ABSTRACT

Globalized scenario of product design, production and manufacturing offers a very promising career for graduating engineering professionals. The opportunities for employment is found to be encouraging across all the industrial segments like automotive, aerospace, defense, energy, infrastructure, medical and other fields. However, under the scenario of exciting business and employment opportunities, industries face the challenges like globally competing market, getting the products early to market, usage of cutting edge technologies into the products, innovative features and all of them at least cost. Under these conditions, employers expect that the fresh engineering graduates hired from the institutions are available as job-ready, meaning that they start the assignments from the first day in their office, with least trainings or handholdings on the job. There exists a gap in the expectation of employers for varied skills for employability and the skill available with engineering graduates resulting in employability issues across all branches of engineering. This trend on lower employability is across nations in varying percentages, but it is reported to be around 20% in India (Ramanan et.al (2014e)). Employers’ expectations on fresh hires are available as job-ready, throws a lot of challenge on the educational system, more particularly to the institutions and their existence. It is a concern for the society and to the country as a whole.

Employable engineering graduates issue is across domains of engineering and is due to many factors, which are complex. Various initiatives like, educational reforms, curriculum revisions, TEQIP – Technical Education Quality Improvement Program etc., have been undertaken by the regulators, government, industrial bodies, associations and others at the national and state levels. However, this complex issue with a high defect rate is a quality issue of the process and requires a multi-pronged approach apart from the initiatives taken at the national level. This study attempts to identify a few key factors that will make a significant impact in reducing the employability gap, which are easy to implement at the institutional level as perceived by employers. This study employs six sigma quality management approaches in analyzing the cause and also in suggesting research recommendations.

Many of the existing employability studies which are generic in nature covering all the domains of engineering, but this study is unique and confined to mechanical engineering undergraduate students. The study covers various regions of India and larger
industrial segments in eliciting the needs on employability. The work unearths many of the factors that have not been brought out so far on employability by gathering inputs from various industry segment respondents. These respondents are not only employers’ representatives involved in recruitment process, but are mechanical engineering domain experts and are knowledgeable on the skill needs of mechanical engineering job roles of fresh engineering graduates.

This study brings out various factors and their attributes considered as important by the employers. It relates the lower employability is a defect of the process and integrates Six Sigma quality model into this research study.

The study adopts a multi-stage approach which is explorative in nature. The research needs were established with the help of existing literature. The subjective opinions of application knowledge gap from theory to practice as found from the explorative research have been confirmed through simple experiments.

The solutions are arrived at after statistical analysis of the data, by employing Six Sigma quality management tools like QFD. Thus the approach is unique and enables least number of effective solutions for majority of skills and attributes, by considering the interactions between the factors and their attributes in meeting the employer expectations on employability at the institutional level.