GUIDELINES FOR THE INTRODUCTION OF NEW UG/PG/DIPLOMA COURSES (IN ENGINEERING AND TECHNOLOGY) FOR WOMEN IN UNIVERSITIES

ज्ञान-विज्ञान विमुक्तये

UNIVERSITY GRANTS COMMISSION
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Website : www.ugc.ac.in

Printed : February 2004
500 copies

Printed and Published by : Prof. Ved Prakash, Secretary, University Grants Commission
Bahadurshah Zafar Marg, New Delhi - 110 002

Publication Officer : Diksha Rajput

Production Assistance : Naresh K.Verma

Printed at : Alpha Printers, CB -94, Naraina Ring Road
New Delhi-110028 Phone : 35381811, 35381749

1. INTRODUCTION

In order to promote women's access into engineering and technological careers, the University Grants Commission proposes to support professional courses for women during the Tenth Plan period.

The current guidelines aim at ensuring the introduction of high quality, frontline courses for women in different universities and colleges in the country, and thereby ensure women's participation in the ongoing technological revolution, thus granting access and equity.

The guidelines presented here are divided into two parts: Part I has an approach paper that will broadly outline the changing educational scenario and the special needs of women. It will include the aims of the scheme and certain recommendations to improve the quality of the programme. Part II seeks to make the programme operational and guide its implementation.

PART I

Approach Paper

In the last round of the international trade negotiations that established the World Trade Organization, a comprehensive agreement called the General Agreement in Trade in Services (GATS) was made. This multilateral agreement (positing legally enforceable rights to trade in services and investments) aims at promoting international trade in health and education. With reference to education, it encourages private enterprise and allows foreign universities/institutions to cross borders and compete with the national systems of education by scouting for students, or by establishing bilateral tie-ups with local institutions. In order to meet competition, institutions of higher education across the world are evolving flexible structures, innovative modes of delivery systems and curricula by creatively adapting information and communication technologies.

The full import of this development on higher education in India is evident from the comprehensive policy statement entitled, *Xth Plan Profile of Higher Education in India* issued by the University Grants Commission, New Delhi and the *Report on A Policy Framework for Reforms in Education* brought out by the Prime Minister's Council on Trade and Industry with Mukesh Ambani as Convenor and Kumaramangalam Birla as member.

These documents indicate the future thrust on higher education, granting autonomy to private educational institutions, encouraging Indian universities to scout for foreign students and setting up educational shops in other countries. These measures, in short, aim to make the economic laws of demand and supply applicable to education and have far-reaching implications. Indian universities and colleges will now have to compete with the alternative systems of education that are likely to be better equipped and able to offer innovative courses to students. To meet the challenge, Indian universities will have to restructure their existing educational delivery systems, develop innovative teaching / learning packages and provide students with greater course options.

Changing Patterns of Economy and its Implications for Higher Education

Educational restructuring is necessitated by the changes in economic organization. Developed economies are becoming increasingly, knowledge-based; additionally two thirds of the growth of the world's GDP is expected to come from technology–led businesses. Educational reforms (especially in engineering and technology) are vital because of the changing labour market. The current industrial downsizing and outsourcing have altered the employment market trans-nationally. Industries will increasingly operate through decentralized and diversified umbrella structures. The workforce must adapt itself to these changes, as secure jobs in government and other public sector concerns will be scarce. The focus of education should be on developing entrepreneurship and self-employment.

These changes are not necessarily bleak: the globalization of the job

market and the recognition accorded to Indian technical skills, have opened up opportunities in the international vista; greater cross-border opportunities in the labour market are now available for the highly qualified and skilled (as corporate executives, scientists and technologists), but are limited for the unskilled and less educated. University education is thus confronted with not only enhancing quality but also ensuring equity of access to the various vulnerable groups.

The rapid expansion of the university education system in India was partly propelled by this compulsion to expand access to education and also meet the requirements of a diversifying economy. This increase is not without costs – for, apart from a few premier institutions, universities have not necessarily developed the infrastructure to meet the diverse needs of students for multiple options in courses and flexible educational packages. Further, graduating students are unable to develop the requisite skills to enter the world of work; despite the encouragement and support provided by the UGC to restructure courses, institutions have neither invested in improved workshop/laboratory facilities, nor tied up with industries to provide students with on-the-job training.

On the plus side, the Indian education system has been recognized internationally as having the capacity to provide quality education. Indians are participating in scientific and technology revolutions (particularly in computer science, electronics and biotechnology) as well as in finance and other related fields. The system has brought about social change through its affirmative action programmes to ensure that students from the vulnerable groups such as SC, ST, OBC and tribals have access to higher education.

Rationale for Special Provisions for Women's Education

A major concern in educational planning today is to ensure access and equity in education. With the rise in educational costs, it is likely that the various marginalized sections of society will be deprived of educational opportunities. This differential access to education is particularly evident when examining the access parameters. It indicates that despite the rapid

strides made by University education, women's enrolment has not kept pace with that of men.

This disparity between men and women's access to higher education becomes more apparent while examining the discipline-wise proportion of men and women to the total enrolment. Women are largely concentrated in the so-called feminine sector of medicine, education and the arts and do not enter engineering and technology, as these are seen as male-centered disciplines.

The reasons why women do not figure largely in the engineering and technology streams are because of the prevailing construction of gender identities and notions of entitlements in society. Notions of appropriate gender roles prevent families and educational institutions from investing in the development of women's talents. Many discriminatory practices are subtle and barely discernible; others are overt and repressive. Within the family, girls' education may be neglected because they are not seen as core members of the family—a neglect that is likely to be exacerbated with the current rise in cost of education. Hence, a strong thrust is required to reduce gender imbalance and mainstream gender in the sphere of engineering and technology.

Within educational/research institutions, the discouragement may arise through practices that do not recognize their special needs. This is because policies and programmes since Independence had not adequately addressed the need to ensure women's entry into higher education particularly engineering and technology. It was only in the last decade that special efforts have been made to enhance women's entry into these careers. During the Ninth Plan period (1997-2002) the UGC made provisions for the introduction of new UG/PG courses in engineering and technology in women's universities—a programme that must be extended to other Universities to ensure that women can be encouraged to enter fields that are generally male dominated.

In the present employment market, engineering and technology are the areas that offer the best employment opportunities. Therefore to achieve the Constitutional promise of gender equality, women should have the opportunity to contribute and excel in these areas. They however are disadvantaged by the historically established structures of inequality and prejudice. To overcome such obstacles to women's entry into the world of work, it is necessary not only to expand their educational opportunities in conventional engineering and technological fields, but also creating niches for them in pioneering areas of technological advancement, such as food technology, fashion technology, media and communication technology, information technology, technology for the development of non-conventional energy use, environment engineering, etc. The development of women's skills in these emerging areas through public universities is necessary to forestall the possibility that women will be left behind in the competitive job market. It is also necessary so that the country could capitalize on its human resources to its fullest. Therefore, the UGC proposes to not only continue funding special schemes on engineering and technology for women in women's universities, but also to extend such schemes to other universities, to enable better access to women students across the country.

2. OBJECTIVES

The Indian economy has moved from Industrial Revolution to I.T. Revolution, and hence the scheme of engineering and technology courses for women is proposed with the following aims and objectives:

1. To bring forth and showcase the hidden, inherent strengths and talents in women, and to enhance and sharpen the same through professional/ technological education.

2. To widen women's access to vocational, technical and professional education at all levels, in order to break gender stereotypes and enhance women self-confidence, self-esteem and overall courage.

3. To build a positive image of women by recognizing their contribution in society.

4. To give women the opportunity to participate in the frontline areas of engineering and technology breaking the traditional gender oriented areas and entering male dominant fields.

5. To enhance employment opportunities for women in areas perceived to be prestigious and associated with better emoluments and work conditions.

6. To reduce gender imbalance in the sphere of technology, and overcome social prejudice and discrimination.

7. To introduce new avenues for women to pursue technology programmes by encouraging engineering and technical courses at UG/PG level in women's universities as well as in other universities and institutions of higher education.

8. To provide sector specific knowledge and skill in the emerging areas of technology, transforming them into job-makers rather than job mongers.

9. To mould them for gainful employment and profitable technology ventures.

Recommendations

The successful implementation of the programme will depend upon the following factors : 1) financial outlay; 2) development of innovative teaching/learning material; 3) flexible teaching/learning programmes through which students could avail of diverse learning packages and hone their skills; 4) faculty development and sensitization to gender issues so as to enable them to understand the special needs of their women students; 5) administrative arrangements for implementation of the programme; 6) encouragement to industries (willing to provide hands-on training to students) to give preferential treatment to women students; and special assistance provided by institutions to promote self employment ventures.

3. ELIGIBILITY/ TARGET GROUP

(a) Eligibility

The criteria for admission of students will be according to the norms laid down by the UGC/AICTE.

(b) Target Group

- Women's universities and institutions of high repute
- Rural universities
- Universities with co-education students (eligible for Central assistance under section -12 B of the UGC Act, 1956).

4. NATURE OF ASSISTANCE AVAILABLE UNDER THE SCHEME

- Major grant for the introduction of new courses
- Partial grant for the courses, if the institution has other sources of funds
- Purchase of equipment
- Consumables
- Fellowships and stipends

5. PROCEDURE FOR APPLYING FOR THE SCHEME

1) Proposals for starting of the undergraduate/postgraduate courses in women's universities should be submitted to the University Grants Commission in the format given in Annexure I.

2) Progress report and utilization certificates for release of grants should be furnished in the prescribed Proforma as in Annexure II and III.

3) Annual Proformance Report should be submitted in the prescribed Proforma as in Annexure IV.

PART II

Organizational Aspects

The scheme will focus on technical and engineering courses offered at different levels, i.e. U.G., P.G., Diploma, and U.G. and P.G. integrated courses.

a) The university may offer PG/UG level degree/diploma/certificate courses in the proposed areas. These teaching/learning programmes will have parity with courses offered by IITs and other premier institutions.

b) Capacity strengthening: This may be achieved by organizing orientation/ refresher programmes for students and teachers as well as by providing access and guidance to students and teachers for research work.

c) Assessment of viable programmes and establishing tie-ups with industries and other organizations.

For funding under this scheme, the courses that the university/technical institutions propose to introduce should be other than traditional. Computer education should be a base for all the courses.

Some of the thrust areas identified are as follows :

1) Herbal Technology; 2) Food Technology; 3) Bio Informatics; 4) Catering Technology; 5) Fashion Technology; 6) Information Technology; 7) Tourism Technology; 8) Advertisement and Communication Technology; 9) Pharmaceutical Technology; 10) Hospital Management;11) Insurance Management; 12) Renewable Energy Engineering; 13) Eco Technology; 14) Bio Medical Engineering; 15) Medical Laboratory Technology; 16) Chemical Technology; 17) Environmental Engineering; 18) Cosmetology; 19) Khadi Handloom and Silk Technology; 20) Physician Assistance; 21) Architecture; 22) Urban Planning and Development (UG).

a) A sufficient quantum of curriculum should be both practice and industry oriented. Therefore, the distribution of marks should be as follows:

- Theory 60 per cent
- Practical 20 per cent
- Work experience 20 per cent

b) For effective implementation of the courses, institutions will have to tie-up with industries and other organizations that could provide students with on-the job training.

c) These courses should be developed through a multi-disciplinary approach. The said courses be offered under a choice-based, credit based, grading system for cumulative score.

d) Gender sensitization and empowerment of women should be an important component of each course.

e) Special efforts should be made to introduce PG and research programmes, with emphasis on the thrust areas highlighted in this scheme. Programmes that are likely to facilitate the conducting of technical courses in other disciplines would be encouraged.

f) Induction of students into teaching/research by providing fellowship/ stipends.

g) Combining engineering and technology, pharmacy and management under the faculty of technology.

For funding under this scheme, colleges and universities should propose courses based on their demand and needs of the local women candidates. The quantum of financial assistance under the programme, will depend upon the type of course. A higher allocation may be allowed for courses that require sophisticated instrumentation and consumables. The grant allocation for each course will be over and above the Plan funds provided by the UGC for the development of the university.

The allocation of grant for each course will be up to the end of Tenth Plan.

The pattern of assistance and the ceiling of expenditure on various permissible items under Budget Heads.

The budget will be allocated under the following item heads :

Postgraduate and undergraduate courses

Item	Allocation *(Rupees in lakhs)*
Non-Recurring	
Equipment	50.00
Books and journals	5.00
Recurring	
Staff (1 Reader, 2 Lecturers)	35.00
Visiting faculty	2.00
Contingency (maintenance, consumables, secretarial assistance)	8.00
TOTAL	**100.00**
P.G. Diplomas	
Staff: Two Lecturers on contractual basis	6.00
Equipment	14.00
Contingencies	6.00
Books and journals	4.00
TOTAL	**30.00**

Staff

The university should give an undertaking that after completion of the 5-year project period, the salaries of the faculty employed in the courses should be borne by the university.

Visiting Faculty

The appointment of visiting faculty by the university/technical institution will be permissible to supplement its teaching/research programmes. The institution may draw the visiting faculty from the vast pool of talent in the industrial sector.

Equipment

Under this item, assistance is available for procuring equipment for the library/ laboratories, teaching aids and for office work.

Books and Journals

Under this item, assistance is available for procuring books and journals relevant to the approved course.

While seeking fresh assistance, a Utilization Certificate should be submitted by the university for the grant released earlier by the UGC for procurement of equipment/books etc.

Contingency

Under this item, assistance is available for maintenance, consumables and secretarial assistance.

8. PROCEDURE FOR MONITORING THE PROGRESS OF THE SCHEME

In addition to the submission of Progress Report and Utilization Certificates and the annual accounts, the university/technical institution will forward to the Commission the status report for the mid-term review after 2 years of introduction of the courses. Where found necessary, an Expert Committee will be appointed by the Commission to visit the institutions approved for introduction of course.

ANNEXURE-I

ज्ञान-विज्ञान विमुक्तये

UNIVERSITY GRANTS COMMISSION
SCHEME OF 'TECHNOLOGY FOR WOMEN'

PROFORMA FOR SUBMITTING PROPOSALS

1. BACKGROUND
   - 1.1 Name of the University
   - 1.2 State
   - 1.3 Address
   - 1.4 Date of Establishment
   - 1.5 a) No. of ongoing engineering/technical programmes including Management/Pharmacy
     - b) Whether running on self-financing basis
     - c) Information about the fee structure
   - 1.6 Information about the ongoing programmes :
     - a) Names of the Programmes
     - b) Year of starting of the course.
     - c) No.of candidates admitted/intake
     - d) Percentage of passes in each course during the last 5 years (give the range)
     - e) Placement record (if available)
   - 1.7 No. of teachers (cadre strength for the ongoing programmes)
   - 1.8 Supportive staff (Technical staff)
   - 1.9 Administrative staff
   - 1.10 Accommodation
     - a) Class-room/teaching
     - b) Laboratory
     - c) Hostels
     - d) Computer facility
   - 1.11 Library – Documentation (Collection of books and journals)
   - 1.12 Computer and communication skills
   - 1.13 New programmes proposed to be introduced
   - 1.14 Additional requirement for the course from the University Grants Commission

COURSES TO BE INTRODUCED

A : Bachelor's Degree Courses (B.E./B.Tech) [Duration: 3 years]

1. Cosmetology
2. Medical Laboratory Technology
3. Office Management
4. Enabling Technologies (IT)
5. Information Systems Design
6. Bachelor of Technology in Bioinformatics [Duration : 4 years]
7. Electronics & Communications Engineering
8. Electrical & Electronics Engineering
9. Electronics & Telecommunications Engineering
10. Information Technology
11. Biomedical Engineering
12. Industrial Biotechnology

B : Post Graduate Degree Courses [Duration : 2 years]

1. Herbal Technology
2. Bio-Informatics
3. Bio-medical Sciences
4. Dietetics and Community Nutrition
5. Hotel Management
6. Travel & Tourism Management

C : Post Graduate Diplomas [Duration : 1 year]

1. Nutrition and Dietetics
2. Herbal & Ayurvedic Medicine
3. Medical Technology
4. Physiotherapy
5. Audio & Speech therapy
6. Bioinformatics
7. Biomedical Sciences
8. Biomedical instrumentation

9. Cosmetology
10. Pharm Analysis
11. Drug Information
12. Drugs & Regulatory Affairs
13. Pharmaceutical Advertising & Marketing
14. Mass media, Communications & Advertising
15. Pharmaceutical Management
16. Travel and Tourism
17. Health & Beauty Culture
18. Fashion Design & Garment Making
19. Textile Designing
20. Geriatrics/Gerontology
21. Networking Technology
22. Communication Skills
23. Food Processing & Preservation
24. Architectural Design
25. Diploma in Management Studies
26. Personal Management
27. Autonomous Health Care Practice
28. Psychotherapy
29. Environmental Management & Technology
30. Marketing
31. Insurance
32. Safety Management
33. Sports Management
34. Advertising
35. Accounting and Finance
36. International Trade
37. Computing & Information Processing
38. Journalism

39. Legal Studies
40. Event Management
41. Instrumentation & Maintenance
42. Toy Making
43. Textile Design
44. Office Management
45. Internet Technology
46. Web-content Design
47. Instruction Design
48. Screen Printing
49. Batik Printing
50. Web Designing
51. Computer; Programming & Applications
52. Desk Top Publishing
53. Motor-winding
54. Graphics & Multimedia Technologies
55. Networking Technology

The Commission may consider a course other than those given in the list, if it is found innovative and skill-oriented.

D : Undergraduate Diploma Courses [Duration : 2 years]

1. Diploma in Office Management
2. Diploma in Event Management
3. Diploma in Internet Technologies
4. Diploma in Multimedia Technology

E : Certificate / Diploma Courses

1. Languages, such as Chinese, Japanese, German, French and Russian
2. Call Centre Operations

CLASSIFICATIONS

Technology/Engineering related UG/PG Courses I	Management Related UG/PG Courses II	Add on Courses **OR** Bridge the gap of Basic programme + Empirical hands on training - Certificate/Diploma/Adv.Diploma (PG) III
Section in Medical areas: T.V. tactile Electronics Fashion Designing (♣) Bio-informatics (♣) Catering (♣) Jewellery (♣) Visual/Electronics Food Processing Technology (♣)	Section in Medical areas: Manufacturing Assembly lines (♣)	Interior Design Communication Skills Mushroom Culture Fish farming Poultry farming Medicinal Plants also include in Herbal Tech. Food Processing & Presentation (¤)
Non-conventional energy – Solar, Gas TERI (♣)	Physiotherapy	Medical Lab. Technology
Network Technology Electronics & Communication	insurance – To provide Sector Specific Ref. Of Mother Teresa	Ophthalmology
Herbal	Entrepreneurship Development	Ophthalmic Technology
Cosmetology **(please check)**	Hospital Management	Bio-Surgical Technology
Nutrition & Dieticians	Hotel Management	Radiological Instrument
Herbal & Technology/ Cosmological Study	(Gerontology) Care Management	Instrument Operation
Applied Bioinformatics	Crèches, Hostel, Warden, Geriatrics, Gerontology, Orphanages	
Audiology & Speech Therapy (♣) Tourism Technology (Service Sector) (♣)		
Knowledge Management (♣)		

Key = **I.** Technology/Engineering related UG/PG courses (¤)
II. Management Related UG/PG courses (♣)
III. Add on courses (♣) OR
Bridge the gap of Basic Programme + empirical hands on training Certificate/ Diploma/Adv.Diploma (PG)

ANNEXURE-II

PROGRESS REPORT OF EXPENDITURE

University _____

Name of the Programme _____

Sanction letter No. & Date _____

Statement of Actual expenditure during _____

Non-Recurring

S.No.	Item (s)	Grant approved by UGC	Grant released by UGC so far	Actual expenditure as on _____ (date)	Unspent balance	Remarks
1.	Equipment					
2.	Books & Journals					
Total N. R.						

Recurring

S.No.	Item (s)	Grant approved by UGC	Grant released by UGC so far	Actual expenditure as on __ (date)	Unspent balance	Remarks/ Justification for unspent balance lying with the University
Recurring						
1.	Teaching Staff					
2.	Teaching Innovations					
3.	Faculty Development Programme					
1.	Visiting Faculty					
2.	Field Work including case materials					
3.	Contingency /Working Expenses					
4.	University –industry interaction					
Total						

CERTIFICATE

Certified that the grant has been utilized for the purpose for which it was sanctioned and in accordance with terms and conditions attached to the grant.

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

Signature _____

(Finance Officer)

Signature _____

(Registrar)

N.B. : This may not include any amount relating to orders placed or likely to be placed, commitments entered into or amount for specific items likely to be obtained.

Recurring

S.No. Item (s)	Grant approved by UGC	Grant released by UGC so far	Actual expenditure as on __ (date)	Unspent balance	Remarks/ Justification for unspent balance lying with the University
Recurring					
Staff (1 Reader, 2 Lecturers)					
Visiting faculty					
Contingency (Maintenance, Consumables, Secretarial Assistance)					
Total					

CERTIFICATE

Certified that the grant has been utilized for the purpose for which it was sanctioned and in accordance with terms and conditions attached to the grant.

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

Signature _____

(Finance Officer)

Signature _____

(Registrar)

N.B. : This may not include any amount relating to orders placed or likely to be placed, commitments entered into or amount for specific items likely to be obtained.

ANNEXURE- III

UNIVERSITY GRANTS COMMISSION

UTILIZATION CERTIFICATE

Certified that the grant of Rs._____

(Rupees _____

out of Rs._____ sanctioned to

_____

by the University Grants Commission vide their letter number _____

_____ dated _____ has been utilized for the purpose for which it was sanctioned and in accordance with the terms & conditions as laid down by the Commission. The Institute/University has also utilized the amount of Rs._____ as interest earned on University Grants Commission grant.

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

Signature _____	Signature _____	Signature _____
(Registrar)	(Finance Officer)	(Chartered Accountant/ Govt. Auditor)
Seal _____	Seal _____	Seal _____

ANNEXURE-IV

ANNUAL PROFORMANCE REPORT

(FOR THE YEAR _____)

(To be submitted from the date of implementation of the Programme)

1. Students admitted during the academic year :

2. Details of the placement of students of the previous batch :

3. Details of Research Work undertaken & publication in the academic year :

4. No. of the teachers deputed for FDP (Give details) during the academic year :

5. a. New Methodology adopted in teaching :

   b. Details of the teaching material developed during the academic year

6. Brief note on the University-Industry Interaction during the academic year :

Head of the Department

Registrar