey & Workshop	12 "	12 "
Total:	<u>40 hrs.</u>	<u>40 hrs.</u>

Grouping of students

Theory	60	60
Tutorial, Lab., Drawing & Practicals	20	20

Number of Groups

	Theory	Tutorial, Lab. & Practical	Theory	Tutorial Lab. & Practical
1st Year	2	6	3	9
2nd Year	3	5	3	9
3rd Year	3	5	3	9
Total No. of Groups:	<u>8</u>	<u>16</u>	<u>9</u>	<u>27</u>

Total teaching Load per week for 3 years

Theory	18x8 = 144 hrs.	18x9 = 162 hrs.
Tutorial	6x16 = 96 "	6x27 = 162 "
Laboratory	4x16 = 64 "	4x27 = 108 "
Drawing, Survey & Workshop	1/4x12x16 = 48 "	1/4x12x27 = 81 "
	<u>352 hrs.</u>	<u>513 hrs</u>

Staff Required

	No. of Teaching Posts	Load	No. of Teaching posts	Load
Principal	1	1x4 = 4 hrs.	1	1x4 = 4 hrs.
Head of Deptt.	3	3x12 = 36 "	3	3x12 = 36 hrs.
Sr. Lecturers	3*	3x14 = 42 "	4*	4x14 = 56 hrs.
Lecturers	17 $\frac{1}{2}$	17x16 = 272 "	26 $\frac{1}{2}$	26x16 = 416 hrs.
Total:	<u>24</u>	<u>354 hrs.</u>	<u>34</u>	<u>512 hrs.</u>

Add 10% posts for leave & training reserve at the level 2 of Lecturer.

Total:	<u>26</u>	<u>37</u>
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\* Includes 1 post of Workshop Superintendent.  
 † Include posts of Foreman Instructors.

STAFF STRUCTURE CALCULATIONS WORKED OUT BY  
THE SUB COMMITTEE OF THE NORTHERN REGIONAL  
COMMITTEE APPOINTED TO WORK OUT SUITABLE  
STAFF STRUCTURE, FOR DIPLOMA INSTITUTIONS  
IN U. P. STATE, FOR THE TRANSITORY PERIOD -

<u>INTAKE</u>	<u>240</u>	<u>300</u>
Civil	60	60
Mechanical	90	120
Electrical	90	120

Teaching Load per week

Theory	18 hrs.	18 hrs.
Tutorial	6 "	6 "
Laboratory	4 "	4 "
Drawing, Survey & Workshop	12	12
Total:	<u>40 hrs.</u>	<u>40 hrs.</u>

Grouping of students

Theory	60	60
Tutorial, Lab., Drawing & Practicals	20	20

Number of Groups.

	Theory	Tutorial, Lab. & Practical	Theory	Tutorial, Lab. & Practical
1st Year	4	12	5	15
2nd Year	5	11	5	15
3rd Year	5	11	5	15
Total No. of Groups:	<u>14</u>	<u>34</u>	<u>15</u>	<u>45</u>

Total Teaching Load per week for 3 years

Theory	18x14 = 252 hrs.	18x15 = 270 hrs.
Tutorial	6x24 = 204 "	6x45 = 270 "
Laboratory	4x34 = 136 "	4x45 = 180 "
Drawing, Survey & Workshop	12x34 = 408 "	12x45 = 540 "
	<u>694 hrs.</u>	<u>855 hrs.</u>

Staff Required

	No. of Teaching posts	Load	No. of Teaching posts	Load
Principal	1	1x4 = 4hrs.	1	1x4 = 4hrs.
Head of Deptt.	3	3x12 = 36 "	4 <sup>a</sup>	4x12 = 48hrs.
Sr. Lecturers	7*	7x14 = 68 "	9*	9x14 = 126hrs.
Lecturers	35 <sup>c</sup>	35x16 = 560 "	42 <sup>c</sup>	42x16 = 672hrs.
Total:	46	698 hrs.	56	850hrs.

Add 10% posts for leave & Training reserve at the level of Lecturer. Total: 51

6  
62

<sup>a</sup> Includes 1 post of Training & Placement Officer.  
<sup>\*</sup> Includes 1 post of Workshop Superintendent.  
<sup>c</sup> Include posts of Foreman Instructors.

ALL-INDIA COUNCIL FOR TECHNICAL EDUCATION

NORTHERN REGIONAL COMMITTEE

REPORT OF THE SUB-COMMITTEE OF THE NORTHERN  
REGIONAL COMMITTEE FOR THE EVOLVING  
SUITABLE STAFF STRUCTURE FOR DIPLOMA INSTI-  
TUTIONS IN INDIA

INTRODUCTION

The All-India Council for Technical Education while considering the recommendations of the Regional Committees for the provision of staff structure in Engineering Colleges and Polytechnics appointed an Expert Committee headed by Prof. S.J. Madan, Pro-Vice-Chancellor, U.S. University, Baroda. The All-India Council for Technical Education at its meeting held on 22nd April, 1972 considered the recommendations of the Expert Committee and recommended that the Regional Committees should formulate detailed proposals for evolving suitable staff structure of technical institutions in accordance with the broad principles laid down by the Madan Committee. The Northern Regional Committee at its 38th meeting held on 3rd April, 1973 requested the Directors of Technical Education in the Northern Region to work-out the desired staff structure for diploma institutions for various intakes of 120, 180, 240 and 300. The Northern Regional Committee at its 40th meeting held on 29th May, 1974 considered the note prepared by the Secretariat of the Regional Committee on the basis of the information received from the different States. After discussing the pros and cons, the Committee decided that the Chairman should appoint Sub-Committee in respect of each State of the Region to evolve a suitable staff structure for diploma institutions for various intakes. This Sub-Committee will consist of the following :-

1. A representative of the Director of Technical Education of the respective State.

contd...2...

2. A Principal of the Diploma Institution located in that State.
3. Member-Secretary, Northern Regional Committee

APPOINTMENT OF THE SUB-COMMITTEE

In pursuance of the recommendations of the Northern Regional Committee made at its 40th meeting held on 29th May, 1974, the Chairman, Northern Regional Committee appointed a Sub-Committee consisting of the following to work-out the suitable staff structure for diploma institutions located in Rajasthan State :-

1. Shri B.K. Jain,  
Director of Technical Education,  
Rajasthan,  
Jodhpur.
2. Shri S.N. Goel,  
Principal,  
Jodhpur Polytechnic,  
Jodhpur.
3. Shri Narendra Singh,  
Member-Secretary,  
Northern Regional Committee.

NOTE :- Shri E.L. Tandon, Asstt. Education Officer (Tech.) acted as Secretary on this Sub-Committee.

The above Sub-Committee met in the office of the Director of Technical Education, Rajasthan, Jodhpur on 14th August, 1974.

OBSERVATIONS AND RECOMMENDATIONS

The Member-Secretary gave a brief resume of the guide-lines laid down by the Madan Committee for the formulation of model staff structure for polytechnics. He also informed the Sub-Committee about the modifications suggested by the All-India Council for Technical Education at its 21st meeting held on 17th May, 1974 at New Delhi, according to which in determining the work load of staff no distinctions has to be made between tutorial and laboratory work on the one hand and

contd..3...

lecture classes on the other.

Broadly the following norms have been adopted by the Sub-Committee in framing the staff structure:-

1) There should be no teaching post below the post of Lecturer.

The Staff structure in polytechnics should provide for the following three categories of teachers:-

- i) Head of the Department
- ii) Reader
- iii) Lecturer

The ratio of senior post (Head of the Department and Reader) to junior post should be of the order of 1 : 3.

2) There should be atleast one post of Head of the Department for each course. For institutions having an intake of 180 or more, the post of Head of the Department should also be provided for non-technical subjects i.e. Humanities and Applied Science Departments.

3) Average teaching load proposed to be shared for different categories of teaching staff shall be as follows:-

Principal	4 hours
Head of Department	12 hours.
Reader	14 hours
Lecturer	15 hours

There will be a normal working of 36 hours per week for all courses. On an average, there will be lectures of 12 hours duration, tutorials of 6 hours duration and practicals of about 18 hours duration.

4) Sections for the purposes of lecture classes should be of 60 students each. Overall size of groups for the purpose of tutorials and practicals should be of 20 students.

5) The workshop instruction in the polytechnic will be under the overall supervision of a Workshop Superintendent who will be of the rank

of Senior Lecturer. Provisions will have to be made for atleast four Foremen Instructors at the level of Lecturers for handling the practical classes.

6) 20% of teaching strength should be provided as leave and training reserve. This is considered very necessary in view of increasing emphasis on diversification of courses and industrial training of teaching staff.

7) A post of Training & Placement Officer should be provided in polytechnics where the intake is 300 or more.

8) The Committee noted that active collaboration between industry and polytechnic education is essential. Experts from industry should be invited to deliver lectures from time to time. The expenditure on this account may be met from the provisions made for leave and training reserve.

9) A lump sum monetary provision equivalent to 30% of pay and allowances of teaching staff should be provided for non-teaching posts which will include technicians, ministerial staff, attendants and class IV staff etc.

10) Existing cadre of Instructors in the polytechnics should be given opportunities to improve their qualifications so as to enable them to acquire minimum qualifications laid down for the post of lecturers.

11) All diploma courses are of three years duration. First year of the diploma courses is a basic course and is common for all branches of engineering, viz. Civil, Electrical and Mechanical. Accordingly, the teaching load and staff requirements for first year are based on the assumption that the total intake of first year is one unit.

All Courses bifurcate from Second year. Bulk of the teaching load for second year and third year is taken by the teaching staff of the relevant branch. As such each course has been considered as a separate unit for purposes of working out the teaching load and staff requirements for second year and third year.

Based on the above and guide-lines laid down by the Madan Committee, the Committee worked out the staff structure. The detailed



staff structure calculations are given at Annexure 'A'. Summary of staff structure worked out by the Committee is given below:-

Sanctioned Intake	<u>120</u>	<u>180</u>	<u>240</u>	<u>300</u>
Civil	30	60	60	60
Mechanical	45	60	90	120
Electrical	45	60	90	120
Total:	<u>120</u>	<u>180</u>	<u>240</u>	<u>300</u>
Principal	1	1	1	1
Head of Department	3	4	4	5
Leaders	1	7	11	13
Lecturers	24	38	49	63
Total:	<u>32</u>	<u>50</u>	<u>65</u>	<u>82</u>
Add 20% for leave and training reserve.	6	10	13	16
Total:	<u>38</u>	<u>60</u>	<u>78</u>	<u>98</u>

Provision for Technical Supporting and Non-Teaching Staff suggested by Sub-Committee of N.R.C.

30% of the ceilings of expenditure on the salary of Teaching Staff.

Sd/-  
(B.K.Jain)  
Member

Sd/-  
(S.N.Goel)  
Member

Sd/-  
(B.D.Tandon)  
MEMBER-SECRETARY

STAFF STRUCTURE CALCULATIONS WORKED OUT BY THE  
SUB COMMITTEE OF THE NORTHERN REGIONAL OFFICE  
APPOINTED TO WORK OUT SUITABLE STAFF STRUCTURE  
FOR DIPLOMA INSTITUTIONS IN RAJASTHAN STATE IN  
AGREEMENT WITH THE ALL INDIA SCIENTIFIC EDUCATION

<u>INDEX</u>	<u>120</u>	<u>180</u>
Civil	30	60
Mechanical	45	60
Electrical	45	60

Teaching Load per week

Lecture	12 hrs.	12 hrs.
Tutorial	6 hrs.	6 hrs.
Practical	18 hrs.	18 hrs.
<b>TOTAL :</b>	<u>36 hrs.</u>	<u>36 hrs.</u>

Grouping of students

Theory	60	60
Tutorial, Lab., Drawin, & Practical	20	20

Number of Groups

	<u>Theory</u>	<u>Tutorial, Lab. &amp; Practical</u>	<u>Theory</u>	<u>Tutorial, Lab. &amp; Practical</u>
1st Year	2	6	3	9
2nd Year	3	5	3	9
3rd Year	3	5	3	9
<b>Total No. of Groups:</b>	<u>8</u>	<u>16</u>	<u>9</u>	<u>27</u>

Total Teaching load per week for 3 years

Lecture	12x8 = 96 hrs.	12x9 = 108 hrs.
Tutorial	6x16 = 96 hrs.	6x27 = 162 hrs.
Practical	18x16 = 288 hrs.	18x27 = 486 hrs.
<b>TOTAL :</b>	<u>480 hrs.</u>	<u>756 hrs.</u>

Staff Required

	<u>No. of posts</u>	<u>Teaching Load</u>	<u>No. of posts</u>	<u>Teaching Load</u>
Principal	1	1x4 = 4 hrs.	1	1x4 = 4 hrs.
Head of Deptt.	3	3x12 = 36 hrs.	4	4x12 = 48 hrs.
Readers	4*	4x14 = 56 hrs.	7	7x14 = 98 hrs.
Lecturers	<u>25</u>	<u>24x16 = 384 hrs.</u>	<u>38</u>	<u>38x16 = 608 hrs.</u>
<b>Total:</b>	<u>33</u>	<u>480 hrs.</u>	<u>50</u>	<u>756 hrs.</u>
add 2 posts for leave & training reserve	6		10	
<b>TOTAL:</b>	<u>39</u>		<u>60</u>	

\* Includes 1 post of Workshop Superintendent.  
 † Includes post of Foreman Instructors.

STAFF STRUCTURE & CALCULATIONS WORKED OUT BY THE  
THE COMMITTEE OF THE NATIONAL POLYTECHNIC COMMISSION  
APPOINTED TO WORK OUT SUGGESTED STAFF STRUCTURE  
FOR DISTANCE EDUCATION IN POLYTECHNIC IN  
CONFORMANCE WITH THE POLYTECHNIC COMMISSION ACT, 1947.

<u>INTAKE</u>	<u>240</u>	<u>300</u>
Civil	60	60
Mechanical	90	120
Electrical	90	120

Total In. Load per week

Lecture	12 hrs.	12 hrs.
Tutorial	6 hrs.	6 hrs.
Practical	18 hrs.	18 hrs.
<b>TOTAL :</b>	<b>36 hrs.</b>	<b>36 hrs.</b>

Grouping of Students

Theory	60	60
Tutorial, Lab., Drawing	24	24
Practical		

Number of Groups

	<u>Theory</u>	<u>Tutorial, Lab.,</u> <u>Practical</u>	<u>Theory</u>	<u>Tutorial, Lab.,</u> <u>Practical</u>
1st Year	4	12	5	15
2nd Year	5	11	5	15
3rd Year	5	11	5	15
<b>Total No. of Groups:</b>	<b>14</b>	<b>34</b>	<b>15</b>	<b>45</b>

Total Teaching Load per week for 3 years

Lecture	12x14 = 168 hrs.	12x15 = 180 hrs.
Tutorial	6x34 = 204 hrs.	6x45 = 270 hrs.
Practical	18x34 = 612 hrs.	18x45 = 810 hrs.
<b>TOTAL :</b>	<b>984 hrs.</b>	<b>1260 hrs.</b>

Staff Required

	<u>No. of posts</u>	<u>Teaching Load</u>	<u>No. of posts</u>	<u>Teaching Load</u>
Principal	1	1x1 = 1 hrs.	1	1x1 = 1 hrs.
Head of Deptt.	4	4x12 = 48 hrs.	5*	5x12 = 60 hrs.
Readers	11*	11x14 = 154 hrs.	13*	13x14 = 182 hrs.
Lecturers	49**	49x16 = 784 hrs.	63**	63x16 = 1008 hrs.
<b>TOTAL :</b>	<b>65</b>	<b>984 hrs.</b>	<b>82</b>	<b>1254 hrs.</b>
add 20% posts for leave & training reserve.	13		16	
<b>TOTAL :</b>	<b>78</b>		<b>98</b>	

- \* Includes 1 post of Training & Placement Officer.  
 \* Includes 1 post of Superintendent.  
 & Includes 2 posts of Instructors.



NIEPA

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ENTAPDA CENTRE

of Educational

Plan and Administration.

17 B, Sri Aurobindo Marg,

New Delhi-110016

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