

Improving Learning Culture through Research & Development

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Today's education for engineering is not limited to text books and class room teaching. Advent of information and communication technology (ICT) has taken the learning process to a new height. Research and development done by competent faculty members will open new frontier for the students to get first hand knowledge on real life problems.

Key Words: Virtual Research & Development Cell, Computer-based Training, Web-based Training

INTRODUCTION

In the age of globalization India has witnessed rapid industrialization and economic growth. In order to sustain nine percent or more growth in gross domestic product, we have to develop adequate trained educated technical and engineering human resource. By serving this latent demand, a large number of engineering educational institutions came into picture in the last two decades. The outputs from these institutions have made India as the producer of second largest number of engineering students in the world. In the pursuit of producing more, we have lost the vision for quality education. Inadequate and poor infrastructural facilities, low grade laboratories and computational facilities provided by the promoters of the institutions, unmotivated faculty members (teacher by compulsion) and tremendous parental desire to make their below averaged children into engineering graduates, have made the recent technical scenario worse. The various industry reports say only twenty five percent of students graduating in India are actually employable. This suggests there is something wrong in present day technical education in our country. The pedagogy used for engineering education is different from that of general streams like science, arts and commerce.

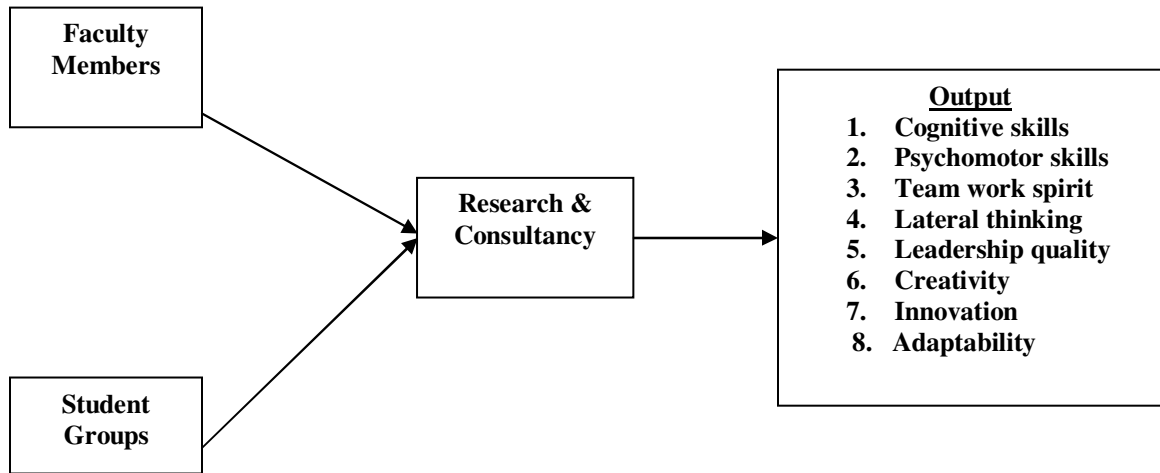
A definition of engineering says "*it is the profession in which a knowledge of the mathematical and natural sciences gained through study, experience and practice is applied with judgment to develop ways to utilize, economically,*

the materials and forces of nature for the benefit of mankind". This simple definition suggests engineers will do useful things which are desired by the society. They don't have the liberty to waste resources like money, time, and human efforts on unnecessary works and at the same time they have to create new product, new process & new system for the growth and upliftment of the society. These types of restrictions have made pedagogy of engineering education really challenging. Inability to instill leadership quality, innovation, risk taking & creative thinking capabilities among students has made present day engineering educational system inadequate compared to that of other developed nations.

RESEARCH AND DEVELOPMENT AS A STEPPING STONE

The present accreditation norms of AICTE have 100 points out of 1000 points for research and development in technical educations. In the pursuit of quality education, r&d is one of the vital stepping stone which can't be ignored. The various activities of a faculty member, i.e. teaching, developing laboratories, research and consultancy, are no longer hierarchical in nature. A faculty member has to be engaged in all above activities in order to transfer knowledge to the students in holistic way. Through industry- institute interaction cell some competent faculty members can provide research and consultancy services to local industries. The students can be involved in those projects to learn various problem solving techniques in real life projects.

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This type of experience will provide development of cognitive skills like understanding, experiencing, visualizing and reinforcing theoretical concepts and principles, new learning methods & procedures, and psychomotor skills such as handling, manipulating, adjusting machine and equipment, and implementing theoretical concepts.

Today's education for engineering is not limited to text books and class room teaching. Advent of information and communication technology (ICT) has taken the learning process to a new height. E-learning including computer-based training (CBT), web-based training (WBT) and live projects from r&d department of the institutions have opened new frontiers for effective learning.

DEVELOPING RESEARCH CULTURE

At present engineering institutions imparting undergraduate courses are averse to investment in research & development activities. They lack capital, technology, and human resources etc to utilize this emerging way of learning. But ICT has become boon to these institutions. They can collaborate with each other to form virtual research and development cell (VRDC).

Through this cell many institutes can participate by sharing skills, technologies, resources and costs. The local government will involve this VRDC in the industrial development and economic growth of the region. Once this virtual cell becomes sustainable, it will be easier to instill research culture among the students which will ultimately make them more employable.

CONCLUSION

Today it seems that engineering educational institutes need to be able to do more than just adapt; they must be able to do so quickly, in the face of ever changing conditions. And if institutions are to adapt quickly and intelligently, they must make learning a central part of their strategy for survival and growth. Orthodox learning like text book reading and class room teaching are no longer adequate to meet the present demand of effective learning. Research and consultancy to societal problems open a new frontier for the students to learn effectively.

REFERENCE

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