

# A Quality Overview in Engineering Education

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**Abstract-** The importance of quality aspects in engineering education has been increase rapidly . It is pointed out that quality is the most important challenge for engineering education in India. Further, it has been discussed as to how this challenge can be dealt with by an Engineering Education Institution, covering the syllabus and completing it in time, is what normally the Principal & Management are worried about. Once this is done, they feel satisfied because they are not generally conscious about quality nor have any passion for it It is for such Institutions, which are large in number, the author has suggested a quality path. The idea of Center of Quality & Excellence, the Consortium of a group of Engineering Colleges, empowering the faculty, has been explained. The concept of Quality Cell and a think tank has been elaborated. Over and above this, the need for a visionary leadership for the Institution has been emphasized. By following this quality path, the author believes that, the engineering colleges can meet the quality challenge and not only satisfy the criteria specified by the Washington Accord, but enable the system not merely to walk along the Quality Path leading to Washington Accord but march ahead towards the Global Quality & Excellence.

## 1. INTRODUCTION

We have today more than 3000 Engineering colleges and may be, another 3000 Polytechnics, in India. We established the AICTE in 1986 and the NBA in 1994. So, it is more than 18 years, since the NBA has been given the responsibility of accrediting all these Engineering Colleges and Polytechnics, But what is the Quality Scenario of Engineering Education of India, today? It is reported that only 20% of these institutions have applied for accreditation and got their quality assessed. The picture is depressing.

It is said that NBA Accreditation is mandatory. But we find that many of these institutions have not cared to apply for NBA and nobody seems to be worried about it. If NBA is mandatory, it should be accompanied by a monitoring agency and to take action against those institutions who have not sought NBA accreditation. Thus, if NBA accreditation is mandatory, it is meaningless without a monitoring agency.

India applied for Washington Accord membership in 2007, but even today, we are "just a provisional member. All that we have done is that NBA has made the Accreditation Criteria more rigorous in 2011. Thus, on one side, we have NBA with Accreditation Criteria which satisfy the Washington Accord and on the other side our Principles, Managements, State Directors of Technical Education and our Vice Chancellors, who have taken no steps to enhance the Quality of Education. They could have perused the Institution and help them to prepare for and seek accreditation from the NBA.

So, today, we, rather the Engineering Education System in India, has the Quality of Education as a challenge before us.

How, we can meet this challenge of the Quality of Engineering Education?

## 2. OUR BELIEFS:-

Before we step on the quality path, mentioned below, it is necessary that we develop a set of beliefs about quality. These beliefs have been worked out by Quality Gurus and they recommend that it is necessary to develop these beliefs, if you want real quality.

The set of beliefs is given below:-

- i) An Institution can be born with Quality spoon in the mouth.
- ii) Quality does not come by chance. It can come only by proper planning and implementing it, in a focused manner and persistently monitoring it.
- iii) The best launching pad for any Quality measures is the TQM philosophy, which requires:-
  - (a) Mission and Focus on Customer,
  - (b) Vision,
  - (c) Total belief in the principle of Continuous Process Improvement,
  - (d) Scientific Approach,
  - (e) Promoting total participation of the entire cadre of the organization and inducting Quality in each and every process and
  - (f) Adopting the principle of Systems approach.
- iv. An Engineering Teacher belongs to two professions :-
  - a) "Engineering Profession"
  - b) Teaching Profession.

### **3. THE QUALITY PATH FOR ENGINEERING EDUCATION CAN BE FOLLOWED BY TAKING THE FOLLOWING STEPS,**

#### **3.1. Centre of Quality and Excellence.**

Establish a Centre of Quality and Excellence at each institute / organization. This will help create quality consciousness, amongst the faculty members of the institution. The faculty will understand the significance of building up of the institution and ultimately enhancing Quality Level of the State and the Country.

#### **3.2. Consortium of Engineering Colleges.**

The centre of Quality and Excellence is good so far as, the individual development of an Institution. But it has its own limitations. Problems which are common to other Institutions, need to be tackled in a collective manner by Institutions coming together, generating synergy, thinking together, planning together and implementing these plans for the benefit, growth and development of Institutions and thus contributing to the growth and development of the Engineering education system, both at the State and National Level. For this, Consortium of Engineering Institutions must be formed.

#### **3.3. Empowering the Faculty.**

As I recommend the policy makers and administrators to take steps for providing inputs to faculty, in respect of pedagogy, quality and professional awareness, I believe that the faculty has to play not just a passive but an active role. Every faculty member must decide to keep in mind that he must always work for enhancement in his professional performance. He should find out, what it is to be a good teacher, a good Principal and a good Institution. Guidelines for becoming the Best Teacher, the best Principal and Best Institution such can be obtained from the Best Teacher competitions announced every year by the organizations like EEF i.e. Engineering Education Foundation, Pune, the ISTEi.e. Indian Society for Technical Education, New Delhi and other organization. The faculty must maintain a record and always try to enhance their curriculum vitae and monitor it, at regular intervals.

At the same time, Principals and Managements of every Institution, should make it a point to apply for such a Best Teacher / Principal / Engineering College Awards Competition regularly, year to year. The institutions may not get an award but a system gets placed in the institutions, where the faculty is made aware of the necessity of building up professional expertise, besides attending to their normal duties as a teacher. A record has to be maintained in respect of the progress made by each faculty member, and monitored regularly by the Heads and the Principal. The Management of an Institution, should announce the Best Teacher Awards for their institution, every year and celebrate the

individual achievements. This will result in a constant attempt by all the faculty members to go on improving, on a continuous basis. This will help for individual growth and development of faculty in respect of their professional performance and when the faculty grows, institution automatically has to grow and develop. But unfortunately, all are present, our Management and Principals do not take such an enlightened view and avoid entering into such competitions. It is seen that, even when they get an award, they are happy and satisfies and do not care to apply for the award next year, since they do not realize that Quality is a journey without destination. Hence, the importance of the beliefs mentioned in Para 2 above,

### **4, THE NEED FOR THINK TANKS AND QUALITY CELLS FOR EVERY INSTITUTION**

The present tendency is that both Management and Principals are satisfied if the show goes on: admissions are full; faculty engages classes as per the scheduled timetable prescribed by the University, students appear for the examinations and results are declared which are on the whole, okay. There is no urge to improve, to know what it is to bring in quality, to benchmark best practices. Since accreditation by NBA is not mandatory, institutions are not particular about preparing for accreditation and get accredited. Neither the State Directors nor the Vice Chancellors of even Technological Universities keep a watch on institutions in respect of NBA accreditation. Hence, the necessity for a Quality Cell and Think Tank for every engineering college.

#### **4.1. Quality Cell**

The Principal should establish a Quality Cell by selecting a few senior staff members and he should lead this cell. These members of Quality Cell should study the concept of quality; help the faculty to become quality conscious and try to induct quality by choosing an appropriate philosophy and methodology. I would personally recommend, Total Quality Management philosophy for this purpose. The cell should also adopt, benchmarking Best Practices and monitor the progress made by institution at regular intervals. Help of experts and consultants should be taken for this purpose, as and when necessary.

Another cell-Think Tank-should be established with a task of thinking about one's own institution, it's objectives, formulate it's own vision and mission, short term and long term goals and lay down systems and procedures for achieving this. They should study/keep a watch on how other institutions, both at State level and National level, are progressing. They should note new developments in the education practices, check their validity for adoption for their institution and induct these, in their institutional working.

At present, this function of a Think Tank is left to the Principal, who has many other matters to handle and rarely finds time to think and plan for the improvement of the institution. Hence, the necessity of a Think Tank.

### **5. NEED FOR VISIONARY LEADERSHIP**

Every Engineering College needs leadership to bring about the changes, mentioned above. It is normally expected that, the leadership for the Institution-is provided by the Principal along with the Management; but this may not be so, always. Hence, the necessity to check, if the Principal can provide such leadership.

The Management should, at least, give full freedom / a free hand to the Principal to bring out these changes. But at the same time, it should monitor and check the changes being made, if necessary, with the help of the advisors and consultants. Principal should know that to bring about changes is a team work; he should involve all the staff of the college, explain them his plan of action, objectives - short and long term goals that he has set for the Institution and how he is going to achieve these. The staff must have a feeling that they are part of the planners and also implementers of the process of change that there are working for. It is then, they will take pride in the work and put in all their efforts, whole heartedly. With this method of working, every Institutions is bound to achieve the goals, set by them.

The Principal should also know that an Institution cannot grow, in isolation. It must develop or join a network of other Institutions working on the same lines, so that they can grow together, synergetic ally. Hence, the necessity of the Consortia mentioned in para 3.2.

The Engineering Education Foundation, Pune, has put forth the idea of Consortia of Engineering Colleges and Polytechnics, both at the State and National Level for synergetic growth. Such networking will definitely make an impact on the Quality and Standards of Engineering Education both at State and National Level.

### **6. CONCLUDING REMARKS**

The Quality Path and the steps mentioned above, need to be taken up by every institution. For this, the Principals and Managements need to be aware of the concept of quality in the context of Engineering Education and its importance for the economic growth and welfare of the country.

As on today, one notices a wide gap between NBA with Washington Accord criteria and the lack of any passion for quality in the Principals and Management of the Institution, across the country. To

bridge this wide gap, there is a need for a mechanism at the national / state level to provide training for the Principals and the faculty for preparing themselves to meet the NBA criteria in all quality aspects. Such a mechanism can be worked out by NGOs like the ISTE, New Delhi at the National Level and EEF, Pune, at the State Level, involving all stake holders like State Directors of Technical Education, the Vice-chancellors of State /Technological Universities with a five year plan attached to it. It is also necessary that NBA Accreditation is made mandatory.

Now, if the Quality Plan mentioned above is implemented by all the engineering colleges in the Country in a planned manner and the progress monitored by ISTE / EEF, Pune, all institutions eligible for accreditation will have got themselves accredited in the next 5 years and we shall have a bright quality culture in India and India will not only get the full membership of the Washington Accord but will go ahead marching on the unending path of Global Quality and excellence.

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