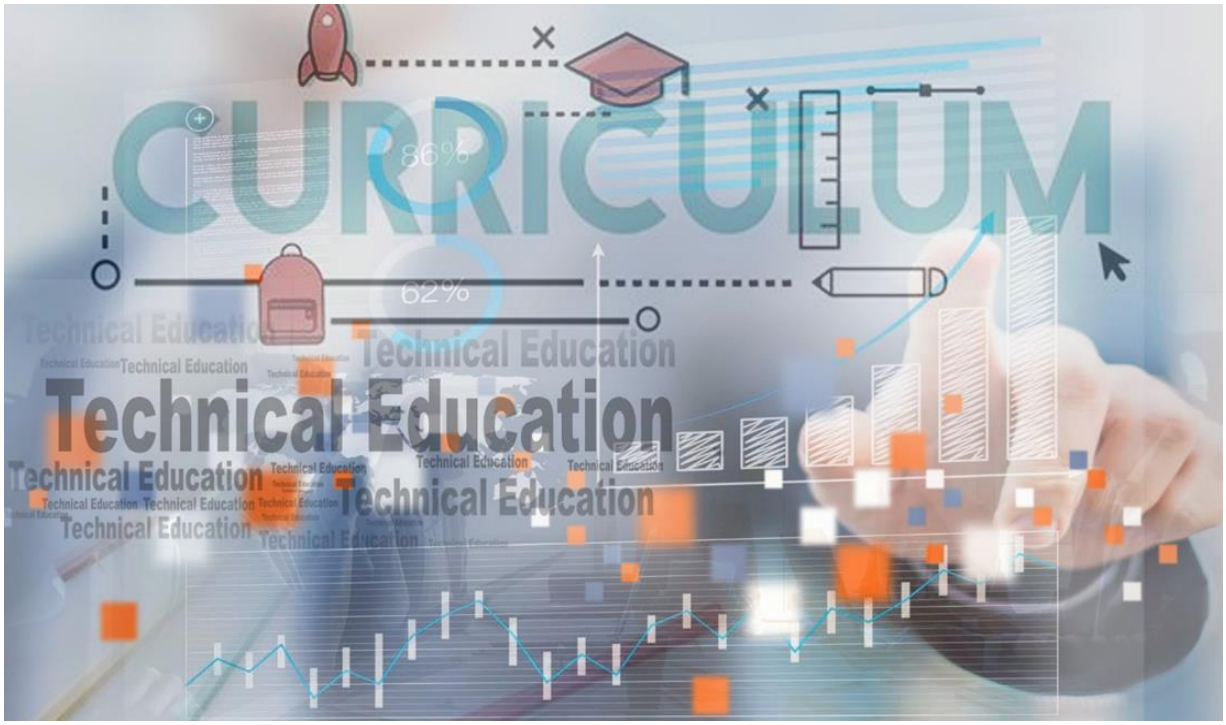
Module 1: Orientation towards Technical Education and Curriculum Aspects

Unit 1: Orientation towards Technical Education



L-2 QUALITY ASSURANCE IN HIGHER EDUCATION

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1.0 QUALITY IN HIGHER EDUCATION

It is better to understand what is higher in higher education? You, as a teacher or stakeholder of higher education, will agree that it is not just about the higher level of educational structure in the country. There is more to it.

In terms of the level, higher education includes college and university teaching and learning towards which students' progress to attain higher educational qualification. Higher education imparts in-depth knowledge and understanding so as to advance the students to new frontiers of knowledge in different walks of life that is in their subject domains. It develops the student's ability to question and seek truth and makes him/her competent to critique on contemporary issues. It broadens the intellectual powers of the individual within a narrow specialization, but also gives him/her a wider perspective of the world around.

According to Ronald Barnett (1992) there are four predominant concepts of higher education:

I. Higher education as the production of qualified human resources. In this view, higher education is seen as a process in which the students are counted as "products" absorbed in the labor market. Thus, higher education becomes input to the growth and development of business and industry.

II. Higher education as training for a research career. In this view, higher education is preparation for qualified scientists and researchers who would continuously develop the frontiers of knowledge. Quality within this viewpoint is more about research publications and transmission of the academic rigor to do quality research.

III. Higher education as the efficient management of teaching provision. Many strongly believe that teaching is the core of educational institutions. Thus, higher education institutions focus on efficient management of teaching-learning provisions by improving the quality of teaching, enabling a higher completion rate among the students.

IV. Higher education as a matter of extending life chances. In this view, higher education is seen as an opportunity to participate in the development process of the individual through a flexible, continuing education mode.

Integrating all four views, it gives an overall picture of what higher is in higher education.

If you look at the activities of colleges and universities, you will realize that teaching, research and extension form the three main functions of higher education. The report of the UNESCO International Commission on Education in the 21st Century titled “Learning: The Treasure Within” (popularly known as Delores Commission) emphasized four pillars of education: learning to know, learning to do, learning to live together and learning to be. While, higher education intends to inculcate all these four in individuals and the society, the report highlighted the following specific functions of higher education:

- To prepare students for research and teaching;
- To provide highly specialized training courses adapted to the needs of economic and social life;
- To be open to all, so as to cater to the many aspects of lifelong education in the widest sense; and
- To promote international cooperation through internationalization of research, technology, networking, and free movement of persons and scientific ideas (UNESCO, 1996).

The Indian higher education system is in a constant state of change and flux due to the increasing needs of expanding access to higher education, impact of technology on the delivery of education, increasing private participation and the impact of globalization. Taking cognizance of these developments and the role of higher education in society, NAAC has developed five core values:

- contributing to national development,
- fostering global competencies among students,
- inculcating a value system in students,
- promoting the use of technology and
- quest for excellence.

Excellence in all that they do will contribute to the overall development of the system of higher education. The seven criteria developed by NAAC to measure excellence are in fact the main processes for developing the capabilities of an institution. Establishment of an Internal Quality Assurance Cell (IQAC) in each of the HEIs would help develop and raise their capabilities as institutions. The seven criteria are: curricular aspects; teaching, learning and evaluation; research, consultancy and extension; infrastructure and learning resources; student support and progression; organization and management; and healthy practices. One of the major outcomes of the IQAC establishment would be the internalization and institutionalization of quality so that the institution strives to excel in serving its students and other stakeholders. The quest to become a quality institution is a core value that HEIs must imbibe and demonstrate in their functioning.

In order to illustrate the value framework, Prasad (2005) has identified some parameters that are given in Table 1.

Values / Goals	Suggested Parameters / Activities
1. Contribution to national development	• More access with equity • Developmental thrust in identification of research areas and academic programs • Community engagement
2. Fostering global competencies	• Development of generic skill • Development of application skills • Development of life skills

amongst students	
3. Inculcating value system in students	• Value integration in academic programs • Value integration in management practices • Value inculcation through co-curricular and extra-curricular activities
4. Promoting the use of technology	• Enrichment of learning • Increasing access – online programs
5. Quest for excellence	• Development of benchmarks of excellence • Best practices application • Institutionalization of continuous improvement systems

Table 1: Indicative parameters of the value framework

Higher education is the backbone of any society. It is the quality of higher education that decides the quality of human resources in a country. Higher education, as we see today, is a complex system facilitating teaching, research, extension and international cooperation and understanding.

2.0 CONCEPT OF QUALITY

Quality has a few central ideas around which the whole concept revolves: **Quality as absolute, Quality as relative, Quality as a process, and Quality as culture.** When we consider quality as absolute, it is given and considered as the highest possible standard. For example, the picture of "Mona Lisa" by Da Vinci, the Egyptian Pyramids, the Taj Mahal, Tanjore Brihadeeswara Temple are works of high standards and quality.

In product terms, they are attached with high 'brand' values, status and positional advantages. Educational institutions such as Oxford, Cambridge and Stanford in the west have this absolute quality standard, though in the case of education it might still be perceptual. Quality as relative suggests that the quality of a product or service can be described in relative terms. Quality here can be measured in terms of certain specifications. 'Quality as a process' suggests that in order to achieve quality of a product or service, it must undergo certain processes and conform to the procedural requirements. Thus, quality is the outcome of systems and procedures laid down for the purpose. The fourth one,

quality as a culture recognizes the importance of organizational view of quality as a process of transformation, where each entity is concerned and acknowledges the importance of quality.

In educational institutions we are particularly concerned with the latter, though all other ideas of quality too have their respective places. In the book published by NAAC on Quality assurance in Higher Education, the author Dr. Sanjaya Mishra has quoted a 'suggestive' definition by Barrow (1991) to define 'quality' in higher education:

> "…a high evaluation accorded to an educative process, where it has been demonstrated that, through the process, the students' educational development has been enhanced ... not only have they achieved the particular objectives set for the course but, in doing so, they have also fulfilled the general educational aims of autonomy of the ability to participate in reasoned discourse, of critical self-evaluation, and of coming to a proper awareness of the ultimate contingency of all thought and action"

As teachers, principals, heads of departments and planners and policy makers in education, you may be having this question in your mind – why worry about quality? It is not just because of AICTE or UGC directive that you should think of quality, rather quality should be a bottom-up approach and every one should be conscious of why we should worry about quality of our teaching, programs and institutions.

Some of the reasons are:

1. **Competition:** We are entering a new regime, where competition among educational institutions for students and funds will be highly significant. With globalization and the GATS (Global Agreement on Trade in Services), the educational environment will be seized by increased competition. In order to survive in such a situation, educational institutions need to worry about their quality.
2. **Customer satisfaction:** Students, parents or sponsoring agencies as customers of the educational institutions are now highly conscious of their rights or getting value for their money and time spent. They are now demanding good quality teaching and

receiving employable skill sets, and thus we should constantly worry about the relevance of our courses and programs to the needs of the labor market.

3. **Maintaining standards:** As educational institutions, we are always concerned about setting our own standard and maintaining it continuously year after year. In order to maintain the standard, we should consciously make efforts to improve quality of the educational transactions as well as the educational provisions and facilities.

4. **Accountability:** Every institution is accountable to its stakeholders in terms of the funds (public or private) used on it. Concern for quality will ensure accountability of the funds utilized and inform the stakeholders about taking appropriate decisions. Thus, quality can be considered as a monitoring mechanism.

5. **Improve employee morale and motivation:** Your concern for quality as an institution will improve the morale and motivation of the staff in performing their duties and responsibilities. If a quality system is in place, the internal processes would be systematic making every department complementing each other's service domain and helping in developing internal customer satisfaction leading to high morale and motivation.

6. **Credibility, prestige and status:** If you are concerned about quality, continuously and not once in a while, it will bring in credibility to individuals and your institution because of consistency leading to prestige, status and brand value.

7. **Image and visibility:** Quality institutions have the capacity to attract better stakeholder support, like getting merited students from far and near, increased donations/ grants from philanthropist / funding agencies and higher employer interest for easy placement of graduates.

Quality has been defined differently in different contexts. It is a much used and least understood term. But, quality in higher education means the educational process is such that it ensures students achieve their goals and thereby satisfies the needs of the society and help in national development.

3.0 QUALITY MOVEMENT IN HIGHER EDUCATION

The University Grants Commission (UGC) with its statutory powers is expected to maintain quality in Indian higher education institutions. Section 12 of the UGC Act of 1956 requires UGC to be responsible for "the determination and maintenance of standards of teaching, examinations and research in universities". To fulfill this mandate, the UGC has been continuously developing mechanisms to monitor quality in colleges and universities directly or indirectly. In order to improve quality, it has established national research facilities, and Academic Staff Colleges to re-orient teachers and provide refresher courses in subject areas. The UGC also conducts the National Eligibility Test (NET) for setting high standards of teaching.

Various committees and commissions on education over the years have emphasized directly or indirectly the need for improvement and recognition of quality in Indian higher education system. The concept of autonomous colleges as recommended by Kothari Commission (1964-66) has its roots in the concept of quality improvement. Since the adoption of the National Policy on Education (1968), there has been a tremendous expansion of educational opportunities at all levels, particularly in higher education. With the expansion of educational institutions, came the concern for quality. The constitutional amendment in 1976 brought education to the concurrent list making the central government more responsible for quality improvement. The New Education Policy (1986) emphasized on the recognition and reward of excellence in performance of institutions and checking of sub-standard institutions. Consequently, the Programs of Action (PoA) in 1986 stated, "As a part of its responsibility for the maintenance and promotion of standards of education, the UGC will, to begin with, take the initiative to establish an Accreditation and Assessment Council as an autonomous body". After eight years of continuous and serious deliberations, the UGC established NAAC at Bangalore as a registered autonomous body on 16th September 1994 under the Societies Registration Act of 1860.

The main objectives of NAAC as envisaged in the Memorandum of Association (MoA) are to:

- grade institutions of higher education and their programs;
- stimulate the academic environment and quality of teaching and research in these institutions;

- help institutions realize their academic objectives;
- promote necessary changes, innovations and reforms in all aspects of the institutions working for the above purpose; and
- encourage innovations, self-evaluation and accountability in higher education.

Like NAAC (which is responsible for colleges and universities), there are other statutory bodies in India to assure quality in professional education. Some of these are:

- All India Council for Technical Education (AICTE)
- National Council for Teacher Education (NCTE)
- Medical Council of India (MCI)
- Indian Nursing Council (INC)
- Bar Council of India (BCI)
- Rehabilitation Council of India (RCI)
- Distance Education Council (DEC)
- Indian Council for Agricultural Research (ICAR)

The AICTE established the National Board of Accreditation (NBA) in 1994 to accredit programs offered by technical institutions. The NBA accredits programs and it is a voluntary process like that of NAAC. Other professional statutory bodies mostly undertake review exercises to recognize or de-recognize the institutions on the basis of their quality audit. Thus, quality issue is on the top of the agenda of Indian higher education.

4.0 MODELS OF QUALITY ASSURANCE

As there are different meanings and interpretations of quality, there are different models of quality assurance as well. Across the world, institutions follow different models of quality assurance, particularly country specific and institution specific models.

Quality has been interpreted in different ways in different domains of knowledge. There are five generic models of quality assurance used in education, business and software development. These are:

- Baldrige model,

- ISO 9000:2000,
- Capability Maturity Model,
- Six Sigma,
- Total Quality Management.

Each one of these is based on a philosophy of its own, and can be applied to education and training situations with minor adjustments.

The specific application models of ABET, NBA, NAAC, ICAR and DEC are variants derived from these models to serve specialized needs in specific contexts. The underlying philosophies of all these models are self-study and external quality monitoring or assessment.

Accreditation is a process of quality assurance and improvement, whereby a programs in an approved Institution is critically appraised to verify that the Institution or the programs continues to meet and/or exceed the Norms and Standards prescribed by regulator from time to time. It is a kind of recognition which indicates that a programs or Institution fulfills certain standards.

The purpose of the accreditation by NBA is to promote and recognize excellence in technical education in colleges and universities - at both the undergraduate and post graduate levels. Institutions, students, employers, and the public at large all benefit from the external verification of quality provided through the NBA accreditation process. They also benefit from the process of continuous quality improvement that is encouraged by the NBA's developmental approach to promote excellence in technical education.

Through accreditation, the following main purposes are served:

- Support and advice to technical institutions in the maintenance and enhancement of their quality of provision;
- confidence and assurance on quality to various stakeholders including students;
- assurance of the good standing of an Institution to government departments and other interested bodies;

- enabling an Institution to state publicly that it has voluntarily accepted independent inspection and has satisfied all the requirements for satisfactory operation and maintenance of quality in education.

The purpose and impact of accreditation goes far beyond quality assurance of an Institution and its programs. Major impacts of accreditation system are summarized below:

- Encourages quality improvement initiatives by Institutions.
- Improves student enrollment both in terms of quality and quantity.
- Helps the Institution in securing necessary funds.
- Enhances employability of graduates.
- Facilitates transnational recognition of degrees and mobility of graduates and professionals.
- Motivates faculty to participate actively in academic and related Institutional / departmental activities.
- Helps create sound and challenging academic environment in the Institution, and Contributes to social and economic development of the country by producing high quality technical manpower.

Accreditation is a tool that stakeholders use to monitor, assess and evaluate the standards and quality of the education a student receives at a college, university or other institution of higher learning. Some of the major benefits enrolled students receive by attending an accredited institution / program are as follows:

- Accredited institution / program offers the highest quality education available;
- Accredited institution / program strengthens consumer's confidence, employers value degrees of an accredited program the most;
- Accreditation helps institutions to know their strengths, weaknesses and opportunities, pushes them to continuously improve their programs and give them a new sense of direction, identity and targets; and

- Accredited institution / program demonstrates accountability to the public, commitment to excellence and continuous quality improvement.

Let us explore accreditation models of ABET, NBA and NAAC, ICAR and DEC.

A. ABET (ACCREDITATION BOARD FOR ENGINEERING AND TECHNOLOGY)

ABET (Accreditation Board for Engineering and Technology) is recognized by Council of higher education Accreditation, USA for accreditation of college and university level programs in applied sciences, computing, engineering and technology. ABET was established in 1932 as Engineer's Council for Professional Development (ECPD). Following the tradition of accreditation in the USA, the ABET model follows a voluntary participation by institutions to offer themselves to assess the quality of their programs.

An internal self-study evaluation forms the basis of the beginning of the accreditation process. Based on the self-study report, the appropriate ABET Commission forms an evaluation team for the site visit. Following the visit, the peer-team provides the institution with a written report to allow for correction of errors or misrepresentation of facts. The peer team examines the following in a comprehensive manner and recommend accreditation and relevant action.

- Organization and management of the institution
- Educational programs offered
- Maturity and stability of the institution
- Admission process and number of students enrolled
- Teaching staff and teaching load
- Physical facilities, finances, etc.
- Curricular contents
- Sample student work
- Record of employment of graduates
- Support services to the students
- Clearly stated academic policies

Accreditation is usually granted for a period ranging from 2-6 years. Depending on the weakness of the program, the peer team recommends specific action to be taken by the commission such as: Next General Review (six year); Interim Report and Interim Visit (both 2 years); Report Extended and Visit Extended (2 or 4 years); Show Cause (2 years); Show Cause Extended (2 or 4 years); and Not accredited.

For details of these see ABET Accreditation Policy and Procedures Manual 2006-2007 (ABET, 2006).

B. NATIONAL BOARD OF ACCREDITATION (NBA)

The National Board of Accreditation (NBA), India was initially established by AICTE in the year 1994, for periodic evaluations of technical institutions & programs basis according to specified norms and standards as recommended by AICTE council.

- NBA in its present form came into existence as an autonomous body with effect from 7th January 2010, with the objective of Assurance of Quality and Relevance of Education, especially of the programs in professional and technical disciplines, i.e., Engineering and Technology, Management, Architecture, Pharmacy and Hospitality, through the mechanism of accreditation of programs offered by technical institutions.

- Outcome based education is targeted at achieving desirable outcomes (in terms of knowledge, skills, attitudes and behavior) at the end of a program. Teaching with this awareness and making the associated effort constitutes outcome-based education. This entails a regular methodology for ascertaining the attainment of outcomes, and benchmarking these against the program outcomes consistent with the objectives of the program.

- Initially, NBA accreditation used to be based on 'input – process – output' model with major emphasis on availability of resources / facilities and the outputs thereof. In the year 2009, NBA aligned its methodology with international benchmarks and started accreditation on the basis of outcomes. It believes that educational quality

must be measured by outcomes rather than inputs, because inputs do not necessarily correlate with quality outcomes. Outcomes are dependent not only on inputs but also on the processes followed by an institution to convert inputs into defined outcomes.

Washington Accord

The Washington Accord, originally signed among six countries in 1989, is an International Agreement among bodies responsible for accrediting undergraduate engineering degree programs. It recognizes the substantial equivalency of programs accredited by those bodies and recommends that graduates of programs accredited by any of the signatory bodies be recognized by the other bodies as having met the academic requirements for entry to the practice of engineering in the area of their jurisdiction.

The membership of Washington Accord is an international recognition of the quality of undergraduate engineering education offered by the member country and is an avenue to bring it into the world class category. It encourages and facilitates the mobility of engineering graduates and professionals at international level.

- National Board of Accreditation, India has become the permanent signatory member of the Washington Accord on 13th June 2014.

- The NBA accredited programs offered by the Tier -1 Institutions are eligible for the recognition of the programs by other signatories of the Washington Accord.

Based on deliberations and consensus among experts, the NBA has accepted accreditation at the program level as the unit of assessment (post-graduate, graduate and diploma) instead of institution. The accreditation by NBA is categorical: Accredited or Not Accredited. The AICTE recognition is accorded to institutions based on their institutional management, compliance to AICTE Norms and Standards, prior approval by state government and university and market sensitivity of programs output to avoid imbalance in supply of qualified manpower.

However, the accreditation by NBA is at the specific program level and ensures that the students admitted to the program undergo an acceptable level of teaching-learning process and are transformed into capable technical professionals, having sound knowledge and

Organization and Governance

- Planning and monitoring
- Recruitment procedures & their effectiveness
- Promotional policies
- Leadership
- Motivational initiatives
- Transparency
- Decentralization and delegation & participation by faculty
- Constitution of Governing Council / Governing Body

Human Resources (Students)

- Student admission
- Academic results
- Performance in competitive examinations
- Placements

Financial Resources, Allocation and Utilization

- Budget allocated to institution and utilization (recurring and non-recurring)


- Budget allocated to department and utilization (recurring and non-recurring) Leadership

Teaching-Learning Processes

- Delivery of syllabus
- Contents beyond syllabus
- Academic calendar
- Continuous evaluation
- Use of equipment, lab
- Student-centred learning
- Student feedback

Physical Resources (Central Facilities)

- Student Hostel (Men & Women)
- Power back-ups
- Reprographic facility
- Bank, Post Office
- Counselling and guidance; Language lab
- Medical facility
- Internet facility
- Canteen
- Transport

Supplementary Processes

- Extra and Co-curricular activities
- Personality development initiatives
- Professional society initiatives
- Entrepreneurship development
- Alumni interaction
- Ethics
- Student publications

Human Resources (Faculty and Staff)

- Student faculty ratio, experience, turnover
- Qualifications
- Participation of faculty in development activities
- Impact of faculty development initiatives
- Analysis and follow-up for performance appraisal
- Service rules, pay package, etc
- Number of support staff
- Skills of support staff
- Skill upgradation of support staff

R&D and Interaction Efforts

- Budget for in-house R&D activities
- Sponsored research projects
- Publications/ Patents
- Industry participation
- Continuing education
- Consultancy
- Student projects

personal competence for employment in responsible technical assignments.

The process of accreditation by NBA goes through the following stages:

- Institutions acquire the manual of accreditation and application forms;
- Institution respond to the two-part application form (self-study);
- NBA secretariat scrutinizes the request and constitutes the accreditation team;
- Accreditation team visits the institution and makes recommendations (peer team visit);
- The sectoral committee considers the recommendations and the results are placed before the Executive Committee of the AICTE for approval.

These eight criteria are divided differently in a 1000-points scale for different levels of programs. The accreditation is of 'yes' and 'no' type, but the duration of accreditation is of two types – for three years (650-750 score) and for five years (more than 750 score). Thus, in an institution, there could be a programs with 5 years accreditation, another with 3 years accreditation and yet another without accreditation (AICTE, 2004).

The criteria of assessment followed by NBA consist of eight major groups as shown in the figure

C. NAAC MODEL

In India, the National Assessment and Accreditation Council (NAAC) has identified seven criteria to serve as the basis for the assessment of higher education institutions in the country. Assessment is a voluntary process. However, some State Governments have made it mandatory for their colleges. It follows a four-phase process of assessment of a unit (Institution or Programs / Department) covering:

- Nationally evolved criteria for assessment
- Self-study by the institution
- Peer team visit
- Final decision by Executive Committee of NAAC.

Criteria for Assessment: NAAC has identified through national consultations and consensus the following seven criteria to serve as the basis for its assessment procedure.

They are

1. Curricular Aspects
2. Teaching-Learning and Evaluation
3. Research, Consultancy and Evaluation
4. Infrastructure and Learning Resources
5. Student Support and Progression
6. Organization and Management
7. Healthy Practices

The self-study report is expected to highlight the functioning of the institution with reference to these criteria.

Self-Study: The Institution seeking assessment prepares a self-study report as per the guidelines formulated by NAAC. The report consists of two parts – data about the organization on various parameters; and a critical self-analysis based on the available data. The self-study is supposed to be a tool for critical reflection on institutional practices and facilities to identify its own strengths and weaknesses. The self-study report enables the NAAC and the peer team to understand the institution better.

Peer Team Visit: Based on the self-study report, NAAC constitutes a team of peers in consultation with the institution. The peer team visits the institution and looks for "pattern of evidences" to validate the claims in the self-study report through interaction with the senior management, heads of the departments, teachers, staff and students of the institution. The institution is provided an opportunity for withdrawal at the end by the peer team, before finalizing the draft report. The draft assessment report of the peer team is shared with the institution at the end of the visit. The peer team makes the assessment of the institution based on a suggested scoring pattern. This is submitted to NAAC as a confidential score.

NAAC Decision: The Executive Committee of NAAC after reviewing the report takes a decision on the grade of the institution based on the nine-point grading system. Institutions receiving equal or more than 55 %. 55% receive "Accredited Status" and institutions which

do not attain the minimum 55% point for accreditation are intimated that the institution is "Assessed and Found Not Qualified for Accreditation". NAAC grading is valid for a period of 5 years. Institutions that complete five-year accredited period may volunteer for re-accreditation.

D. ICAR MODEL

The Indian Council of Agricultural Research (ICAR) established an Accreditation Board (AB) in 1996 to accredit higher education institutions and programs in different branches of agriculture and allied sciences, including Agricultural Engineering and Veterinary Sciences. For the ICAR-AB, "accreditation is a process of assuring acceptable quality and a tool for improving educational standards" (ICAR, 2002). Accreditation is a three-tier system at ICAR covering university, college and individual programs and departments. The accreditation process follows a four-step process:

- Institutions submit a detailed self-study report mentioning how the institution meets the criteria of accreditation;
- Peer team visits the institution to examine and validate the self-study report;
- Peer team submits a detailed report with recommendation to the AB; and
- Final decision on the accreditation is taken by the AB.

The peer team recommendations and the outcomes of the accreditation process are in the form of categorical information: full and unconditional accreditation; provisional accreditation with conditions and advice; and denial of accreditation.

Re-accreditation is done after an interval of 5-10 years, and the initial accreditation is done only after completion of one batch of students. Though accreditation is criteria-based, no specific score is given, and the AB takes a final view on the status of accreditation based on the peer team report, response of the institution, and review by AB secretariat.

The criteria used by ICAR-AB are as follows (ICAR, 2002):

Criterion 1: The institution has clear and publicly stated objectives consistent with its mission and goals

Criterion 2: The institution has organized effectively human, financial and physical resources, necessary to accomplish its objectives.

Criterion 3: The institution is accomplishing its educational objectives.

Criterion 4: The institution can continue to accomplish its objectives and improve its quality of educational programs and effectiveness.

E. DEC Model

The Distance Education Council (DEC) was established in 1991 under Section 5 (2) of the IGNOU Act (1985), passed by the Parliament of India. It has the mandate to serve as an apex body of Open and Distance Learning (ODL) in India to promote, coordinate and maintain its standards. In pursuance of the function mentioned at (18) of Clause 4 (a) of Statute 28 of IGNOU, an Open and Distance Education.

Assessment and Accreditation Board (ODE-AAB) has been constituted to help students, parents, ODL institutions, government agencies and employers to identify institutions that meet the norms and standards prescribed by the DEC. The ODE-AAB develops norms, standards and formats for assessment and accreditation; assesses programs in-depth and recognizes institutions and programs as outcomes of assessment. It is mandatory for institutions offering programs through ODL to seek for DEC recognition and apply for assessment. The process of assessment follows five steps:

- Institutions apply for approval in the prescribed format giving details of the institution and programs. This is some sort of self-study by the institution.
- Review of learning materials by experts.
- Visit of the expert team to examine the claims made in the application and validate them (peer team visit).
- Report of the expert team to the ODE-AAB of DEC.
- Decision of the Council on recognition.

As outcomes of the assessment process, either an institution is recognized or not recognized. However, provisional recognition may also be given if the Board is convinced

that there is enough potential for improvement. As an agency with responsibility also to promote ODL, the DEC takes efforts to improve the quality of the institutions and programs through developmental grants and conduct of capacity building programs at the institutional level.

5.0 NEED FOR QUALITY TEACHERS IN TECHNICAL EDUCATION

"We shape our institution and our institution shapes us" - Winston Churchill.

The general scenario of higher education in India is not equivalent with the global quality standards. The technical education in India is plagued with many inadequacies. It has rendered the engineers coming out of most of the Institutes are almost unemployable.

If we want to really improve the engineering education in India and make our engineers really contributing to the growth and prosperity of the nation, the whole domain needs complete rethinking.

i. PROGRAMMES AND CURRICULUM DEVELOPMENT:

To meet the requirements of rapid changes and developments in technology, the undergraduate courses are being diversified with an emphasis on specialization.

Continuous monitoring of technological advancements that are taking place in the world in the emerging areas need to be observed and the respective courses and the faculty need to be updated regularly and continuously from time to time.

There is need in the technical education system to generate the trained faculty for meeting this rapidly changing requirements.

ii. RESEARCH AND DEVELOPMENT:

In India, engineering research and development programs exist, but the focus on fundamental research and applied research activities are rather on a low key.

Polytechnics and Engineering Colleges should encourage research and development. Active involvement through publication of articles in journals, presentation of papers in seminars and conferences should be made mandatory.

There must be a strong interaction of engineering educational institutions with the industry in the role of consultancy. It will enable and offers an opportunity to the faculty to contribute to the real-world problems and to solve the problems too.

There is a tremendous scope for technical education institution to play their vital role in promoting entrepreneurship. In our country, there are very few initiatives taken to support and nurture the entrepreneurship.

iii. IMPROVING QUALITY OF TEACHING AND LEARNING:

If we want our engineers to be of world –class quality, we need to make our institutions world-class. In order to make our institutions world-class, in addition to infrastructure, human resources particularly faculty plays a crucial role. The quality of students coming out of the universities and colleges largely depends upon the quality of the teaching staff employed.

Staff appraisal and assessment on a continuous basis in respect of the potential for teaching, research, interaction with students, etc., should be incorporated as a regular feature.

Hence, the faculty should understand their role and their contribution in building world class institutions. There is a huge need for faculty development both in terms of pedagogical development and engineering domain training.

6.0 ACTIVITIES

Activity 1

a. Consider an Engineering College / Institute. It may be the college / Institute you have studied or studying / worked or working.

b. Check whether that Institute or department in the institute / programs has been accredited. If so what type and how much is their score.

c. Find out one of the best practices in that Institute that have contributed to the quality of Institute.

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