

Improving the Quality of Technical Education in India using Pedagogical Instructional System Design

It is expected that the graduates of the 21st century should define problems, gather and evaluate information related to those problems and develop solutions. The engineers need to have proven abilities not only in remembering and understanding the essential knowledge and applying various concepts, principles and theories learnt in the university, but also in analyzing complex engineering problems, synthesizing appropriate solutions, evaluating various alternative approaches and processes. But unfortunately education in India has been teacher-centric. Teachers decide what to teach and how to teach. Students rarely have any idea about what is expected of them, until the course is over, more often than not until they see the examination paper. Most courses are taught to familiarize students with the topics mentioned in the syllabus. Encouraging active learning, teaching self-learning skills, effective communication skills, working in interdisciplinary groups are not practiced as a matter of policy. It is needed that learning activities, course outcomes, evaluation tools, communication techniques and assessment tasks are all under the pedagogical microscope.

The challenge lies in devising learning strategies to ensure that the programme level learning objectives in the concerned engineering discipline and the *learning outcomes*, mentioned above are learnt simultaneously. Faculty development programme is desperately needed and a framework is developed. It systematically designs and develops learner-centric curricula, suitable for outcome-based learning, for 4 year degree programmes in major engineering disciplines with the help of a large number of motivated, trained and experienced faculty members drawn from a diverse range of institutions across the nation. *Outcome based learning* is a student-centered strategy that keeps student learning at the centre of the teaching and learning process. The purpose is to assist students in attaining learning outcomes that would enable them to be competent professionals, engaged intellectuals, and active and caring citizens. The design uses innovative pedagogic principles to take care of many of the problems inherent in the present day higher technical education system.

Keywords:

Outcome Based Learning
Quality of Technical Education
Instructional System Design
Teaching Methodology
Pedagogical Principles