

(iii) Providing Teaching and Research Assistantships to increase enrolment in existing and new PG programmes in Engineering disciplines:

Increased output of Postgraduates and Doctorates is of crucial importance for meeting the large requirements of faculty and for meeting the needs of the Industry. It is also essential to encourage the passing out Graduates to join PG programmes and also pursue Research programmes for being employed as faculty. Starting of new PG programmes could also be a part of the IDP. The Project will fund only those new (started latest during the calendar year 2011) and existing PG programmes that are AICTE approved and for which the availability of required faculty is assured. Institutions receiving funds under the Project are encouraged to seek enhancement of Masters degree seats from AICTE so as to increase the enrolment in PG programmes.

Students sponsored from Industry will be allowed to be enrolled in all PG programmes. GATE qualified students will receive scholarships as per AICTE norms from the Government sources. The non-GATE qualified students selected by the institutions will receive teaching / research assistantships, for which they will devote 8-10 hours per week in classroom and laboratory assignments. Institutions should plan to utilize 10-12% of the total Institutional project outlay on giving assistantship to Masters and Doctoral students. The institutions may also seek permission to convert the unfilled GATE and Industry sponsored seats to non-GATE and non-Industry sponsored seats (open/general) respectively so that seats do not remain vacant.

(iv) Enhancement of Research & Development and Institutional Consultancy Activities:

The selected institutions would promote increased participation of faculty in research, projects and consultancy, for e.g. through merit recognition and fiscal and career incentives. Institutions that already have Doctoral programmes should encourage Masters students to join Doctoral programmes, as explained in paragraph above.

Institutions need to market their services to the Industry. The Industry should be encouraged to give live problems to the institution for solutions. The faculty who have expertise should be encouraged to take up consultancy assignments, which would directly and indirectly benefit the institution, faculty and students. Internal Revenue Generation (IRG) would receive a boost, and some of the income should be shared with faculty, staff and students as per the norms approved by the BoG. Regular interactions through consultancy are likely to promote a healthy and useful relationship between the Industry and institution. Care should be taken that consultancy services offered to Industry do not affect the teaching schedules and processes. Institutions need to develop a strategy for enabling faculty to secure consultancy assignments and to complete them timely and successfully. The strategy in this regard is to be detailed in the IDP.

(v) Faculty and Staff Development for Improved Competence based on Training Needs Analysis (TNA) (for Guidelines refer Annex – VI):

Enhancing faculty and staff competence would receive focused attention under the Project. Faculty development should be closely linked to the overall goals of the institution as also fulfil individuals justifiable professional aspirations. Institutions should plan to spend at least 10% institutional project outlay on faculty and staff development.

(a) Enhancing Development of Faculty:

Faculty Development needs to be carried out through the following main activities.

The following areas may be given importance while formulating an action plan in this regard:

- Upgradation of qualifications
- Improving competence in teaching-training
- Development of modern learning resources and teaching aids
- New techniques in research
- Improving competence in research and consultancy
- Deputation to seminars, conferences and presentation of research papers
- Interaction with peer groups within India and abroad
- Establishing linkages with academic and research institutions and Industry.
- Management of Industry interactions
- Student counselling
- Student performance evaluation

Institutions should submit a detailed action plan on Faculty Development in their respective Institutional Development Proposals.

Qualification Upgradation: Institutions are expected to encourage faculty to upgrade their qualification from Bachelors to Masters and from Masters to Doctoral degree. If the facilities are available within the institution, the same need to be maximally utilized. Alternatively, the faculty could be deputed to other institutions for enhancement of qualification. Part-time or sandwich programmes can also be considered where feasible and necessary.

Subject knowledge and research competence upgradation: Subject knowledge upgradation is to make the faculty aware of the advances in knowledge, technologies and research methodologies for improving his/her own performance and for the benefit of students. Short-term and long-term courses are available within India including summer schools arranged by Government organizations, institutions and professional Societies. Faculty should be on the lookout for appropriate opportunities. The Project plans to develop and periodically update a web-based training calendar on the NPIU's website for the benefit of all Engineering faculty.

Participation in Seminars, Conferences, Workshops, etc.: Faculty is to be encouraged to participate in seminars, conferences and workshops, both National and International. Participation in such fora would give a good exposure on the developments taking place in different areas. The faculty participating in such fora need to be also encourage to visit close-by institutions and laboratories of his/her interest. Besides, accrual of benefits to students and in their own researches, such participation is expected to bring about collaborations with academic institutions and R&D organizations within and outside the country. The institutions are required to establish collaboration through MoUs.

(b) Enhancing Staff Development:

The staff in an Engineering Education institution fall under two categories:

Technical Staff: The Technical Staff in laboratories and workshops needs to be trained in their functional areas including operation and routine maintenance of both the existing and new equipment. They also need training on workshop instructions, upkeep of institutional services, etc. The training can be organized within the institution or at the supplier/manufacturer premises or at reputed technical training institutions. The technical staff also needs to be motivated and encouraged to go for training and to use the newly acquired expertise for the benefit of students and the institution.

Administrative Staff: The Administrative Staff also needs training in respective functional areas, particularly in the use of modern office equipment, software, office automation, maintenance of records, procedures, etc. The training should also cover motivation for time and material efficiency, and friendliness towards faculty and students. The training may preferably be organized within the institution with the help of suitable organizations.

(c) Procedure to be followed:

Based on the Training Needs Analysis, Faculty Development and Staff Development plans need to be developed for each faculty and staff linking to the institution's objective and requirements. This should also cover career progression of the faculty and staff.

Based on the above, comprehensive Faculty and Staff Development Plans (separate for each group) need to be made on a yearly basis with the approval of the BoG. The Faculty and Staff Development plans should contain details of the venue, dates, duration and organization where the training is to be conducted. Once the Plans are approved, deputation of faculty and staff should be done on a regular basis.

Any changes in the Faculty Development Plan due to changes in either institutional priorities or changes in dates/ venue, etc. may be made only with the approval of the BoG under intimation to the NPIU.

(d) Accountability:

The faculty and staff after undergoing training are expected to:

- Prepare a report on the training undertaken and the experience gained. The report should also include the aspects that can be used to improve the teaching-learning process, enhance / improve research, improve equipment utilization and, make administrative and financial functions more efficient.
- Share their experience with students and other faculty/staff of the institution through seminars.
- The report from the faculty and staff should be hosted on the institution's web site and linked to NPIU's web site.

(vi) Enhanced Interaction with Industry:

The Central Advisory Board of Education (CABE) has suggested a strong need for developing effective synergies between research in the Universities and their application in and utilization by the Industry to the mutual advantage of both the systems. Likewise, Industry should be persuaded to establish organic linkages with the Universities to seek solutions of problems faced by the Industry.