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Soft Skills in Engineering Education: Industry Perspective

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Abstract

Despite constant updating of syllabus and core content, it is observed that soft skills are not given a significant part among the various skills set imparted to an engineering graduate. On completion of the course, engineering graduates are supposed to step into their career with confidence and should be able to perform as per the expectations of industry. Modern HR selection process is competency-based and professional students are expected to practice Industry-demanded skills and be ready to face the selection process.

Keeping this key aspect into consideration, training is important for engineering students to enhance their skills and to achieve good placement in various Industries**.** Training of students and equipping them with life skills has become an important responsibility of the Institutions. Along with technical expertise, development of a holistic personality is also necessary. The present paper discusses the mechanisms which can reinforce the students' abilities to secure jobs and retain the same.

Key Words: Engineering Education, Soft Skills, Professional Development, Industry Needs.

Introduction

The engineering graduates are supposed to work with significant independence and should be strong in leadership qualities. They should have adequate competence to perform the designated duties in effective manner. They should be pro-active and committed and also must be team-players and to have passion for learning at the work site (Sripala, B, 2011). They also needed to have capability to leverage the knowledge and promote cross-functional learning (*The Hindu* Speaks on Education, 2009).

The primary purpose of technical institutions is to enhance the capabilities of engineering graduates by developing talent, creating knowledge through institutional solutions such as creating digital resources and creative technology solutions for class room learning. However, it is observed that majority of engineering graduates are lagging in practical skills. Some of the reasons could be their primary education, medium of instruction, rural background, financial status, etc. To overcome this inadequacy, presently several methods and mechanisms are available. These may inculcate various generic skills for making a professional student Industry-ready and to orient towards their nature of work to perform duties in the designed way and feel and exercise responsibility.

To enable students to acquire the targeted industry requirement for recruitment process, the following aspects may be considered.

Assessment of Students

Performance and learning levels are assessed by the examinations and these examinations are considered to be a formative feedback mechanism. It is essential to conduct mock tests to separate students according to their intelligence level.

Mapping

It is very essential to categorize the students according to their intellectual abilities. This is mainly based on the assessment tests conducted during the course work and students are categorized according to their standards. It becomes possible to transform the knowledge based on their perception and intelligence levels.

Non-Verbal Presentations

It is obvious that lot of emphasis is required on quality of increasing professionals with regard to their ability to understand. In this connection, the learning aids like charts, data sheets, work sheets, slides, power point presentations, models, animations, multimedia, audio/video aid, projector/LCD, desk top/lap top, internet, etc., are very useful for reaching expected levels of intelligence

Group Discussions

The facilitator frames different kinds of topics and the deliberation process is thrown open to the whole group of students. Students are required to exchange ideas and opinions amongst group members on a specific and familiar topic (Alex, K, 2010). Students are to be trained to articulate different types of situations through adequate discussion till they reach a satisfactory level. The students are required to contemplate real life situation and arrive at possible solutions. To ensure this, mock group discussions are conducted among the engineering graduates to make them effective and efficient.

Language Proficiency

Subject competence encompasses proficiency in language and the degree of knowledge of student depends on aspects such as syntax, phonology, etc. (Sripala, B., and Praveen, G.V, 2011). The student's competence in the subject matter will be greatly aided and maximally utilized if this competence is coupled with knowledge of theories of how language is learnt and how this can relate to approaches, methods and techniques used in regular subjects.

Factors to be Considered during Training

The following factors are to be considered during training of professional graduates:

- Encourage the graduate learners to consider past experiences and relate their skills learned in those roles to present and future work experience.

- Discuss with learners their reasons for studying or going through assessment. This information can be used to contextualize activities.

- Create a plan and follow up to reinforce the abilities of engineering graduates.

- Define expectations and design schedule for desired behavior.

Further, the following activities also foster the employability skills:

- Work place-based approaches can be particularly useful for fresh graduates because of authentic context in which employability skills can be demonstrated and applied.

- Classroom based approaches do not have access to the some opportunities as work place-based approaches. Arranging of practical case studies, simulations and activities with Industry representatives can all help to address the lack of awareness at real work station. Working closely with industry contacts to design activities can be useful ways of ensuring a high degree of relevance of activities (Mission 10X, Wipro Technologies).

- One must understand that being flexible and working in different assignments provides them a chance to learn, explore and innovate during their work and to evolve new techniques for better efficiency.

- Provide students with lots of opportunities to get to know about successful people; nurturing relationships other than the program staff is very important. They need to meet successful people of their peer group and social background (Murali Krishna, K.V.S.G, 2010). Meeting employers and alumni help students develop confidence in relative to people who will soon be part of their own work life.

Some of the Generic Skills (Praveen, G.V and Katyayani, S, 2010)

Basic Skills	Literacy, Numeracy and Using Basic Technology.
People related skills	Communication, Inter Personal and Teamwork.
Conceptual skills	Collecting, Organizing Info, Problem Solving, Planning and Organizing, Learning to Learn, Innovative and Creative Thinking.
Personal Skills & Attributes	Being responsible, Resourceful, Flexible, Time Management and Self- Esteem.

Hence, it is important to map some of key competencies in designing the employability of graduates and to serve better for the needs of the organization. Keeping in mind the existing and expected job opportunities, an intensive interface with respect to leading corporate sectors should be planned. The following table (Praveen, G.V and Katyayani, S, 2010) gives a set of carefully designed activities that help professional graduates in empowering various industry sectors.

Employable Skill	Learning Activities
Communication	Preparing and Presenting Reports both Written and Oral and Role Play Demonstrations.
Team Work	Group Projects, Group Discussions, Role Plays and Interactive Activities.
Problem Solving	Case studies, Simulations, Investigative Projects and Research.
Initiative and Enterprise	Brain storming, Designing Innovative and Creative Activities and Initiating Change.
Planning and organizing	Research and Data Collection, Developing Action, Place Planning and Organizing Events and Goal Setting Activities.
Self Management	Development of Portfolios work plans, Usage of Log Books to Record, Time Management, Monitor Own Performance and Career Planning.
Learning	Use of Reflective Journals, Diaries, Observation and Survey.

The above illustrated skills mainly emphasizes ones' abilities, such as better understanding, inter personal relationship (Onkar, R. M, 2008). These are helpful to analyze and interpret the task/s assigned to the fresh graduate employee of a particular organization.

Some of the Observed Outcomes of Above Skills (Kiran, A and Samson, 2010)

- Helps the graduates to stand out among the job seekers and they become able to secure lucrative and esteemed positions
- Offers personal growth of fresh engineering graduates
- Empowers to create various opportunities in various sectors of industry
- Helps to advance in their careers during different levels of work
- Helps to grow beyond money motivation and to promote them in their future endeavors

These skills are extremely necessary for the success of individuals and organizations (Jain, A.K., Pravin, S.R.B., and Sheikh, A.M, 2008) and such skills separate the best from the rest apart from the traditional measure of success in terms of monetary profit terms. Every effort undertaken should create opportunities for graduate engineers and guide to approach for Industry.

Summary and Conclusions

It is quite necessary for the professional graduates to enhance the generic skills other than technical skills, and make themselves aware of the history, growth potential and jobs available in the present day Industry sector. Hence, it is important to have a first hand knowledge and experience of situations that are to be faced in the current Industry. Professional students' need to understand emerging trends in the Industrial World.

The basic philosophy of training of young engineering graduates lies in giving information about ground realities and making them the all-round performer. Today, the selection process is different and employer will select the candidates based on how they match the employer's needs. People from different industries are equally keen to recruit students whenever they come across them. It is important for graduates to know what selection attributes are given priority by employers. For a selection process, it is felt that communication skill, writing resume, positive attitude, motivation, strategic planning, preparing for the interview are all important for true success. Thus, these training methods are helpful to both graduates as well as the industry.

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