Issues and Ideas in Education

Awareness on Accreditation of Diploma Engineering Programmes

B L Gupta

Professor & Dean Academics and Research, NITTTR, Shamla Hills, Bhopal, Madhya Pradesh - 462002, India

blgupta@nitttrbpl.ac.in (Corresponding Author)

ARTICLE INFORMATION

ABSTRACT

Background: The provision of graded accreditation and autonomy of colleges has been made in the national education policy (NEP) 2020 which will be applicable for all types of higher education institutions in the country. The authors have noticed that there are very few diploma engineering programmes having accreditation and that too will expire for the majority of the programmes in June 2022.

Purpose: To ascertain the awareness of faculty members on the accreditation process was the main purpose of the study. Apart from it, reasons for a very low number of programme accreditation were inferred and suggestions are made for the national board of accreditation (NBA), state government and polytechnics to improve and innovate the quality of diploma engineering programmes to satisfy the future needs of students, employers and society and implement the provisions of NEP 2020.

Method: A descriptive research study was undertaken using the structured and semi-structured instrument designed by the researchers. The responses were collected from 525 principals, heads of departments and faculty members of the polytechnics of the country using Google Form.

Results: It is found that on 95 parameters of the accreditation process the cumulative weighted mean level of awareness of faculty members is more than 60 percent. That clearly indicates that teachers are having in-depth awareness ofthe requirements of the accreditation process but they are achieving the minimum expectable level on various pre-qualifiers, criteria and sub-criteria because of various reasons.

Conclusions: There is a number of other reasons which are abstracting the polytechnic and programmes to qualify for the accreditation. These reasons should be identified and addressed using well-designed quality improvement and innovation interventions at state, polytechnic and faculty members levels.

1. Introduction

Quality colleges and the university is the vision envisaged in the national education policy (NEP) 2020 (MHRD). University Grants Commission declared quality mandate initiatives in all key areas of functioning of the higher education institutions and objectives such as improvement in graduate outcomes, encourage the link between the students and industry/ society, development of students in crucial professional and life skills, ensuring no more than 10% teacher vacancies and accreditation of institutions with a minimum score of 2.5(UGC, 2021). The higher and technical education institutions need to prepare strategic, perspective, and annual plan to achieve quality and excellence in education. At the institute level, there is a provision of creating an internal quality assurance cell (IQAC) and making it functional to assure the quality of educational programmes at the institute and department levels(NBA, 2019), (NAAC, 2019). The IQAC assures the quality of research and related services to students and significant stakeholders. The IQAC creates a scientific mechanism to assure the quality of education, research, and services in light of the existing accreditation system at the national and international levels. Quality assurance is the first step to get the accreditation of educational programmes at the institute level. The quality systems and processes are audited on yearly basis to assess their effectiveness, efficiency, relevance, and productivity. The quality systems are also audited on a five-yearly basis by an external team of experts conducting an in-depth audit to re-engineer the systems and process of the institution.

At the national level, the national board of accreditation (NBA) is a statutory body to award

accreditation to technical programmes, and the national assessment and accreditation council (NAAC) is a statutory body to award accreditation to higher education and technical institutions. Both the statutory bodies are having transparent, credible, data-based, and objective accreditation systems and processes. Both the bodies have developed the accreditation system in line with the international accreditation agencies which assess the quality of education in totality and holistically against the well-defined and declared criteria of assessment and accreditation. The NEP 2020 has recommended constituting one agency for awarding accreditation of educational programmes in the county namely the national accreditation council (NAC)(MHRD). Hopefully, NAC will come out with an accreditation system, process, and criteria for educational institutions in consonance with the expectations of the NEP 2020 and developments taking place all over the globe in the area of quality of education, research, and services in totality.

The survival of educational institutions will depend on providing quality education, research, and services in totality. The educational institutions will require to improve and innovate the quality of the education on par with the quality standards in education at the global level. The competition among educational institutions is increasing significantly with respect to time, the challenges to adopting innovations in education are increasing and changing with time, pressure for financial self-sustenance of the institutions is increasing, the demand for transparency and accountability is also increasing. These significant changes demand quality education in totality on a sustained basis.

It is a matter of great concern for all stakeholders that in 19 states and union territories polytechnics are not having accreditation of even a single programme. Other states are having current accreditation for less than 5 programmes. Maharashtra is a leading state having accreditation of more than 100 programmes, Tamilnadu 34 programmes, Gujarat 20 programmes and Karnatka having 13 programmes. The accreditation of most of the diploma engineering programmes will expire in June 2022 (NBA website 22.12.2021).

2. Literature Review

UGC declared a quality mandate comprising a brief description of various initiatives introduced by UGC to improve the quality of education at the national level. These initiatives are induction programme for students, learning outcome-based curriculum framework, adoption of information communication technology, imparting life skills, social and industry connect, evaluation reforms, faculty development, quality research, mentoring of institutions for getting accreditation, and mentoring of faculty members(UGC, 2021). The role of accreditation coordinator is a pivotal role that is performed using competencies. A competency framework is proposed for accreditation coordinators working at institutional and department levels in higher and technical education institutions. The current status of accreditation, certain assumptions made for deriving the role and competencies of the accreditation coordinators, role of accreditation coordinators, factors affecting competency framework, challenges to get the accreditation, competency framework, and competencies in each pillar of the frame are studied. There are 61 competencies identified which are to be developed in accreditation coordinators. (Pratibha Bundela Gupta, 2021). Quality higher education is needed to uplift the creativity, talent, adaptability, and research mindset. Various models of quality such as the European Foundation for Quality Management, Baldrige Model, Kanji's model, Curtin Planning and Quality framework, process of teaching-learning and student support service model, input, process and outcome model IT-enabled strategic operational excellence model are available in the literature. Common factors in excellence are stakeholder satisfaction, achievement of learning outcomes, and student success. The accreditation process requires innovation, reallocation of resources, and implementation of service policy(Pradeep Kumar, 2020).

(Mathew J Manimala, 2020) Stressed on the importance of accreditation of higher education institutions and described the evolution of the accreditation system. A scenario of accreditation is developed based on the accreditation process and criteria. The accreditation definition, principles, and process are briefly described which is based on the literature review. Accreditation criteria of various accreditation agencies are compared. the learning from the accreditation experience is described and the benefits of accreditation to stakeholders are listed. The issues related to accreditation and challenges to

accreditation are described. There is a dark side of accreditation which is proved in a study. There are suggestions for improving the accreditation and quality assurance system(Martino Andreani, 2020)

(NAAC, 2019) declared institutional accreditation manual comprising guidelines for assessment and accreditation and data analysis for self-study report. The guidelines contain an assessment and accreditation framework, quality indicator framework, eligibility criteria, an assessment process, assessment outcomes, and the calculation of institutional cumulative grade point average. (Burbano, 2017) described the process of preparation for obtaining the international accreditation for the engineering programme. The author stated that it should be taken up as a project approach viz plan the human resource management, acquire project team, develop project team, and manage the project team. (Gaston, 2016) described some concerns related to accreditation quoting the need for radical reforms. These concerns are accreditation is very costly, it is a monopoly, conflict of interest, interfere with trustee rights, no guarantee for quality, stifles innovation. There is a need to bring radical reform to address the concern, assure the quality and increase the accountability of institutions for quality. The formulation of learning objectives that are explicit, understandable, demonstrable, and assessable.

(B. L. Gupta, 2014) stated the shortcomings of technical institutions such as laking in imparting training, qualified staff, up-gradation of curriculum, little focus on the development of students outcomes, innovations and reforms, overall motivation and commitment of the workforce. Analysed the performance of the institute on each criterion of NBA and listed criteria wise shortcomings. The authors listed options and the way ahead.(Kohli, 2014) stated that accreditation is an official recognition of quality assurance. The author described the need for accreditation in the context of the quantitative expansion of technical education. The author listed the purpose of accreditation such as contribution to national development, quality assurance, assessment, maintenance of standards and promotion of excellence. The accreditation bodies and classification of accreditation is described.

(Moscinska, 2014) described the faculty development strategy on the education of versatile and creative professionals with the strategic objective of permanent improvement of the quality and enhancement of creativity and innovation and diversification of educational offer. The strategy is being continued with a focus on teaching quality motivation for self-study and improvement of quality of research.(Gupta B. L., 2013) described the evolution of accreditation process for technical education programmes in India, accreditation philosophy and process, refinement of criteria and their weightage, strengths, and limitation of the accreditation process, awareness about NBA accreditation at different levels, myths about accreditation, issues related to quality, and NBA accreditation, training on NBA at all levels, suggestions for improvement in NBA process. (Gupta, 2012) described more than 40 steps of preparation for obtaining NBA accreditation at the institute and programme level. These steps are identified considering the requirements of NBA accreditation. The myth about documentation is removed and principles of total quality management in the light of accreditation of engineering programmes are removed.

Discussion

There are some studies conducted on various aspects of quality, quality assurance, accreditation, preparing for accreditation. No study was found on awareness on awareness of diploma engineering programmes where accreditation of programmes is negligible.

3. Research objective

1. To ascertain the level of awareness of faculty members of polytechnics on the national board of accreditation (NBA) accreditation process.
2. To suggest strategies at different levels for encouraging institutions to obtain accreditation of diploma engineering programmes.

4. Methodology

4.1. Type of research Study

It is a descriptive type of cross-sectional research study in which views of faculty members are gathered.

4.2. Research Instrument

A structured and semi-structured researchinstrument was designed by the researchers which were validated for content and construct.

4.3. Population

The faculty members working in polytechnics and contributing to diploma engineering programmes constitute the population for this study

4.4. Sample

The faculty members working in polytechnic colleges of India are chosen for receiving the responses through email and google form. A purposive sampling technique was used for selecting the respondents for the study.

5 Analysis of Data

Weighted mean and percentage technique was used to analyse the data collected on various parameters of the questionnaire.

Table 1: Level of awareness of polytechnic faculty members on parameters of accreditation

S. No	Level of awareness of teachers on	Weighted Mean
	NBA General manual	2.93
	NBA Diploma programme Manual	2.93
	Prequalifies	2.86
	Self-assessment report	2.97
	Evaluation guidelines	2.80
	Chairman report part A, B, C	2.55
	Evaluator report part A, B, C	2.58
	Purpose of accreditation	3.28
	Benefits of accreditation	3.25
	Impact of accreditation	3.17
	Imperatives of accreditation	3.00
	General policy of accreditation	2.92
	Accreditation criteria	2.98
	Self-assessment process and report	3.04
	Stages of the accreditation process	2.89
	Accreditation fee	2.78
	Pre-qualifiers – essential qualifiers	3.01
	Pre-qualifiers – desirable parameters	2.86
	Self-assessment report (SAR) - institution information part A	3.04
	Self-assessment report (SAR) – Programme level criteria part B	3.00
	Self-assessment report (SAR) – Institutional level criteria part B	2.92
	Self-assessment report (SAR) –Declaration by the institution part C	2.89
	Process of crafting the vision of the institute and department	3.04
	Process of defining the mission statements of institute and departments	3.05
	Process of defining the programme educational objectives	2.98
	Process of identifying curricular gaps	2.85
	Process of defining content beyond syllabus	2.88
	Process of improving the teaching-learning process	3.22
	Process of improving the assessment process	3.13
	Process of improving quality of experiments	3.02

	Process of improving quality of students projects	2.97
	Process of improving industry-institute interaction	2.90
	Process of improving community services	2.84
	Process of improving students centric learning	3.03
	Process of improving professional skills	3.00
	Process of improving co-curricular activities	3.00
	Process of improving extracurricular activities	2.98
	Process of writing programme outcomes (POs)	3.06
	Process of writing programme specific outcomes (PSOs)	3.00
	Process of writing course outcomes (COs)	3.14
	Preparing course v/s Programme outcomes and programme specific outcomes matrices	3.06
	Preparing course outcomes v/s Programme outcomes and programme specific outcomes matrices	3.05
	Preparing attainment level of Pos and PSOs matrices	3.27
	Preparing enrolment ratio	2,97
	Preparing success rate	2.96
	Preparing academic performance	3.04
	Preparing placement	2.98
	Higher studies	3.01
	Preparing entrepreneurship	2.86
	Preparing professional societies chapters	2.78
	Preparing engineering events	2.87
	Students participation in the publication	2.85
	Students participation in inter institute events	2.90
	Students participation in state-level events	2.88
	Students participation in national-level events	2.80
	Training activities - participant	3.13
	Training activities – trainer	2.80
	Creating classroom facilities	3.18
	Creating laboratory facilities	3.09
	Creating workshop facilities	3.05
	Creating languagelab facilities	2.87
	Continuous improvement on programme outcomes and programme specific outcomes	2.97
	Continuous improvement on placement	2.96
	Continuous improvement on higher studies	3.05
	Implementation of mentoring system	3.06
	Implementation of the feedback system	3.07
	Implementation of corrective and preventive actions	2.92
	Implementation of career guidance	3.03
	Implementation of training	3.03
	Implementation of placement	3.00

	Implementation of entrepreneurship	2.84
	Implementation of technology business incubator	2.68
	Implementation of organizational structure	2.91
	Implementation of the governance system	2.86
	Implementation of decentralization system	2.75
	Implementation of delegation	2.73
	Implementation of transparency	2.89
	Implementation of budget allocation	2.70
	Implementation of budget utilization	2.72
	Using library	3.14
	Using internet	3.24
	Using learning resources	3.16
	Using alumni connect	2.84
	Contribution to the community development	2.97
	Contribution to go green	2.99
	Preparing documents	3.06
	Process of facing the evaluation team	2.95
	Process of making an appeal	2.77
	Process of publicizing the accreditation	2.74
	Complete process of accreditation - Students	2.92
	Complete process of accreditation – Parents	2.68
	Complete process of accreditation – Technical staff	2.95
	Complete process of accreditation – Ministerial staff	2.68
	Complete process of accreditation – Alumni	2.66
	Complete process of accreditation- Stakeholders	2.55

6. Findings

The awareness level of faculty members on accreditation of diploma engineering programmes is more than 60 percent on all the dimensions of the accreditation process. Besides that, the polytechnics have failed to obtain accreditation of diploma engineeringprogrammes. The following points may be inferred from the study:

1. The polytechnics are not satisfying the pre-qualifiers for the programmes and institute. In most of the government polytechnics decisions to recruit faculty members and create infrastructure is taken at the state level. Similarly, these decisions are taken by the trust or governing body in private polytechnics. The satisfaction of prequalifies is not in the control of polytechnics.

2. There are vacant positions of principals and heads of departments in many states that may be a cause for not satisfying the accreditation requirements.

3. The visionary and transformational leadership at the polytechnic level may be lacking because of that vision, mission statements at the institute and department level and PEOs at the programme level are not crafted. The outcome-based curriculum and other activities are not being implemented at the polytechnic level.

4. Inadequate provision of budget for implementing innovative events at polytechnic and programme level may be the reason for not satisfying the accreditation requirements.

5. Outdated curriculum and lack of guidance from the state level may be the reason for the nonexistence of implementation of outcome-based education in some states.

6. Untrained contractual and guest faculty members is another case of poor quality of education because the retention rate is less.

7. Remote location of the polytechnic and lack of efforts to collaborate with industry may be the reason for the poor quality of education.

8. Lack of availability of recent equipment and laboratories in upcoming technologymay be a hurdle for improving the quality of experiments. Inadequate and incompetent technical and ministerial staff may be the reason for the poor quality of lab work and services.

9. Lack of mentoring of the polytechnic as a whole on preparing for accreditation may be the reason for not applying for accreditation.

10. Lack of proactiveness on the part of the polytechnic may be the cause of poor quality of education and not applying for accreditation.

11. Lack of trained faculty in mentoring, guidance and counselling, training and placement, stakeholders management, entrepreneurship development, use of information communication technology, and organizing innovative events for students may be the reason for noncompliance of accreditation criteria.

12. A weak performance appraisal system for faculty members may the reason for the poor performance of the faculty members on accreditation criteria.

13. Poor design of quality assurance system and inadequacy of implementation of various quality improvement activities may be the cause of poor performance.

14. The absence of a scientific feedback system for all purposes may be the cause for the poor quality of services.

15. Inadequate and weak collaboration with industry may be cause for poor placement of students in a good industry.

16. Too much bureaucracy may be the cause of delays in decision making on important issues.

17. Lack of social connect of the polytechnic with significant stakeholders may be affecting the quality of education.

7. Suggestions

National level

1. Revitalize the accreditation system at the national level considering the provisions of NEP 2020 and developments taking place in the technical education sector all over the globe.

2. Review the accreditation system at the national level every five years to fine-tune it with the innovations taking place in the world of work and society. The review should be done under the guidance of experts preferably foreign experts. The team in the accreditation agency should be changed or redeployed to break the patterned thinking and biases.

3. Researches on various aspects of quality, excellence, and innovations in technical education should be encouraged. The cross-sectional and longitudinal research studies should be encouraged to create an evidence-based new body of knowledge for wider application.

It is suggested that the State Government should

1. Provide adequate faculty members and staff members to satisfy the requirements of the prequalifies.

2. Allocate an adequate budget for creating the infrastructure and maintaining it to facilitate curricular, co-curricular and extracurricular activities including intensive use of information communication technology.

3. Establish quality assurance and monitoring cells at the state level to design and implement interventions for improving and innovating the quality of polytechnic education at the state level. The cell should conduct SWOT analysis of each polytechnic and take the decision to close the sick programmes.

4. Review the curriculum to make it on par with the international polytechnic curriculum incorporating provisions of NEP 2020. The task may be undertaken by a technological university or Board of technical education.

5. Make the assessment and certification based on the outcome-based assessment philosophy.

6. Encourage polytechnics to organize national and international events for students and faculty members.

7. Encourage polytechnics to collaborate with local government and social organizations to solve local problems related to the quality of life of the community.

8. Involve polytechnics to contribute to achieving national missions involving students and faculty members.

9. Create a common forum for sharing experiences on quality improvement, innovations and problem solving through publication and meetings.

10. Establish a problem-solving mechanism to resolve problems of the polytechnics and other stakeholders.

11. Motivate polytechnics to grab the quality improvement opportunities available at the national and international levels.

12. Facilitate collaboration with significant stakeholders at the state and polytechnic level for mutual benefits.

13. Encourage research studies on improving the quality of diploma engineering programmes at the state level.

14. Invite volunteers to contribute to improving the quality of polytechnic education at the state level.

15. Encourage benchmarking with the best in the class for designing and implementing reforms and innovations at the state level.

It is suggested that the polytechnics should

1. Develop strategic institute development plan in the context of NEP 2020 and industry 4.0.
2. Create new laboratories, project laboratories, research laboratories, incubation centres, and production centres to satisfy the requirements of the industry.
3. Implement outcome-based education philosophy to develop the students for accepting the challenges of the world of work.
4. Take lead to introduce reforms and innovations to effectively implement the provisions of the national education policy 2020.
5. Collaborate with leading industries that are implementing the industry 4.0 technology for mutual benefits.
6. Involve students in community development and implementing national missions for gaining first-hand experiences.
7. Encourage students for gaining credits by choosing multidisciplinary courses from SWAYAM platform and other open learning sources.
8. Develop academic culture to implement learner-centric education, entrepreneurship development, vocational skills development and twenty-first-century skills in students. Create a quality culture in the institute to foster innovation using teams in different areas of innovation.
9. Encourage faculty members for using learner-centric instructional methods in general and problem-based and project-based methods in particular.
10. Practice outcome-based assessment and encourage students to create assessment portfolios.
11. Systematically implement the accreditation and autonomy system in polytechnics following the different phases of creating awareness on quality education and excellence and accreditation system among the stakeholders
12. Develop the competence and confidence for effectively implementing the quality systems and processes using training, mentoring, coaching, guiding, and counselling approaches. Integrate feedback mechanism with the performance of students.
13. Enhance the commitment of all stakeholders for quality assurance, quality improvement, quality innovation, and sustaining the innovations in the polytechnic.
14. Involve the stakeholders for the effective implementation of innovations in the key areas of academics, research, and service.
15. Empower the stakeholders and mobilize their resources for achieving quality and excellence in education, research, and services.
16. Develop the capacity of the evaluators using training and mentoring approaches to assess the quality objectively and transparently against the criteria and sub-criteria prescribed by the accreditation agency. Encourage the evaluators and assesses to adhere to accreditation ethics.

8. Limitations of the Study

The study is based on the views of volunteered respondents which may not be the true representation of the population. The inferences are drawn with reference to the accreditation process and criteria. The study is not spread over a long period of time so the situation might have changed because of interventions at the state and polytechnic levels.

9. Implication for Technical Education

The suggestions made in the study would be useful to NBA, State Governments and polytechnics to diagnose the problems related to the poor quality of the programme and take corrective and preventive actions to improve the quality of the polytechnic education. The study will be useful for polytechnics to design interventions in priority areas to improve the quality of the programmes and apply for getting accreditation of programmes.

10. Scope for Further Study

There is always a scope for further research work to create a new body of knowledge. The issues related to quality assurance, self-assessment, collaboration with stakeholders, mentoring of students, value addition certification for students, effective implementation of outcome-based education, use of open sources of learning in psychomotor and affective domain outcome development, generation of revenue for the polytechnic, and implementation of NEP 2020 in polytechnic education may further be explored.

Conflict of Interest

There is no conflict of interest in this study.

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