

10. ACADEMIC AUDIT - A SYSTEM FOR QUALITY IMPROVEMENT

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Abstract

The quality of products of an institution and services of the institution is achieved through scientifically designed academic systems. Quality is never achieved as an accident. Sincere efforts, dedication and good intentions of the persons behind it, make quality. Quality concept is not new in India for education sector. It rests great responsibilities on the shoulders of educational institutions to demonstrate publicly that they are geared up to provide quality education and quality services to the society consistently for a long duration. It is, therefore, essential to develop the system that ensures the quality of the educational processes and consequently the quality of graduates. In the last two decades, it has been observed that the mushrooming growth of the large number of professional and technical institutions in the country with limited resources has affected the academic standards. The Quality can only be achieved by the education sector, when all the institutions come together and jointly design a mechanism, which assures the quality of graduates at par with to international standards

The quality of graduates can be assured through scientifically designed and implemented academic systems. The quality of processes can be assured using academic audit approach.

In this paper an attempt is made to introduce Academic Audit as a system to assure and ensure the Quality of academic processes.

1. RATIONALE

In the National Policy on Education (NPE-1986) modified after discussion and as approved by the parliament in the year 1992, the main emphasis is given on the quality improvement of technical education programmes. There is a strong feeling among the pioneers of academic development committees that the traditional system of maintaining the academic quality of engineering programmes is inadequate. A minimum standard of showing the academic excellence and quality be decided as a benchmark. All the technical institutions in the country be prepared to exhibit their performance beyond benchmarked quality. Such an approach to the management of all colleges would mean a better phase of transition from the traditional

one. Now it is high time for all the technical institutions to sustain the improved image in the eyes of customer by way of proving their competence and giving better quality assurance.

S. D. Eriksen, (1995) has discussed that the quality in education can be defined in relation to the application of value added services to the students. Quality of the student can be measured by two parameters. The first one that the student being transformed and matured by the experience of university or institution. This is evidenced by testing their ability to think, doubt and question. Second, the students' performance as measured operationally by students passing their subject/courses. In general the concept of quality of any product in the manufacturing industries means that the

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product of that industry should finally meet the expectations of end users, but in the educational field the quality of education means it is more than the meeting requirements of prospective employers and society. Further, it is stressed that measuring quality in an educational institution is one of the greatest challenges of quality movement. Eriksen has concluded the definition of quality with reference to engineering education, saying that the quality of education may be defined as production of the students having appropriate knowledge, skills and desirable attitudes, which can help the pass out students to readily get employed and they can face any challenge through life time learning and become a good human being.

Kwan, (1996) stressed that the concept of the total quality management (TQM) as introduced in the industrial world can also be applied in the education. This is a management tool that aiming to the "total" and the "quality assurance" mechanism. First, it implies for meeting the expectations of all the customers in the educational systems. It targets the total processes and the output of the educational system. Second, it requires quality assurance to ensure conformity to meet the standards set by the customers. Third, it is a management tool that emphasizes means for measurement of performance and feedback of the system.

Preety Shah (2003) has discussed that the Quality is never an accident. Sincere effort, dedication and good intentions make quality. Quality concept is not new in India for educational sector. It rests great responsibilities on the shoulders of educational institutions to demonstrate publicly that they are geared up to provide quality education and quality services to the society consistently for a long duration. This obvious impact of quality and strive for survival in the global market is very much observable in the Institutions of higher and technical education in India. All of them have started facing a tough and healthy competition because of their large number and there is time for all of them to all the time review their own performance and look inwards and prepare for

an uncertain future. Further, she pointed out that when a technical education institute admits students to a programme, it is expected that they will provide quality education, develop the capabilities and competencies in the student to the requisite level for practicing the profession to the satisfaction of prospective employer. But these promises are not always explicit rather they look implied. To strengthen these she has emphasized that there is strong need of a quality assurance mechanism to assure the entire stake holders, especially student, parent and prospective employers.

The question of quality education and competence of engineering graduates is the main requirement of manpower need of the country. Simultaneously their relevance to meet out the emerging standards of manpower is equally important. Large number of graduates takes up jobs in the multinational companies and they also join higher education in developed countries so the academic standards of the education should be computable with international standards. To achieve academic excellence there is a growing need to develop a quality system, which is self-sufficient. The implementation of this system is monitored using academic audit. The academic audit is conducted formatively and summatively, it is also conducted formally as well informally by internal and external experts.

2. PRESENT STATUS - QUALITY IN TECHNICAL EDUCATION

Quality management of educational institutes is the essential requirement in order to enhance effective investment and methodology in technical education of the country. There are several accreditation, controlling and quality assurance agencies functioning in India, which have been entrusted the responsibilities for monitoring the quality of technical education.

The Engineering, Architecture and Pharmacy colleges in the country are monitored and accredited by the All India Council for Technical Education (AICTE). The State Directorate Offices

of the respective state are responsible for administrative monitoring these approved institutes within the state. The main objectives of the AICTE besides accord of the approval of the institutions and the programmes that include; the coordination for development of technical education, the promotion of qualitative improvement in technical education and the maintenance of norms and standard in technical education (AICTE, 2005).

The National Board of Accreditation (NBA) is an autonomous body constituted in 1987 by the AICTE. The NBA is responsible for the assessment and accreditation of technical education including engineering and technology, management, architecture, pharmacy, town and country planning, applied arts and crafts, etc. So far, NBA has accredited 1025 engineering and technology programmes in the country but compared to the large volume of technical education in India it is still a small percentage. The NBA has also introduced the strategy of internal institutional evaluation for engineering colleges in order to accelerate the process of accreditation (NBA, 2005). In NBA accreditation the quality of performance of institution is compared with national standards. It is a sort of recognition for well performing institutions against national standards. It cannot compel the institutions to assure the quality of education. In fact it is the responsibility of individual institutions. Different institutions are created to achieve different vision so each institution is required to develop its own quality assurance system and adhere to the same. Considering the commonality in the academic activities of the technical institutions a common academic audit system can be scientifically designed at national level that can be adapted by individual institutions.

3. ACADEMIC AUDIT

At the first time the academic audit process was introduced in the UK in the 1980s by the Thatcher Government. More concern was about the quality of teaching in the rapidly expanding university sector. As a result the UK universities

of that time, established an Academic Standards Group. In the year 1980 the Academic Standards Group issued a report that recommended codes of practice for critical academic processes. It was inclusive of the subject examinations as well means of monitoring academic standards. Further it has been proved to be the universities yardsticks for self-comparisons. This has resulted in the creation of an Academic Audit Unit (AAU). The AAU was meant to provide external and independent assurance that UK universities have adequate and effective mechanisms and structures for monitoring, maintaining, and improving the quality of their teaching. Academic Audit has now been implemented in Sweden, New Zealand, and Hong Kong.

As implemented in other countries academic audits review the quality assurance processes of institutions and not academic programmes. Academic Audit requires some type of institutional self-study as well as an external peer review. There are numerous explanations available in the literature. Some of these exploitations are cited here. The word audit as a word is coined from the discipline economics. Whereas in academics it is used to describe the structured processes under which an educational institution works to impart quality education. (Anil Kumar, 2007). Audit is an evaluation of a person, organization, system, process, project or product. It is performed to ascertain the validity and reliability of the information (Wikipedia). It is a process of assessing the academic quality assurance, institutions quality policies and procedures, mechanism for monitoring and evaluating academic outcomes and means for institutions to provide support for improving the quality standards. It is an extremely driven complete review of the institutional quality assurance assessment and improvement systems. Academic Audit does not directly evaluate the academic quality itself but it focuses more on the processes that are believed to produce quality in teaching and student's learning and the methods by which academics assure themselves that quality is achieved (David D.

Dill, 2003)

In the context of the technical education, Audit is always termed as Academic Audit, which means a scientifically designed and structured mechanism adapted by the institution that enable the institution to assure the quality of the entire academic system and in turn provides the base for total improvements in the quality of all the processes and thereby graduates.

4. CHARACTERISTICS OF ACADEMIC AUDIT

In view of serving the purpose of assuring the quality of academic processes it is very essential to design and implement the system of academic audit. The academic audit system should satisfy following distinguishing characteristics.

Focus: There are several mechanisms available for entire education system through which the quality of education can be monitored. But so far the need to focus on the aspect of quality assurance of the teaching learning processes in the technical education system is concerned, the academic audit system is considered to be the best system under which the quality of the processes is assured. Like accreditation or program reviews, makes attempt to comprehensively review an institution or any program or the resources and activities, the academic audits are clearly focused on those processes by which an institution monitors its own academic standards and acts to assure and enhance the quality of its teaching and support for student learning. In Academic Audit the Auditors review and verify the effectiveness of an institution's basic processes of academic quality assurance and improvement such as:-

- 1 How an institution designs, monitors, and evaluates academic programs and degrees?
- 2 How an institution assesses, evaluates, and improves teaching and learning?

- 3 How an institution takes account of the views of external stakeholders in improving teaching and learning?

Evidence: Academic audit is supported by evidences of observing the designed academic system. All institutional members keep the records of implementation of processes and their outcome. These records are produced during external academic audit. These records are also used during formal and informal internal audit. Apart from scrutinizing the documentary evidences the auditors also observe the samples of implementation of academic processes to verify the quality. Academic audit also traces the interaction between an institution's vision, quality assurance policies and the processes.

Audit by teams: So far the Internal Audit team is concerned; the audit team is constituted by the head of the institution. The team size is kept small and they are trained to conduct the audit professionally, without criticizing the weaknesses and mistakes committed by the individuals' during the implementation of academic processes. Whereas in the external audit the team and its members are decided by the external agency.

Audit Reports: The audit teams prepare the audit report and get it confirmed by the auditee. The audit reports prepared by all the teams are compiled at institutional level to identify the strengths and weaknesses of the institutional processes. The strengths and weaknesses are discussed with institutional members in order to bring improvements in the academic processes for next cycle. The academic audit report of the auditors is made available to the general public. In several countries they are available on the Internet.

5. ACADEMIC AUDIT - AN APPROACH FOR SYSTEM DESIGN

The quality of products and services of the institution is achieved through scientifically designed academic systems. The academic system comprises inputs, processes and

outputs, and feedback to improve the quality of products and outputs. The inputs are fed to interactive processes to produce desired quality outputs. It means quality needs to be assured at every level i.e. inputs, processes and outputs. The academic systems become the base for monitoring, sustaining, improving and innovate the systems.

Academic audit is a recent concept came into existence in Technical Education. It is a systematic and scientific process of designing, implementing, monitoring and reviewing the quality of academic systems i.e. inputs, processes and outputs. It is a process of gathering information about current functioning of engineering colleges and comparing it with design academic systems to draw conclusions about quality assurance of inputs, processes and outputs i.e. products and services.

It emphasizes on reviewing the performance of the academic inputs, processes and outputs with respect to quality assurance. It emphasizes on core academic inputs, processes and outputs as well as supporting academic inputs, processes and outputs. It helps institutions to align the quality efforts with the vision of the institution. It is scientific process in which wide variety of tools and techniques are used by the institution to design the academic systems, implement the systems and ultimately satisfy

the requirements of the employers and stakeholders in effective and efficient manner. It emphasizes on participative design of academic systems under the guidance of experts, install the systems, implement, monitor, review and improve them. The internal members of the institution are empowered to design, implement and improve the systems. They own the systems for self satisfaction and satisfaction of the students, employers and stakeholders. It focuses on academic systems within the institution.

In Academic Audit the institute concentrates on assuring quality and improving quality and innovating new dimensions of quality. The development of the Academic Systems in an institution and Academic Audit of the ongoing processes contribute for maintenance, sustenance, improvement, value addition and innovation of the existing system to achieve excellence in quality.

6. PURPOSES OF ACADEMIC AUDIT

In general the Academic Audit (AA) serves numerous and variety of purposes for the institution and stakeholders of the institution. The significant general purposes of academic audit are stated below in Figure-1.



Fig. 1 : Purpose of Academic Audit

Assuring quality: It is a quality assurance system of all academic inputs processes and outputs of the institution. The quality of output of academic products and services is ascertained through well-designed academic systems, processes and policies. The quality is assured at all stages and levels using direct and strong indicators of performance of the system.

Continuous improvement: The AA audit is a tool for continuous improvement. The quality of each element is assured so that there is no scope for any chance of non-conformance to quality. The academic systems audit addresses the selection and design requirements of inputs and processes and improves the design after every AA. The improvement is initiated through feedback and scientific inputs.

Benchmarking: The quality of inputs, processes and outputs is benchmarked for design and assurance purposes. The benchmarking is a very good tool to educate the institutional members about the minimum quality standards. The benchmarked performance inputs and outputs become the base for continuous improvement.

Preventing problems: The problems related to quantity are prevented through scientifically designed inputs, processes and outputs.

For example- The quality of inputs such as curriculum is assured through curriculum design process. Competence of teachers is assured through their assessment and entry behaviour of students is assured through their entry behaviour test.

Similarly the curriculum implementation problems are prevented and quality of learning is assured through course plan, competency plan, industrial training plan, laboratory/practical plan and lesson plan.

Reduce complaint: At every stage the quality system is in place so the possibility related to complaints of the internal and external members is reduced. The approach of functioning of the institution shifts from reactive approach to

proactive approach. The institution receives suggestions and innovative ideas from the internal and external stakeholders in contrast to complaints.

Corrective actions: The institution has quality system in place so it is very easy to take corrective action. The points of corrective actions are easily located and actions can be immediately initiated at right time. The corrections made at right time provide immense level of satisfaction to the implementers of the curriculum.

Reducing waste: The scientifically designed system of quality reduces the scope of wastage of time, money, and resources at every stage thereby improving the efficiency of functioning of the institution. It creates opportunities for joyful learning without any tension and stress.

Training tool: AA is a tool of training for assuring quality at every phase of curriculum design, implementation and evaluation. The institutional members get ample opportunities for learning about quality during academic audit. They learn during academic audit system design, awareness and education workshops on AA, conducting and facing AA and implementing the recommendations of AA.

Improving academic climate: All the institutional members get involved at various phases of AA. They interact freely and frankly on issues related to assuring quality of graduates. They share problems, barriers and hurdles and jointly find the effective solutions to prevent the same in future. They come across innovations implemented by various faculty and staff members and learn from it. During this process the interpersonal relation and joint understanding of quality and commitment for quality increases. The participative approaches to quality assurance promote healthy academic climate in the institution.

Planned change: It is said that quality can only be achieved by design and not by chance. The AA is a process of reviewing the quality systems of the institution in the light of their

design and performance on assuring quality. It is a process of implementing planned changes in improving the performance of the institution. The academic audit provides constructive and positive feedback to improve the system.

Adopt best practices: The institution studies the best practices being followed in center of excellences and designs its system of quality. The institution also studies the academic audit system of the best in the class and adopts/adapts it. The faculty and staff members are provided ample opportunities to interact with institutions implementing academic systems and AA.

Add value: The outcomes of formal and informal AA are used as feedback to assure the quality of performance of the academic system in next cycle. It adds value to quality assurance. The principles of design, assessment and educational technology are used for improving the process of audit of inputs, processes and outputs that is a kind of value addition.

Comparison: The comparison of academic system and performance is carried out to ensure effective implementation. The comparison of inputs, processes and outputs of the institution and various departments within institution helps to locate and focus to improve initiative.

Empowerment tool: Numerous opportunities are available to institutional members for training, discussion and creativity on quality. They participate in design, monitoring, review and audit exercise. They get an opportunity to sharpen their skills on quality. They develop new abilities. They implement the academic systems and audit it; during this process they learn the tricks of the trade. The institution grants autonomy to its members to take quality related decisions and implement them.

Promote accountability: The institution fixes responsibility for assuring quality at different stages and levels. The members are made accountable for quality through scientifically designed process. The involvement of the members in the academic audit system design and implementation enhances their self-accountability.

Grade the performance: The performance of various inputs, processes and outputs are measured and graded for comparison. The measurement of performance of inputs helps to take decisions related to selection of inputs. Similarly the measurement of performance of outputs helps to take decisions about improving the quality of decisions.

Enhance academic image: The quality endeavors at each and every stage is publicized within and outside the institution. The quality of graduates and products becomes the source of publicity in world of work and society. The stakeholders get impressed from the quality of performance and academic innovations.

Marketing tool: The academic system outcomes of AA are documented. The quality achievements endeavors are publicized to get more academic business from the employers and society for the growth and development of the institution.

7. TYPICAL CLASSIFICATION OF ACADEMIC AUDIT

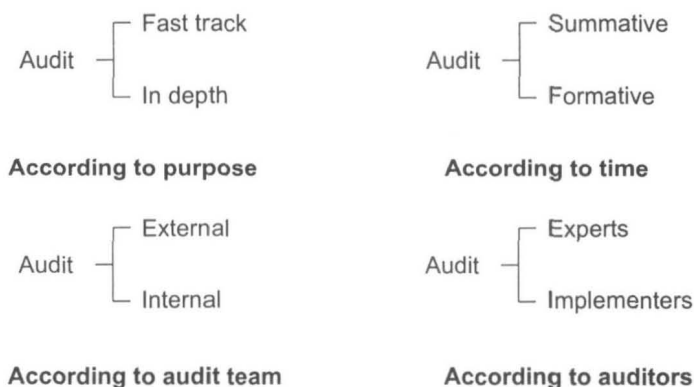
The AA can be classified on various criteria in different ways. The criteria and classification of academic audit are shown in Fig. 2

8. ACADEMIC AUDIT, ACCREDITATION AND EVALUATION

The AA phrase looks like many terms being used in the assessment of the quality of educational context but it is different than other contemporary concepts of managing quality of education. The comparison between these contemporary concepts is explained Table-1 in based on various criteria for ease to understand.

9. ASSUMPTIONS FOR CONDUCTING ACADEMIC AUDIT

The academic audit system can be designed and implemented for any education institution and it will result in better quality of academic performance of the institution as well as individuals. The AA brings best and immediate

**Fig. 2 : Classification of Academic Audit****Table 1 : comparison between contemporary concepts**

| Sl. No. | Criteria | Academic audit | Accreditation | Evaluation |
|---------|-------------------|---|--|--|
| 1. | Concept | Review of inputs, processes and outputs with AA for quality | Overall assessment of institution against national norms | Review of the performance of the institution against goals |
| 2. | Purpose | Assure quality of performance | Recognition for minimum level of quality | Ascertain level of performance against institutional goals |
| 3. | Frequency | Internal yearly, external every five year | Every three or five years | According to needs |
| 4. | Bench marking | Possible with the best in the class and within the institution | Possible with the minimum level at national level | Not possible |
| 5. | Aligned to vision | Yes, every input, process and output is aligned to vision by design | Not necessary, depends on statutory body criteria | Yes |
| 6. | Value addition | At the root level | Uncertain | Adhoc and causal |
| 7. | Performance | Assuring performance | Performance against standards | Performance against goals |

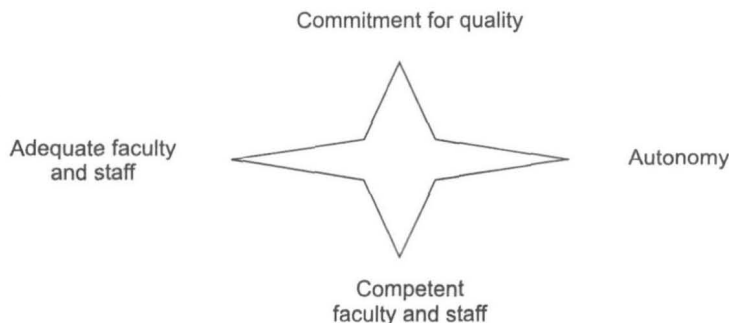


Fig. 3 : Assumption for AA

results in those institutions that fulfill the requirements of assumptions. These assumptions as shown in Fig. 3 are described briefly in subsequent paragraphs.

Commitment for quality: The governing body, management of the institution faculty members, staff members and students are committed for quality of learning that satisfies needs of the employers and society. It is assumed that the institute has quality policy, quality processes and rewards for quality in place. The faculty and staff are dedicated for quality of learning. They believe in practicing scientifically designed quality processes. The institution management and its faculty members do not compromise with quality standards for immediate gain. The faculty and students are self-motivated to learn and develop on their own. The institutional members are involved in quest for quality. If this assumption is valid the institution can do miracle on competence and professionalism of the graduates. It will feed the graduates to industry who are ready to accept the challenges of the world of work. If the institution is not having quality systems in place the introduction of AA may be an instrument to educate the governors, educational managers and faculty members to systematize the things. It will not give immediate significant results. The fruits of academic audit are varied and many. It all depends on the level of institutional functioning on quality parameters.

Autonomy: AA is beneficial in institutions where the autonomy has percolated down the line.

Teachers and students enjoy autonomy to take decisions related to selection of courses, time, teaching learning method, mode and method of assessment with a strong determination to develop competency and proficiency. The students are empowered to learn scientifically without tension and stress. There is no curriculum provision for following a rigid path with compulsion. Now the time has come where the discipline barriers should be removed and total flexibility should be provided to students to learn.

Competent faculty and staff: The faculty and staff members are competent to offer the courses desired by students. They are capable to satisfy the changing requirements of the students and industry. They get an opportunity to work and feel the corporate culture. They are generously sponsored for training in emerging and new areas. At the same time they are trained to transfer learning to students up to predefined level. They are encouraged to conduct research and experiments to enhance the quality, efficiency and effectiveness of learning.

Adequate facilities: The institution has adequate facilities in terms of men, material, machine, money, minutes and information to perform the activities. The institutional members are having healthy relationship among themselves and with the students. The institution has network and collaboration with center of excellences and resource centers. The values and norms of the institution promote motivational culture and climate. The institution provides right

kinds of inputs at right time for carrying out the activities. The teamwork, creativity, innovation, development and value addition in performance is encouraged and appreciated by one and all.

10. BENIFIT OF ACADEMIC AUDIT

The journey of quality starts from academic systems. The academic systems are the foundation rock for assuring and improving quality of performance. It is the initiative point for all the innovations in functioning of the institution.

The AA has short term as well as long-term impact on the performance and corporate image of the institution. The outcome of AA depend on the duration for which it is practiced. If it is sincerely, honestly and scientifically practiced for four years, it has long-term impact on the academic image of the institution. If it is practiced for short term it will improve efficiency of functioning of the institution.

The AA brings immediate improvement in the performance of the individuals and institution because it saves time and efforts of faculty and support staff.

The scientifically designed systems are implemented and audited informally so it enhances effectiveness, efficiency, relevance and quality in one semester. If the academic systems are implemented for a year with informal and internal audit it improves effectiveness, efficiency, relevance and quality of programmes.

It provides immense level of satisfaction to institutional members and students because they have different experience than traditional. The instructional processes create joy in learning experiences.

Students get ample hands on learning opportunities in the campus and outside the campus. They learn in close to real life situation. Their interest, ambition, aspiration and curiosity for learning are ignited.

It is the case with faculty members and teaching staff, they get an opportunity to do something systematically and scientifically. They also learn new professional skills and refine previously developed skills.

The institution functions professionally and learns from formal and informal internal audit. It gets publicity for quality and innovations. The students and stakeholders demand for services. It starts new and innovative projects to satisfy the demands of students and stakeholders.

The growth and development becomes the integral part of the plans of the institution. Faculty and staff members are encouraged to do experimentation for improving the design of the systems and their implementation.

Over the period of four years the institution builds up corporate image for quality and innovations. It is known for unique quality of graduates, services and products.

The students, industry and stakeholder function collaboratively with the institution for mutual benefits. The institution capture on the market of education and training.

11. CONCLUSION

Mobility of the Indian students is increasing day by day to the International Market. It is also leading towards the competitive rivalry among the technical institutions in India. The name and fame of the Institute is decided upon the number of pass-outs are either highly placed in MNCs or moved abroad. The existing system of making improvements in the academic standards and assuring the quality of the technical education system in the country is inadequate. Technical Institutions in India concentrates on the external quality assurance processes that add only the value component to the Institution and not directly to the pass outs. While it is desired that the technical institutions should ensure that the Institutions do not only maintain the earlier benchmarked academic standards but also improve academic

standards every year after year and give appropriate weightage to the desired cognitive skills, practical abilities for the actual performance and desirable social behaviours of the students' learning. Thus the cognitive knowledge and skills that the students gain after attending technical institutions have become much more valuable, both to the individuals and to the society from the point of view of their actual performance at the world of work. This has resulted in increasing the importance of academic performance standards of individuals and quality of technical education systems for technical institutions.

In any technical institution, at a minimum an academic quality assurance system helps to build the Quality of that academic institution. It also helps to monitor the benchmarked academic standards and improve the quality of teaching and student learning in the new competitive world. Obviously it appears to be very much required to raise the image of the Institution in the public interest. Such an approach would also be an appropriate and responsible means of transition from our conventional system of academic quality assurance.

Academic Audit System as implemented and being practiced in number of institutions in European and Asian countries, offer a valuable model for the Technical Education system in India. Currently when there is a cut throat competition in the Institutions, is it not the institution's joint responsibility for assuring and improving the quality of teaching and student learning. So that the graduates of their Institution are compatible with the requirement of the International market. This is possible for all the Institutions by focusing institutional attention on the academic processes by which academic processes which are believed to bring qualitative improvement can be monitored and the academic standards of the programs is improved.

Although, it is very difficult to practice but

over a period of time academic audit appears to be a particularly appropriate approach to monitor the academic accountability in the new context of technical education. Competitions among the institutions for proving their best will automatically invite all of them together for a scientifically and systematically designed quality assurance system. The transformation of the traditional and conventional quality assurance system to such a scientifically designed academic audit system will take some more time.

It is also likely that while some technical institutions would make the necessary effort for internal adaptations to compete effectively in the environment, where as many others might not feel comfortable.

REFERENCES

1. Dill D. D. (1997) Higher Education Markets and Public Policy. Higher Education Policy, 10 (3/4): 167-186 (Through Web site)
2. Dill D. D. (1999) Academic Accountability and University Adaptation: The Architecture of an Academic Learning Organization, Higher Education, 38(2): 127-154.
3. Gupta and Joshua (2008) Competency based curriculum, Mahamaya, Publishing Company, New Delhi
4. Preety Shah (2003), Quality Assurance in Architectural Education Special Issue on Quality Assurance in Technical Education of The Indian Journal of Technical Education, Vol. 26, No. 2, April-June' 2003,
5. Anil Kumar (2007) "Reading Assessment and Evaluation" Mahamaya Publishing Company, New Delhi

