

# Employability Skills for Engineering Graduates: A Formula to Success in the Era of Science and Technology

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**Abstract**—Researchers and policymakers have used the term employable in discussions on employment. Years of research have shown that the lack of employability skills among engineering graduates is the main cause of the unemployment issue we are currently experiencing. Employers place a strong emphasis on employable skills in the age of science and technology. India's high unemployment rate is due to a lack of modern, marketable skills. Around 97% of engineering graduates, according to a survey by Aspiring Minds, want to work in software engineering or core engineering. Yet, just 3% of people possess the abilities required to work in the software or product industries, and only 7% are competent enough to perform basic technical tasks. The goal of this research paper is to provide engineering graduates with the employability skills they need to succeed and become resourceful citizens who can benefit the entire country.

**Keywords:** Employability skills, Effective, Communication, Soft skills, Engineers

## I. INTRODUCTION

The Indian educational system has a prominent role on the global stage and is regarded by international students as a hub for higher education. Although the country offers an unmatched selection of academic programmes, finding employment remains a challenge. Every person needs employability skills and abilities that the company expects. It includes the capacity to land a job and keep one. The Conference Board first used the term “employability skills” in 1992 to refer to those abilities that serve as the fundamental building blocks for obtaining, maintaining, and succeeding in any industry with a set of knowledge and abilities that every employer expects from the employee. Employability is defined by The Confederation of British Industry (CBI) (2009)

as: “A set of attributes, skills, and knowledge that all labour market participants should possess to ensure they have the capability of being effective in the workplace – to the benefit of themselves, their employer and the wider economy.” Today's highly technical and sophisticated jobs demand a highly professional candidate who can increase productivity and thereby increase the value of an organization (Busse, 1992). The shift from production-oriented engineering jobs to service-oriented engineering jobs demands professionals with both sound technical and behavioral skills to attain and retain the job (Hillage J, 1999). Therefore, employability is the ability to make plans for the future along with the required skills, knowledge, and confidence to progress these plans further.

## II. OBJECTIVES AND HYPOTHESIS OF RESEARCH

Any Industry currently needs an engineering graduate with strong technical knowledge, efficient communication skills, and a pleasant attitude. Today, it can be difficult to help young engineers develop their soft skills and get them ready for the workplace. The Industry is expecting them with sound technical skills as well as soft skills. The current study intends to improve engineering graduates' employability by helping them build their employability skills. With the help of this study, engineering graduates will acquire the employability skills they need to be successful in the workplace. The main claim is that engineering graduates in Mumbai have employable abilities. It is predicted that the study's data on a subset of engineering graduates provide an accurate picture of the employability skills of engineering graduates.

## III. THE SURVEY BY PURPLE LEAP

Only one out of every ten graduates from engineering schools in Tiers 2, 3, and 4 are immediately employable. It was discovered that 62% of the pupils did not possess the necessary analytical/problem-solving abilities. Even more concerning is the fact that even with outside assistance in the form of training, around 80% of this group is unsuited for employment. The Purple Leap IRIX (Industry Readiness Index) survey's conclusions also pertain to students who have performed well academically, earning at least 60% of the possible points. Purple Leap, a talent management organisation, conducted the "Employability Skill Index" survey with 9,000 students from 95 colleges across the nation, including 600 students from 15 engineering colleges in Andhra Pradesh. It examined communication, problem-solving, and technical skills—three essential employment skills. According to the report, more than 80% of students do not possess the necessary problem-solving abilities. Compared to the national average of 35 percent, state pupils' average scores were less than 25 percent. More than 50% of the students received problem-solving scores of less than 25%, placing them in the "hard-to-train" category. After engineering, students settle for non-technical professions due to a lack of abilities.

Just 17% of the five lakh engineers that graduate from the nation's engineering institutions each year, according to the National Employability Report on Engineering Graduates published by Aspiring Minds, a provider of employability solutions, are suitable for the IT services industry. The study's findings were based on a sample of more than 55,000 engineering students from 250 universities selected from around the nation. The soft skills, on which businesses place more emphasis, are also something that engineering graduates lack in addition to their technical expertise. Major problems with engineering education are: the syllabus is not updated frequently; there is a lack of innovation and research; the educational system is flawed; there is not enough emphasis on skill-based learning; the importance of the college name; the ease with which state governments grant permission; and the disregard for soft skills.

#### IV. DEVELOPING SOFT SKILLS OF ENGINEERING GRADUATES TO ENHANCE EMPLOYABILITY

An engineering graduate with sound technical knowledge, effective communication skills, and a pleasing personality became the prerequisite of any Industry. These days it is challenging to improve the soft skills of young engineers and prepare them for the job. The Industry is expecting them with sound technical skills as well as soft skills. Soft skills include such as Effective Communication, Presentation skills, Leadership skills, Assertive communication, Team Building, Goal Setting, Motivation, Negotiation, Problem-solving, etc. These days, the English word communication is gaining appeal. It has the ability to turn the entire globe into a revolver. It serves as the hub of all endeavours. Everyone wants to communicate more effectively now that they are aware of its significance. Effective communication is key to being happy in personal and professional life. It has become the lifeblood of all organizations in the present era. The success or failure of any organization or an individual is mostly depending upon communication. It is high time for engineering students to understand the importance of effective communication and hone it to be competent and confident during campus recruitment to exhibit their knowledge, skills, and latent to get selected dream companies. Effective communication is regarded as one of the most crucial traits for engineers since it serves as the foundation for enhancing teamwork and leadership skills. The ability to work in a global environment, confidence, and an understanding of foreign cultures is additional crucial traits for engineers. But, the key to all of these is effective communication. The engineer's positive reputation is strengthened by effective communication.

Engineering colleges must have training and placement cells to give rigorous training to young minds in soft skills so they could face the HR interviews confidently. The focus should be on practical and interactive activities so students could participate and relate the knowledge they have. The students from vernacular medium should be identified and must be given training in spoken English and personality development with properly planned activities by the trainers. Very first the trainer should build confidence among the students that they can acquire the essential skills. They must be trained to be competent and confident in public speaking, presentation skills, group discussion sessions, and

mock interviews frequently in the institute before the placement drive so they will imbibe the employability skills to win at interviews and in professional communication. Engineering students should be trained in anger and time management to be productive at their job. They should be trained to maintain the balance between passive and aggressive communication so they may not violate the rights of others. It is very important to have an industry and institute symposium at the institute to know the expectations of the industry. Institutes should take the proactive initiative to invite experts from the industry to train their students. Institutes may have to pay a heavy price if the soft skills and effective communication skills of engineering students are ignored. The general awareness among students about employability must be inculcated from the first year of engineering. The career of engineering students should not be hampered due to the required set of soft and hard skills. Hence, it is the pick hour for students and institutes to sweat blood to be the best in the era of science and technology.

Several students lack the necessary employability skills to perform well in interviews and the job, according to research. It might put someone with limited comprehension at risk. Students will be equipped with a solid conceptual and practical framework that will allow them to create, nurture, and manage teams. The amount of data demonstrating the importance of soft skills or employability skills to employers' performance is astounding. Yet it's important to comprehend, in particular, what employers mean by "soft skills" and the most effective methods for imparting education and training in these areas. The increasing value placed on oral communication abilities has been repeated across the globe. Technical proficiency and knowledge are undoubtedly crucial, but employability skills must also be demonstrated to the highest standard. Excellence is seldom the result of luck, but rather of persistent, earnest work.

## V. CONCLUSION

In the age of science and technology, employability skills are a critical component of success, particularly for engineering graduates in Mumbai, one of India's most significant technical cities. These qualities cover

a wide range, including technical expertise, oral and written communication, flexibility, leadership, and problem-solving abilities.

For engineering graduates, technical skills are crucial since they give them the information and abilities needed to do their professions well. Moreover, Mumbai engineering graduates require excellent communication skills to properly convey technical information to a variety of audiences. They also need to be able to collaborate well in teams, as most projects call for cooperation between several academic fields. For engineering graduates in Mumbai, the ability to understand complicated problems and come up with innovative solutions is also crucial. Another crucial trait for engineers to possess is flexibility, as the technical landscape is continuously changing and they must be able to quickly adopt new tools and technologies. Finally, engineering graduates in Mumbai must possess strong leadership qualities because they frequently assume positions of leadership inside their firms. The capacity to inspire and motivate others, successfully assign responsibilities, and express a clear vision are all examples of leadership skills.

In conclusion, engineering graduates in Mumbai must possess employability skills if they are to prosper in the era of science and technology. Engineering graduates can increase their employability and succeed in their jobs by developing a variety of talents.

## VI. RECOMMENDATIONS

This study suggests that engineering institutions establish training and placement departments to provide young people with rigorous soft skill training so they can master HR interviews. The emphasis should be on engaging and practical activities that allow students to participate and apply their prior knowledge. This study suggests that trainers should identify students who are learning in a vernacular medium and provide them with training in spoken English and personality development through carefully organized activities. This study suggests that instructors should encourage students to believe they can learn the necessary abilities. Before the placement drive, they must receive frequent training in the institute in public speaking, presentation skills, group discussions, and mock interviews so they may develop the employability skills necessary to succeed in interviews and professional communication. It is

necessary to start teaching engineering students about employability in their first year of study. To be effective in the workplace, engineering students should receive training in stress and time management. Institutions should take the initiative to proactively invite industry professionals to instruct their students in both hard and soft skills.

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