

OPPORTUNITIES TO ENHANCE THE EMPLOYABILITY OF ENGINEERING STUDENTS

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Abstract: India is one of the countries with a maximum young population and engineering education has been one of the most popular and favourite domains of education among them. India is known to be one of the largest and most qualified pools of the workforce. In the last few decades, corporate sectors have propagated engineering education as the need of the hour to hire new professionals for their business development. This made engineering students and institutes understand and attain key requirements of the employers. The country has witnessed huge growth in the manufacturing and service sectors. This was also augmented by the Government's initiatives under National Skill Development Corporation. This paper attempts to study the loopholes that exist in the current engineering education to meet corporate requirements. It also attempts to understand the employers' requirements and the set of skills engineering students possessed and review the opportunities to fill this wide gap between the two with the interference of engineering institutes. This will also try to scrutinize the perceptions of all stakeholders involved in engineering education.

Index Terms - Workforce, service sectors, National Skill Development Corporation, set of skills.

I. INTRODUCTION

With 356 million 10–24-year-olds, India has the world's largest youth population [1] but the youngsters lack a certain set of skills which are required to grow personally and professionally. This will stop the continued growth of the techno-economy which is adversely affecting India's overall growth in technology sectors. Studies have proved that the boom in the corporate sector is possible only if education institutes take the initiatives to involve students in their activities and make them industry ready. Even prospective employers grudge the fact that most newly graduated engineers lack suitable skills to be productive from day one in the company. It is believed that developing and emerging countries with large youth populations could see their economies ascend, on the condition that they invest greatly in young people's education and health. It is the need of the hour to understand the ways of preparing students so that they can contribute to developing the Indian economy.

Premier engineering institutes have taken a good number of initiatives to tackle this problem of unemployability by creating a space for students to participate and enhance their skill set required by the industry. Therefore, students at these premier institutes do not find it difficult to work for the industry from day one of their joinings. The major problem lies with the rise in private engineering institutes which are flourishing to fulfil the growing demand for technical education among students. Many private institutes were granted permission to run engineering programmes without ensuring the minimum requirements of the statutory body. Though these private institutes have been increased, the responsibility has also been increased due to the competition with premier institutes. Meeting the number of pass out and employability of students at premier institutes has really been a challenge for the private institutes. They also have to ensure sustainability in the admission choice of students for their institutes and achieve maximum recruitment of students in corporate sectors.

Due to the rise and expansion of manufacturing and service sectors in India, employers hire professional candidates who fulfil the technical as well non-technical requirements. These technical and non-technical or behavioural skills are termed employability skills. Employability refers to a person's capability of gaining initial employment, maintaining employment, and obtaining new employment if required [2]. Different sectors require different kinds of employability skills, varying for each sector. Special technical skills are required for some core sectors but behavioural skills are most common in all the sectors. With reference to employability skills, the expectations of employers have increased due to the huge demand for professionals who can become productive in the industry. Therefore, they hire new entrants from premier institutes as they meet their demands

which cannot be achieved by pass-outs from private institutes. This new productive workforce will help in building the brand of the industry.

According to the HRD ministry, a large number of students are taking admission to engineering education. Looking at the number, India has 6,214 engineering and technology institutions with an enrollment of 2.9 million students. Around 1.5 million engineers are released into the job market every year [3]. However, the miserable state of higher education in India ensures that they simply do not have suitable skills to be employed. Resultantly, grim uncertainty is observed in the economic and social settings in the country, along with a wide range of dissatisfaction and disenchantment. Though there is an increase in the number (quantity) of universities, colleges and programmes, the quality of education is degrading. It has also been observed that profit-centric and besmirched management and government organisations, absence of skill-based education, magnificent corruption, rote-learning methods, and shortage of skilled faculty (both in quantity and quality) are the major issues afflicting higher education. Graduates are receiving their degrees with no skillsets and no on-field experience through internships. This harms the education system as well as the Indian economy at a large level.

The current study has found that employability regarding IT product companies is as low as 4.22 % (amongst computer/electronics-related branches), whereas employability with regard to IT services companies is 17.84%, wherein the company gives 3-6 months of in-house training [4]. There is a huge gap between entry-level graduates and industry expectations. Bridging this gap is a challenge for all private engineering institutes as the university curriculum is not sufficient to fulfil the industry requirements. Thus, there is a need to identify and understand the available opportunities to enhance the employability of private engineering students which can help students acquire their dream jobs. This will also help institutes gain success in attracting the majority of students. The major purpose of this paper is to expound on a few opportunities which can help the institutes and students to fill the existing gaps thereby leading to an enhanced employability of engineering graduates. Following are a few opportunities or solutions which can be used by the institutes or students to fulfil the corporate requirements and thereby help in building the economy of the nation.

II. OPPORTUNITIES

1. Basic Knowledge of Logical and Analytical Skills

In the last few years, there is a drastic change in engineering education which has seen the majority of students pursuing engineering degrees. This has changed its status from class to mass education. Students need to go through analytical and logical tests to get admitted to engineering education where they need to possess basic knowledge of core subjects. But the selection of candidates based only on these criteria does not ensure the making of a good engineer. There is a huge gap between what is being taught and what is being tested in the tests. Logical and Analytical skills are the basic requirements but the ability to apply them is not being found among young graduates. Therefore, it is the responsibility of institutes and teachers to sensitize students about the application of the concepts. They should also ensure to learn with a focus on developing an innovative approach and finding solutions to complex problems. Basic knowledge, as well as logical and analytical skills, will help in enhancing their chances of getting employment as the employability of an engineer is the prime concern for any of the stakeholders of the education sector.

Furthermore, private engineering colleges take admissions of candidates having a non-zero score in the entrance examination. This has massively expanded the enrollment of engineering students but the emphasis on quantity has led to a decline in the average quality of enrolled students. Therefore, there is a need to brainstorm with students about the skill enhancement in logical and analytical abilities.

2. University Curriculum

The University curriculum should be revised after every five years by taking inputs from industry experts and academic experts in the specialized field. Proactive inputs from industry experts should be given utmost importance to keep abreast with the recent and emerging trends which are used currently on the live projects carried out in the industry. Though constraints like time, availability, interest etc. prevent such emerging technology to be part of the syllabus; a modest significance should be given to industry inputs. Though there is a huge difference in perceptions of academia and industry about the role of the university curriculum, a significant balance needs to be created to include foundation courses and the latest tools and technologies used in industry. This will help in fulfilling the demands of the industry from students to become productive from day one. Though it is difficult to include emerging technologies in the revised syllabus due to frequent and fast technological upgradation, unavailability of the study material, lack of trained teachers etc., industry experts need to be invited for training the faculty and students alike in the required emerging technologies.

3. Student Development Programme

Student Development Programme is one of the initiatives that institutes can take to develop the technical and non-technical skills of the students. This will help students and faculty alike to understand industry expectations and try to match the required skills. This programme should cover topics related to technical and behavioural aspects. This should ensure students to understand the recent trends and emerging technologies used in the corporate sectors. This will imbibe in them the global corporate requirements, current work conditions and the effective use of modern technologies and their relevance in the work. The students can get a feel of corporate culture by interacting with corporate professionals and trainers. This can help with overall personality development and performance.

4. Research and Development Activities

Research and Development are also one of the major neglected activities among private engineering institutes today. On one hand, the Government is taking initiatives to increase research and development activities at the business level but on the other, institutes do not take an active part in understanding the need for research. There may be a reason that faculty do not have the required exposure to get themselves updated with the latest tools and technological advancements. But the institutes and faculty can take the initiative by approaching industry experts and premier institutes for research guidance which can enable them to guide and direct students for new areas to work. They should encourage research and development activities for students by providing project guidance, in-plant training, internship, and conducting workshops and seminars. The prime focus of private engineering institutes should be on the application of the knowledge they possess in related fields. The private institutes, therefore, need to develop, imbibe and nurture research acumen amongst their faculty and students right from their inception. The industries should understand and encourage research and development activities at the institute level by creating awareness and participating in workshops and seminars conducted at the institute level.

5. Encouraging Industry-Institute Interactions

Private engineering institutes mushroomed exponentially to meet the high demand but fulfilling industry expectations are not considered. This made the industries disbelieve in the students' learning at such institutes which let them not consider such students for recruitment. Therefore, there is a need that private engineering institutes should enhance their interaction with industry to increase their participation in academic activities. The activities like in-plant training, internship and projects in the industry can be encouraged by engineering institutes for their students. Institutes need to understand the industry requirements and fulfil the criteria of industries. This will ensure industries proactively initiate tie-ups with private institutes. Students in tier-1 institutes like IITs and NITs have always been given the upper hand as they possess knowledge, and their institutes have active industry tie-ups. These industry-institute collaborations enhance students' participation in the industry work as they can work as apprentices where they can understand the key requirements and accordingly, they get hired in the same industry. Therefore, there is a strong need to initiate mutual interactions for understanding the technical requirements of the industry and thereby fulfilling the same. This will help in enhancing the recruitment of engineering students which will help in the branding of the institute.

6. Faculty Development Programme

Faculty plays a major role in grooming students. They are pathfinders and guides for students. Therefore, faculty members need to be provided with proper training for teaching undergraduate level to improve better understanding of students and for career guidance. This enables students to take interest in their related field and acquire quality education. University Grants Commission has specified the qualification of teachers for engineering education as M. Tech. / M. E. in the specialized field of engineering. But the private engineering institutes hire unqualified and untrained teachers. There is a need for technically trained teachers who need to be hired to improve students' learning. The institutes can initiate a faculty development programme by inviting guest speakers from industry and academia for training the faculty in teaching techniques and emerging technologies to keep abreast with the latest trends in their related fields. This can be initiated through Short Term Training Programme, Refresher Course, Orientation programme, Faculty Enhancement Programme, Faculty Development Programme, Departmental Collaborative Learning, etc.

7. Communicative Competency and Soft Skills

The English language is the lingua franca of the world. Most recruiters of graduate engineers are multinational companies where English is the medium of exchange. Though India is a non-native speaker of English, communicative competency in English has become almost mandatory. Communicative competence is the most necessary aspect of communication as it is a benchmark for successful communication. Linguistic and socio-linguistic communicative competencies develop felicity of language. Linguistic competence helps in content development such as business reports, letters, scientific papers, e-mails, project reports, etc. The

seven Cs of effective writing such as clarity, conciseness, completeness, courtesy, consideration, credibility and correctness can be used to express effectively with conceptual clarity. It will help them to achieve their goal and enhance their language skills. Socio-linguistic communicative competence can help in understanding cross-cultural differences and accordingly use communicative functions in different sociolinguistic contexts. According to the report, authored by Dr. Abusaleh Shariff of the Centre for Research and Debates in Development Policy, New Delhi and Amit Sharma, research analyst with the National Council for Applied Economic Research, only 20% of the Indian population can speak English, and only 4% would be considered fluent [5]. Moreover, although on paper the medium of instruction in technical college is English, it is seldom followed. Because of all these reasons, Indian engineers face a lot of problems in communicating effectively in English, which further hampers their employability.

Soft skills, also known as people skills, are personal traits that describe an individual's ability to interact with others. These skills cannot be learnt in a day or two, however, they have to be nurtured from an early age. Communication is the basis of soft skills where teamwork, leadership, decision-making, etc. are done through effective communication. Today companies work on different projects where employees have to work with different people and in different fields. They have to handle these people skillfully to progress in their related fields. Students can acquire these skills by attending training sessions on the English language and soft skills enhancement. This will enable them to meet the corporate requirements and obtain the required job.

III. CONCLUSION

The employable student is one of the key requirements of the industry today as the industry needs the candidate to be productive from day one of their joinings. The government has also taken many initiatives to enhance the employability of trained and untrained students which can benefit in increasing the human capital of India. This will also bring significant private and public benefits, demonstrating higher education's broader role in contributing to economic growth as well as its vital role in social and cultural development. This paper attempts to find out the loopholes that exist in the current engineering education which can be surpassed through different opportunities available in enhancing the employability of engineering graduates, especially in private technical institutes. If industry and institutes both take an active part in collaborating and finding out the solutions to the cause of the problem, then it is beneficial for the institutes, industry, and nation at large to increase the trained workforce.

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