# ACCREDITATION OF DEGREE PROGRAMME IN ENGINEERING & TECHNOLOGY

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## 1. INTRODUCTION

Accreditation has currently become the latest buzz-word among the academia after the launch of the National Assessment of Accreditation Council by the UGC (for universities and colleges offering programme in social and physical sciences) and of the National Board of Accreditation (NBA) by the All India Council for Technical Education (AICTE) for programme in Engineering and Technology. Earlier, to a limited extent the Department of electronics Govt. of India had attempted in association with AICTE, accreditation of private technical institutions offering graded courses in electronics and computer area.

Essentially accreditation is a process of giving credit where it is due for some clearly visible and demonstrable strengths of academic activities. In the context of the educational scenario, "accreditation" connotes quality assurance that the academic aims and objectives of institution are known to be honestly pursued and effectively achieved by the resources currently available and the institution has demonstrated capabilities to ensure continued effectiveness of the educational progrmme in near future over the period of accreditation.

The major thrust for accreditation as well as its need and demand for technical education institutes has arisen in view of the extra-ordinary quantitative growth in the number and variety of such educational institutes and programmes over last 15 years. Though engineering and technology programmes continue to be available only to approximately 5 percent of eligible 10+2 pass outs, it is not possible to extrapolate the present growth rate without a parallel exercise in quality assessment and assurance of the programmes and institutions. This will ensure that the institute indeed posseses and is likely to have in near future the necessary instruments and resources to produce technical manpower that is employable for not only the local industry requirements but also be an acceptable human resource for the global job market in engineering and

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technology.

## 2. QUALITY ASSURANCE ACTIVITIES OF THE AICTE

With a view, therefore, to assess and assure the qualitative competence not only of the technological institute but also of various constituent elements namely the academic ambiance, administrative infrastructure, physical resources, human resources (teaching staff and student), supporting systems like library resource, computational resource and avenues for moulding and developing the student's personality and learning characteristics of the enrolled students, the AICTE has established an independent National Board of Accreditation in 1994. The Board is headed by very eminent and renowned academician engineer in the person of Prof. G. J. V. J. Raju. The NBA has already developed the necessary infrastructure for initiating the process of accreditation by formulating important policy guidelines for Under-graduate and Post-graduate progra- mmes not only in engineering and technology but also in related areas like architecture, town planning, pharmacy, technician board (diploma level), etc. The major policy initiated is to accord accreditation at programme level i.e. for four year Under-graduate engineering degree course after 10+2 and 3 semester M.E./M. Tech. Programme after bachelors degree. It is not intended to accredit institutions as such. Thus in a given institution there might be some degree programmes say in chemical and electronics which would be accredited and some weak programmes say in civil engineering or electrical engineering which might not get accreditation. Thus the overwhelming aim and objective of the accreditation is to recognize and acknowledge the value addition in transforming the admitted raw students into a capable Engineer having sound knowledge of fundamentals and acceptable level of professional and personal competence for ready employability for responsible engineering assignment.

The above policy guidelines have been translated into a working plan of action by developing a systematic, logical and transparent procedure of accreditation by a process of discussion, deliberation and national consensus. The various accreditation parameters and the benchmarks have been established for their levels of acceptance. These have already been widely disseminated during various "awareness" workshops and seminars conducted all over the country. Several national level bodies of academic and industry experts as well as more than 500 interested participants/individuals in various fora have contributed their collective wisdom for these national task. The AICTE has already received proposal for accreditation from more than 50 degree level programmes (both Under-graduate and Post-graduate) from 40 different technical institutions covering a wide spectrum that includes full-fledged technical universities, autonomous aided institutions, Regional Engineering College's, the affiliated government college as well as private self financing engineering and technical institutes.

As a precondition to the accreditation process, the AICTE, through its various All India Board of Studies has

revised its norms and standards in various sectors of technical education like architecture, computer, pharmacy, engineering and technology, town and country planning technician education, catering technology, etc. These norms have recently been approved by the competent bodies of the AICTE and provided a set of minimum essential requirements for approval of new programme but it is expected that institutions desiring and deserving "accreditation" will substantially exceed these norms to demonstrable extent to indicate not only the current competence in providing adequately useful teaching and learning process but also an assured capability to retain this competence in future also.

## 3. NATURE OF ACCREDITATION PROCESS

The chief purpose as well as the ultimate objective of the accreditation process is two fold;

(1) To assist all stakeholders (parents, students, teachers, industry, employers, Govt. agencies etc) to identify the institutions satisfying norms and standards as well as other quality parameters specified by the AICTE.

(2) To encourage the maintenance of a standard of excellence and to stimulate the process of continual improvement by providing guidelines for desirable upgradation of existing programmes and innovation of new degree programmes.

The National Board of Accreditation has, after deliberation and extensive debate, taken a conscious decision to focus the accreditation process on the individual degree programmes offered by the institution rather than the institution as an entity. This is because of the fact that the aspiring students usually aim at making a career in specific Engineering discipline like Computer, Mechanical, Chemical etc. Therefore accreditation of degree programme provides a more meaningful career guidance decision support for the students as well as aids the employing industry to focus their campus recruitment process accordingly.

Unlike many other countries, the process of accreditation by the NBA is multilevel rather than yes or no type single level accreditation. It is proposed to classify the institution in following categories.

'A' Meets all accreditation criteria or excels them.

'B' Meet the minimum criteria and deficiencies are marginal can be improved within a short time.

'C' Deficiencies exist but the institution has potential to make up within a foreseeable future say 1 to 2 years.

'NA' (Not Accredited) Not ripe for accreditation in view of deficiencies.

* Availed of the provision of withdrawal.

The last category has been provided as an interim measure to enable an institution offering the programme to withdraw at accreditation process, so that it can then effect the necessary improvements and again apply for accreditation rather than being declared "Not accredited".

## 4. ACCREDITATION PARAMETERS AND CRITERIA

The criteria or standards by which the programme of the institution will be judged have been carefully formulated to give a clear transparent indication of it strengths & weaknesses.

These are outlined below :

### 4.1 Organisational / infrastructural performance indices :

These broadly cover and include.

**Criterion I : Mission, Goals and organisation**

(A) Management : Mission and Goals, Commitment, attitude, Planning and Monitoring, Incentives, Effectiveness.

(B) Organisation and Governance : Leadership, Motivation, Transparency, Decentralization and Delegation, Involvement of Faculty, Efficiency.

**Criterion II : Financial Resources and Their Utilization**

(A) Capital resources, Operational budget, Maintenance budget, Developmental resources and budget.

(B) Land, Building, Hostels, Support services (water, electricity, communication, etc.), Office Equipment, Canteen, Transport, Medical facilities.

### 4.2 Academic Performance Indices :

These broadly cover and include :

**Criterion III Human Resources**

(A) Faculty : Numbers, Qualifications, Recruitment Procedures, Workload (Teaching, Research, Consultancy, Admin.), Attitudes and Commitment, Faculty Development (QIP, Conferences, Continuing Education, Professional Societies, Industrial Exposure, Sabbatical leave, etc.), Performance Appraisal.

(B) Supporting Staff (Tech./Admn.) : Numbers, Qualifications / skills, Recruitment Procedures, Attitudes and Involvement, Skill Upgradation, Performance Appraisal.

**Criterion IV Students :**

(A) Admissions : Central or Institutional, Criteria (minimum criteria for different categories), Admission Policy for Lateral entry, if any.

(B) Academic results, Performance in Competitive Exam., Admission to Post-graduate courses, Employment of graduating students during the past year, Feedback from employers, Intake, number of GATE - qualified candidates, dropouts, during the past three years.

**Criterion V : Teaching - Learning Process**

(A) Syllabus, Academic Calendar; number of instructional days; contact hours per week, Evaluation procedures and feedback, Laboratories, Workshops and Equipment (Facilities, maintenance and utilisation), Computing Facilities, Maintenance and Utilisation, Library, ET facilities, Instructional materials, Budget for Consumable, Implementation of the Instructional, Programme (Lectures, Tutorials, Maintenance of course files, Workshops, Lab. Classes, Colloquia, Projects, Teaching aids), Removal of obsolete experiments and introduction of contemporary lab, experiments.

**Criterion VI Supplementary Processes :**

(A) Extra and co-curricular activities, Student counseling and guidance, Professional Society activities, Entrepreneurship Development, Alumni Information.

**4.3 Societal Contribution Indices :**

These Broadly cover and includes

**Criterion VII : Industry - Institution - Interaction :**

(A) Industry participation in curriculum planning, Continuing education and industrial internship for faculty, Consultancy, Industrial visits and Training, Project work, Extension lectures, Placement.

**Criterion VIII : Research and Development**

(A) Institutional Budget for Research and Development, Academic / Sponsored/Industrial Research Development, Publications and Patents.

(B) Recognition as Centre of Excellence / Special Assistance /Department Support Programme, Fellowships / Assistantships, Joint guidance with industry / R & D Labs / other institutions for Ph. D. theses / M. Tech. Projects, Criteria for Evaluation of Ph. D. Theses / M. Tech. Projects.

- Applicable for PG Programmes only.

**5. STEPS INVOLVED IN ACCREDITATION PROCESS FOR PROGRAMMES :**

**STEP 1 :** Submission (by the Institution) of the information and data in the format of self-study questionnaire provided by the National Board of Accreditation.

**STEP 2 :** Scrutiny (by the office of National Board of accreditation) of the information and data furnished by the institution. Obtaining additional information if any from the institution.

**STEP 3 :** Selection of Visiting Team and chairman.

**STEP 4 :** Providing the Visiting Team with the information furnished in the questionnaire.

**STEP 5 :** Critical study (by the Visiting Team) of the information furnished by the National Board of Accreditation.

**STEP 6 :** Furnishing additional information sought by Visiting Team (through correspondence).

**STEP 7 :** Visit of Institution (laboratories, libraries, Workshops and other accommodation and infrastructure) as per schedule.

**STEP 8 :** Discussions with the Management, Principal, Deans etc., regarding strengths and weakness.

At this stage the Institution may decide to withdraw the programme / programmes from accreditation with a request to come again later.

**STEP 9 :** Discussions among the members of the Visiting Team for finalisation of the report.

**STEP 10 :** Submission of the report by

the Chairman of the visiting Team to the Sectorial Committee.

**STEP 11 :** Examination of the report of the Visiting Team by the Sectorial Committee and forwarding the same with its observations.

**STEP 12 :** Examination of the Visiting Team report by the National Board of Accreditation.

**STEP 13 :** Decision of the National board of Accreditation on assignment of grade.

**STEP 14 :** Reporting to All India Council for Technical Education the decision of National board of Accreditation.

**STEP 15 :** Issue of separate certificates assigning the grade to each programmes in the Institution.

**STEP 15 :** entry into the directory (to be published annually) the name of the programme, the accreditation grade and the date of issue of certificate etc.

After taking action on these sixteen steps next cycle commences.

## 6. CONCLUSIONS :

The guidelines and criteria adopted by the NBA lend themselves to substantial quantitative evaluation of major and core academic parameters in respect of faculty, students and teaching learning process. These are being evaluated at the secretarial level with the assistance of expert group which carries out preliminary scrutiny of the proposals received. To some extent subjective assessment can not be avoided, but this has been reduced to minimum required level and this too can be assessed to a reasonable and acceptable mutual interpretation so that the results of overall assessment and accreditation exercise are impartial and fair to the maximum possible extent.

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