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# Analysing Information Technology Industry Expectations On Expected Skills From Engineering Graduates To Gain Employability

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**Abstract:** Information Technology industry in India has large dependency to recruit engineering graduates to cope up with their business needs. After a 4-year engineering degree program, the students are expected to be job ready. With growing competition and industry expectations, it has led students' anxiety and failure in acquiring a job. While industry is struggling to recruit skilled engineering graduates; students are finding it difficult to get employment. The study analyses the importance of skills that industry requires which students need to be aware of to improve their employability. The study has addressed the apparent gap between academic programs for engineering students and industry skills expectations. The results of the present study were found with the help of the self-build questionnaire and the data was further analysed using statistical tools and techniques. Study reveals that training and skill development aligned with industry needs is necessary for engineering students to be employable.

**Index Terms**: Employability, Engineering Graduates, IT Industry, Onboarding Training, Skill Gap, Soft Skills

## I. Introduction:

The Indian IT Industry is growing at a phenomenal rate, and to sustain the growth it largely depends on human resources which largely comes from Engineering Graduates recruitment. Pune is a city in Maharashtra state of India and is one of the largest IT hubs also known as an Education hub. Considering the workforce requirement and availability of the talent in Pune, the study was conducted to understand employability challenges engineering graduates are facing as against the industry requirement. The youth population of India is fast-growing. In fact, according to studies, India is one of the few countries in the world that is expected to see an outright increase in its population of youth until 2025, which implies the urgent need for research on the conditions of employability in India. The country's status of a knowledge economy can only be maintained if the skill gaps, which act as a major constraint for employability, are reduced. The increasing use of technology in the primary, secondary and tertiary sectors calls for a significant improvement in the skill development of the youth of the country. The Prime Minister's Council for Skill Development has set up several targets for the upskilling of workforce in the years to come [11]. Despite being one of the fastest-growing economies, India is lagging due to the dearth of skilled workforce. Practical skills needed for employability are understood better with business intervention because changing economic trends in the market require the industry's role in adding value to the workforce [1] Most of the countries in the world today have been facing the challenge of a skilled workforce [7]. However, industries play a crucial role in recognizing the adequate skills required for employment and training the workforce for the same [9]. The job market in India is very challenging and the demands for expected qualities in manpower have been increasing rapidly. The rising number of engineering graduates every year has been causing serious instability in the Indian job market and the unemployability of the youth has become one of the most challenging issues of the industrial sector in recent times [5].

The constantly changing current job market environment requires graduates to not only have excellent academic records but also the skills and characteristics that help them make an efficient contribution to the respective organizations. An efficient human capital is an indispensable asset of any organization. Therefore, employers themselves outline such a set of skills they expect from their employees that help them effectively sustain their businesses [6]. Since engineering is directly related to industries, therefore engineering graduates need to possess certain skills and knowledge and apply them in their work efficiently. But to achieve these demands and challenges, the revision and modernization of the training and education of engineers are also equally important. The role of institutions in helping students develop these employability skills cannot be ruled out [1]. Students across the country prefer colleges and institutions that have an effective training and placement cell that can readily help them with job opportunities straight after college. According to reports, India produces almost 4 lakh engineering graduates every year, yet, eventually, it has become a challenging task for corporations to find such laborers with the exact skills and attributes that they need. A study conducted by the World Bank also suggests that 64% of the organization's employees are hardly satisfied with the work performance of most of the engineering graduates in India. This points out the urgent need for the correct training and awareness for developing the skills of engineering graduates in India [10].

Soft skills are one of the most vital skills which is a prerequisite for every job aspirant across the country. To meet their growth needs effectively, businesses make certain soft skills a mandatory part of their hiring process. Employer satisfaction while recruiting new employees is entirely based on the number of soft skills possessed by the candidate. [10]. India is one of the developing countries which are ahead in Information Technology, has gained a lot of attention from global corporate leaders for increased Foreign Direct Investments in the country. The demand for quality employability skills in India is mainly because of its obvious growth in outsourcing, increased global competition, and rise in investments [2]. We observed that employers of the organizations are mostly inclined towards graduates who possess the skills of easily adapting in the existing work environment, have the willingness to showcase the best of their skills and abilities towards achieving the goals of the organization, can work with a team, brainstorm ideas and innovations and collectively contribute towards the workplace efficiency. Emotional intelligence is yet another factor that plays a significant role in skill development and employability [2].

The present study develops an empirical analysis of the current situations for the skills required to gain employability in the Pune IT industry concerning engineering graduates. The current structure of the Indian job market, especially the IT sector, has experienced a paradigm shift. Engineers now work in a multidisciplinary environment which includes both technical and non-technical jobs [8]. However, according to studies made by researchers across the country, industries in Pune city face a lot of challenges and barriers in terms of low-quality education and the required skill set for acquiring jobs in the IT sector [2].

**Objectives of the study:**

IT industry has largest intake of engineering graduate freshers in India via campus, off-campus or referral drive. Considering the growing demand for IT industry – it is expected that overall employability of engineering graduates will be higher to meet growing industry demand. Unfortunately from various surveys and data it is evident that employability of engineering freshers is a challenge in India as well as globally. To study the industry perspective and their skills expectations while hiring engineering graduates - study was conducted for a Pune, Maharashtra State in India which has one of the largest IT industry base as well as it is also considered to be educational HUB with large number of engineering colleges around.

Objectives of the study were to understand and evaluate:

- IT Industry preferences of Engineering Branch in the selection process
- Preferences of skills while selecting candidates
- Analysis of Soft Skills that IT industry expects during the engineering graduates recruitment process
- Consideration of Onboarding Training for engineering graduates when they join the organization

## II. Methods:

### *A.* Research methodology:

Mixed research approach was adopted for this study as it provides conclusive results. The current research makes use of positivism and interpretivism paradigm with quantitative and qualitative approach. Positivistic paradigm leads to ensures logical as well as scientific accuracy of the data. Interpretivism takes into consideration more than one reality [3] [4]. Interpretivism try to identify the issues and their solutions through the human qualities of meanings and ideas.

### *B.* Research Design:

Study was conducted using Mixed Research approach by means of launching the Survey followed by Personal Interviews.

Sample size was calculated using Cochran's formula

$$n0 = (z2pq) / e2 \quad (1)$$

with following baselines:

- Desired level of precision anticipated at 95% accuracy
- Estimated proportion of the population which qualifies as population (Number of IT companies in Pune qualifying for the study) is 242 companies and we have assumed that 80% of the companies hires engineering freshers every year

The sample size after the adjustment from Cocharan's formula derived as 122 IT companies in Pune to be considered for the study. Fig-1 represents overall approach followed for the research.

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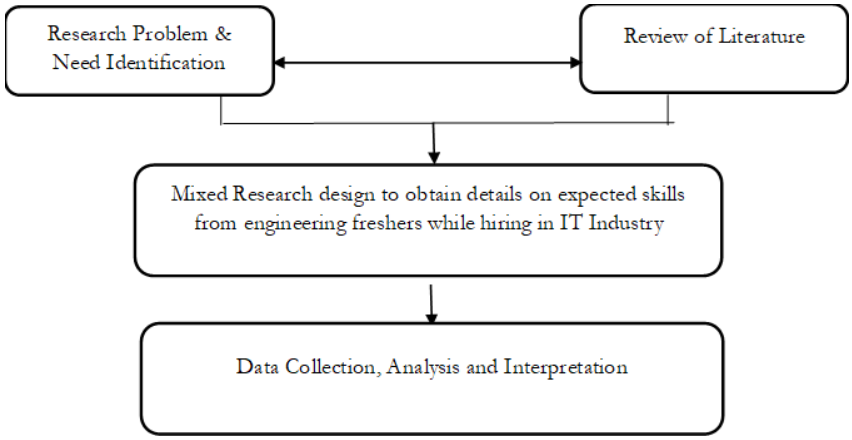


**Figure 1 Research Design**

*C.* Data collection-

Self-developed questionnaire for this study was developed to collect data, which is used as a Primary data for the study. Questionnaire was rolled out to key industry stakeholders who are involved in the engineering college campus recruitment process or have direct / indirect influence on the campus hiring process of the IT organizations. Questionnaire validity and reliability was perfomed using statistical tools like Z-test, Likert Scale and Cronback Alpha test.

The questionnaire was developed to collect data points related to skills and other business dynamics that may directly / indirectly impact engineering graduates campus recruitment process that may impact on employability. The responses were collected from respondents to understand IT industry expectations regarding the skills expectations and whether other business dynamics have an impact on industry expectations from engineering graduates while appearing for the recruitment process. The respondents of the current study were Industry experts / leaders involved in the engineering students campus recruitment process. Secondary Data was collected from various research articles and previous studies in the subject. Qualatitive data is collected from HR leaders by means of personal interviews. Collected data points are organized in the perspective for further analysis and interpretation.

*D.* Data analysis

Current study has utilized various tests like Cross tabulation, Factor Analysis, Hypothesis testing, Chi-square test as well as percentage analysis using SPSS tool. In addition to this, the data is further described in the finding and discussion. Qualititive data was analyzed using grounded theory.

## III. Findings and Discussion:

*A.* Details of Data Collected

Overall Survey rolled out to 209 organizations out of the population of 242. There were 159 total responses to the survey out of which 5 organizations did not have office in Pune while 28 were duplicate response (more than 1 response from the organization), hence there were overall 126 valid responses against required sample size of 122 organizations responses. Where there were more than 1 response from the organization – the person with most relevant role is considered as a representation of the data. Table-I has the summary of responses received for the study.

Table I Response Statistics

| Response Head | # of Respondents |
|---|---|
| Response requested from Organizations | 209 |
| Overall Responses Received | 159 |

| | |
|---|---|
| Total Duplicate responses (more than 1 from the organization | 28 |
| Organizations responded to survey but had no office in Pune | 5 |
| Overall Valid (Unique) Responses for Study | 126 |

**3.2 Campus Recruitment of Engineering Freshers – Industry Perspective**

Engineering fresher's recruitment is core requirement of IT industry to meet up their capacity requirements. Organizations opts for campus recruitment almost year in advance. Organization(s) have varied recruitment strategy based on their business projections, business needs and skills recruitment.

**Engineering Branch consideration while campus recruitment**

Hiring engineering graduates is core part of hiring fresher talent by IT organizations. Engineering colleges offers various engineering streams and it is important to understand if IT organizations preference of engineering branch (if any) they preferred while recruitment. To understand the preferences of engineering branches considered by organization(s) or type of organization(s), organization preferences were captured on following parameters:

- Recruit only IT / Computer science stream
- Recruit IT / Computer science / Electronic & Telecommunication (E&TC) stream
- Recruit IT / Computer science / Electronic & Telecommunication (E&TC) / Mechanical / Electrical stream
- Does not restrict for engineering stream
- Recruit specific technical skills irrespective of their engineering branch

Table-II provides the details of preferences (frequencies and percentage) of engineering stream consideration while recruiting engineering freshers:

| | Responses | Percent of Cases | |
|---|---|---|---|
| | Yes | Percent | |
| Academic Performance | 68 | 24.50% | 54.80% |
| Soft Skills | 90 | 32.40% | 72.60% |
| Technical Skills | 96 | 34.50% | 77.40% |
| Business Domain | 24 | 8.60% | 19.40% |
| Total | 278 | 100.00% | 224.20% |

Table II Engineering Stream Preferences while Campus Recruitment

| | Frequency | Percent |
|---|---|---|
| Recruit only IT / Computer Science stream | 30 | 23.8 |
| Recruit IT / Comp Science / E&TC streams | 27 | 21.4 |
| Recruit IT / Comp Science / E&TC / Mechanical / Electrical streams | 12 | 9.5 |
| Does not restrict for engineering stream | 37 | 29.4 |
| Recruit only specific skills (like AI / Analytics / technology) irrespective of their engineering branch | 20 | 15.9 |
| Total | 126 | 100.0 |

From the above table it can be seem than about 29.4% of the responding organizations does not restrict engineering stream while recruiting for IT / ITES companies, 23.8% recruits only IT / Computer Science and 21.4% organizations considers IT / Computer Science and Electronic and Telecommunication (E&TC) branches students. One key factor of consideration is 15.9% organizations looks for specific skills at the time of freshers hiring which indicates that academic institutions may need to focus to enable such specific skills within their students to improve chance of their employability.

**Skills Assessed while hiring engineering Graduates**

Based on the literature review study conducted to understand the preference of IT companies to evaluate their preferences while hiring engineering freshers on following parameters:

- Academic Performance (Score)
- Soft Skills

- Technical Skills
- Business Domain knowledge

Respondents were asked to comment for IT employability for the commonly required skills and were asked to choose as many options as applicable and question was multiple choice response. Data is analyzed based on IBM-SPS-21 and as presented in Table-III.
Table III Skill Preferences During Recruitment Process

Out of 278 "Yes" responses, weightage for technical skills (34.5%) and Soft Skills (32.4%) is higher while Academics performance has overall weightage of 24.5%. Business Domain skills are expected only by 8.6% organizations. This justifies that maximum weightage is for Technical and Soft skills while recruiting engineering freshers.

**Soft Skills requirement Analysis**
The literature review and past study (Neetima Agarwal, 2015) revealed that IT industry evaluates students on following skills which are of importance for IT industry as below:

- Communication / Interpersonal skills: Ability to articulate in concise manner verbally as well as written communication, able to comprehend the discussion and able to act or take necessary actions.
- Problem solving skills: Ability to understand & comprehend the problem, convert it into multiple sub-problems / sub-issues and then trying to identify the solutions for each sub-problem / sub-issue to make sure overall problem is resolved by taking necessary steps.
- Self-motivated: Ability to think differently, take initiative and ownership and demonstrating personal drive ahead of the crowd.
- Coping up with pressure and to deadlines: Ability to handle stress situation and coping up with pressure situation effectively.
- Organized: Ability to organize self in a methodical manner and monitoring progress effectively. Able to raise alarm at right time for any potential risks towards deliverables or milestones.
- Team Player: Ability to work in a group which may come from different background, skills or disciplines to make sure end goal is achieved effectively and on time.
- Grasping Ability and Adaptation: Ability to interpret and take lessons from past mistakes which can benefit self as well as employer.
- Understanding Numbers: Ability to analyze various data points, draw inferences and demonstrate your understanding with supporting evidence.
- Considerate: Ability to understand different individuals and their needs, making efforts to onboard them to achieve common goal without hurting their feelings to achieve Win-Win outcome.
- Negotiation skills: Ability to identify different options / ways by which two parties can compromise and at the same time have achieved their goals largely.

This study evaluated feedback from the organizations on the soft skills expectations, these skills were picked up from past research studies. Following analysis is a summary of soft skills influencing IT employability for engineering graduates. Respondent's feedback is captured on the Likert 5-point scale where 1 is strongly disagree while 5 is strongly agree.

Table-IV provide respondent feedback against each parameter frequency and percentage and associated Mean, Standard Deviation as well as Coefficient of Variance.

Table IV Soft Skills Requirement during Campus Recruitment

| | Mean | Std. Deviation | Coefficient of Variance | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|---|---|
| | 4.25 | | 20.6 | F | 3 | 2 | 12 | 52 | 57 |

| | Mean | Std. Deviation | Coefficient of Variance | | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|---|---|---|---|---|---|---|---|---|
| Communication | | 0.875 | | % | 2% | 2 % | 10 % | 41 % | 45 % |
| Problem Solving | 4.46 | 0.615 | 13.8 | F | 1 | 0 | 2 | 60 | 63 |
| | | | | % | 0.8 % | 0 % | 1.6 % | 47.6 % | 50 % |
| Self-Motivation | 4.4 | 0.749 | 17.0 | F | 1 | 2 | 8 | 50 | 65 |
| | | | | % | 0.8 % | 1.6 % | 6.3 % | 39.7 % | 51.6 % |
| Work Pressure | 4.02 | 0.774 | 19.3 | F | 0 | 3 | 27 | 60 | 36 |
| | | | | % | 0% | 2.4 % | 21.4 % | 47.6 % | 28.6 % |
| Self-Organized | 4.07 | 0.718 | 17.6 | F | 1 | 0 | 22 | 69 | 34 |
| | | | | % | 0.8 % | 0 % | 17.5 % | 54.8 % | 27 % |
| Team Player | 4.41 | 0.74 | 16.8 | F | 2 | 0 | 7 | 52 | 65 |
| | | | | % | 1.6 % | 0 % | 5.6 % | 41.3 % | 51.6 % |
| Adaptability Skills | 4.4 | 0.544 | 12.6 | F | 0 | 0 | 4 | 67 | 55 |
| | | | | % | 0% | 0 % | 3.2 % | 53.2 % | 43.7 % |
| Numerical Analysis | 3.86 | 0.756 | 19.6 | F | 0 | 3 | 37 | 61 | 25 |
| | | | | % | 0% | 2.4 % | 29.4 % | 48.4 % | 19.8 % |
| Considerate Skills | 3.9 | 0.72 | 18.5 | F | 0 | 2 | 33 | 66 | 25 |
| | | | | % | 0% | 1.6 % | 26.2 % | 52.4 % | 19.8 % |
| Negotiation Skills | 3.56 | 0.743 | 20.9 | F | 0 | 8 | 50 | 57 | 11 |
| | | | | % | 0% | 6.3 % | 39.7 % | 45.2 % | 8.7 % |

F – Frequency

Based on the respondents' feedback, except Numerical Analysis, Considerate and Negotiation skills, all other skills are prominent for engineering freshers to be employable in IT industry.

From this table it is evident that:

- Mean is in the range of >= 3.56 and <= 4.46

- Coefficient of variance is in the range of > =12.6 and <= 20.9 which is < 30%

As all parameter's coefficient of variance < 33% and mean is a good representation (has high central tendency) hence it can be further concluded that most of the respondents are of the opinion that all identified soft skills are considered during the college freshers hiring and has impact on IT employability.

Factor analysis is performed to check whether the ten employability skills can be reduced to few manageable factors.

Table V KMO and Bartlett's Test

**KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .797 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 390.552 |
| | Df | 45 |
| | Sig. | .000 |

Bartlett's test (as presented in Table-V) is significant (P less than 0.05) indicating a correlation between variables measuring problems and challenges. KMO is greater than 0.5 indicating sufficient correlation between variables to proceed with analysis.

Table VI Total Variance Explained

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 3.915 | 39.152 | 39.152 | 3.915 | 39.152 | 39.152 |
| 2 | 1.487 | 14.873 | 54.026 | 1.487 | 14.873 | 54.026 |
| 3 | .906 | 9.059 | 63.085 | | | |
| 4 | .841 | 8.411 | 71.497 | | | |
| 5 | .657 | 6.569 | 78.065 | | | |
| 6 | .598 | 5.980 | 84.045 | | | |
| 7 | .500 | 4.996 | 89.041 | | | |
| 8 | .479 | 4.795 | 93.836 | | | |
| 9 | .329 | 3.294 | 97.131 | | | |
| 10 | .287 | 2.869 | 100.000 | | | |

Extraction Method: Principal Component Analysis. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table-VI provides information on eigen values associated with each factor before extraction and after extraction. Before extraction there are 10 components with their corresponding eigen values. Factor extraction is based on the Kaiser's criteria (extracting factor with eigen values more than 1). Notice there are two factors with eigen values more than 1. Hence the number of factors extracted are two and these two factors can explain 54% of the total variance.

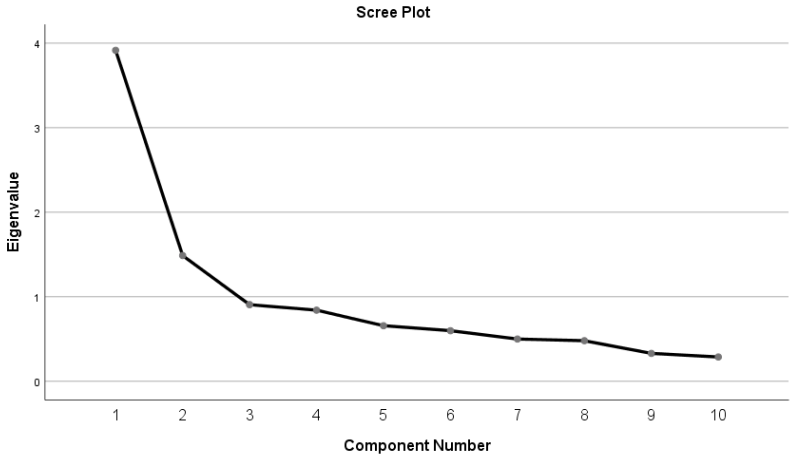


Figure 2 Scree Plot

Scree plot (as presented in Fig-2) is another method to determine the number of factors to be extracted suggested by Raymond B. Cattell (1966). It is a two-dimensional graph with factors on the X-axis and eigen values on the Y-axis. It is a negatively decelerating curve. Scree plot suggest extracting factors above the point of inflection. There are two factors above the elbow suggesting a two-factor solution.

Table VII Component Matrix

| | Component | |
|---|---|---|
| | 1 | 2 |
| Self-Motivation Skills | .762 | |
| Adaptability Skill | .732 | |
| Team Player Skill | .713 | |
| Self-Organized Skill | .693 | |
| Work Pressure Skills | .607 | |
| Numerical Analysis Skills | .566 | |
| Negotiation Skill | .555 | .537 |
| Considerate Skill | .554 | .507 |
| Communication Skills | .539 | -.506 |
| Problem Solving Skills | .464 | -.638 |

Extraction Method: Principal Component Analysis.[a]
a. 2 components extracted.

As presented in Table-VII, the by unrotated component matrix extracts factor based on variance explained and due to the mathematics, that works behind factor analysis the first factor has the maximum portion of the variance explained and has the maximum variable loaded on to it. Hence the information provided the unrotated factor matrix is not very useful for a meaningful interpretation. Rotation equalizes variance across the factors and gives simple that can be meaningfully interpreted. Oblimin factor correlate with each other as seen in the following component correlation matrix.

Table VIII Component Correlation Matrix

| Component | 1 | 2 |
|---|---|---|
| 1 | 1.000 | -.316 |
| 2 | -.316 | 1.000 |

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

The rotations converge at 10 iterations. The pattern matrix provides information on the number of factors extracted after rotation the variable loaded on the factors.

Table IX Pattern Matrix

| | Component | |
|---|---|---|
| | 1 | 2 |
| Negotiation Skill | .807 | |
| Considerate Skill | .781 | |
| Numerical Analysis Skills | .635 | |
| Work Pressure Skills | .575 | |
| Self-Organized Skill | .554 | |
| Problem Solving Skills | | -.831 |
| Communication Skills | | -.758 |
| Self-Motivation Skills | | -.678 |
| Team Player Skill | | -.556 |
| Adaptability Skill | | -.533 |

Extraction Method: Principal Component Analysis, Rotation Method: Oblimin with Kaiser Normalization.[a]
a. Rotation converged in 10 iterations.

From the overall factor analysis it can be concluded that:
Negotiation skill, considerate skill, numerical analysis skill, work pressure skills, self-organized skills, are loaded on to factor one, they related to work delivery in IT industry hence can be called as "**External Facing**".

Problem solving skills, Communication skills, Self-motivation skills, Team Player skills, Adaptability skill, are loaded on to factor two, they relate to individual personality hence can be called as "**Individual Personality Skills**".

Thus the 10 skills have success full reduced into two factors (External Facing and Individual Personality skills).

**Onboarding Engineering Graduates into IT Organizations**
Once IT organizations recruits engineering freshers their onboarding into the company is very important to get desired productivity and output from these recruits. Study requested respondent to comment on whether their organization have dedicated training program to onboard these newly recruits and then deploy them onto actual projects.

Organizations have provided their approach / preferences when newly recruited engineering freshers joins the organization. Respondents were asked if they consider onboarding training is required or not, Table X summarizes the responses:

Table X Organization Preference for Onboarding Training Requirement

| | Frequency | Percent |
|---|---|---|
| Strongly disagree | 1 | .8 |
| Disagree | 1 | .8 |
| Neutral | 4 | 3.2 |
| Agree | 62 | 49.2 |
| Strongly agree | 58 | 46.0 |
| Total | 126 | 100.0 |

From the responses, 46% organizations were strongly agreeing that onboarding training is required while 49.2% organization were agreeing the need of onboarding training. From this we can conclude that about 95% organizations mandate the need of onboarding training before any resource is deployed on the project.

Organizations were requested to provide their inputs on which all training individual(s) undergoes before deployed to the project. Respondents were requested to select approach from following options of onboarding training:

- No specific onboarding training is required, deployed on the projects and they are expected to learn on the job.
- Candidates undergo Soft Skills training
- Candidate needs to undergo technical (or product specific) and organizational process related training.
- Candidate needs to undergo project specific training.

- Candidate is onboarded only after undergoing Soft Skills, Technical (or Product), Processes and project specific training.

Table XI provides the details of the inputs provided by organizations participated in the survey.

Table XI Onboardign Training Scope

| | Frequency | Percent |
|---|---|---|
| No specific onboarding training is required, deployed on the projects and they are expected to learn on the job | 9 | 7.1 |
| Candidates undergoes Soft Skills training | 3 | 2.4 |
| Candidate needs to undergo technical (or product specific) and organizational process related training | 54 | 42.9 |
| Candidate needs to undergo project specific training | 9 | 7.1 |
| Candidate is onboarded only after undergoing soft skills, Technical (or product), Processes and project specific training | 51 | 40.5 |
| Total | 126 | 100.0 |

Based on the respondents' data 42.9% respondent organizations organize Technical (or Product specific) and organizational process training while 40.5% organizations provide Soft Skills + Technical (or Product) + Processes and Project specific training. While 7.1% organizations responded Directly on the job training or Project specific training.

From these results we can conclude organizations need to put in additional efforts on training engineering college freshers before they are deployed on the project.

**Considerations from Academicians perspective to improve employability:**
Based on the analysis of the study, there are certain areas which if addressed during the students academic duration will help to improve chances of employability:

- Industry has more focus on technical and soft skills of the students while recruiting which implies that
  - Academicians needs to have close alignment with industry and understand technological trends and adapt those into education system. Students should be taught about new / upcoming technologies. For this to happen there should be flexible structure / syllabus to adapt to industry trends. At the same time academicians may face the challenge of skilled teaching staff for which possibly industry tie-ups may help.
  - Industry has more focus on "Individual-Personality" skills - Communication, Problem Solving, Adaptability, Self Motivation and being a team player –this is certain that these skills cannot be adapted by students in a short term or by means of any crash course. There has to be a progressive learning / evaluation and improvisation required and hence it is advisable that such training programs are introduced at early stage of engineering. There has to be a common evaluation tool which should be adopted to baseline students skill level. The training program should provide exposure for students to actually practice these skills by means of quizzes / role play / situation based responses and grpup activities.
- Industry is spending substantial efforts to onboard engineering graduates before they are deployed to customer projects. Organizational onboarding training covers organization specific training, Soft Skills training and Technology training. If academicians work with industry to understand scope of soft skills and technology training and adapt to that during academic curriculum that will help to improve employability for students while reduce cost and time to onboard engineering graduates by industry .
- Considering diverse background and different academic performance levels of the engineering students it is important that training and coaching should consider individual aspects rather than generic programs.

## IV. Conclusion and Recommendation:

IT companies in Pune largely depends on recruiting engineering graduates to meet up their staffing requirement. Companies opt for either campus recruitment, internal referrals or off-campus recruitment option. This study reveals that majority of the IT companies do not restrict selection to a specific engineering branch and are open to recruit from all branches of engineering. During the engineering graduates recruitment, IT companies focuses on Technical Skills, Soft Skills and Academic skills in the order of preference. Apart from Numerical Analysis, Considerate and Negotiation skills, all identified soft skills are prominent for IT Industry and considered important during the recruitment process. Factor analysis on the identified 10 soft skills reduced to 2 factors as "External Facing" and "Individual Personality" skills. Onboarding training has become mandatory, most organizations organizes onboarding training for engineering graduates

who are recruited via Campus / Off-Campus drive. Overall duration of these trainings varies from 4 weeks to 12 weeks as per organization policies. Onboarding training covers Soft Skills / Technology Skills training apart from organizational processes and induction programs which indicates that apart from organization specific training, engineering students can be trained for technical and soft skills alongwith their curriculum which will help IT industry to reduce cost of onboarding and can deploy engineering graduates at much early stage on the project.

Although there are standard soft skills requirement by IT industry, engineering graduates are struggling to get employment which indicates that there is a need of industry and academics to work together on an ongoing basis to develop employable talent. Academics need to consider of developing skills from early stage of engineering education to give ample time for students to cope up with the need.

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