

THIAGARAJAR COLLEGE OF ENGINEERING, MADURAI 625015**Best Practice 1: Industry Supported Courses**

Over the years, the gap between the industry and academia exists due to the core education with fundamentals and modern skill requirements demanded by industries. Periodically, we are inviting subject matter experts to collaborate and deliver topics in contemporary areas, where the faculty members are not having required skills on hand in that field domain. This amalgamation of fundamentals and modern skills will enthuse the student engagement. Industry experts are elated to mentor and guide the students by way of sharing the knowledge to others. The Institute has active interactions with industries for curriculum development, student and faculty training, research guidance, internships, product development, projects and resource sharing.

The industry supported courses are jointly designed by the faculty coordinator assigned for the purpose and the industry subject matter expert. Provisions have been made for the industry experts to deliver the content during weekends. Generally, one and two credits are offered for the course duration of 14-16 hours and 28-32 hours respectively. These courses connect faculty members and students to the professional world, as the content delivery includes hands-on practices, demonstrations, real time applications and sharing of industrial experiences. Way back in 2011, industry supported course was initiated jointly with Tata Consultancy Services (TCS) in Mechanical Engineering for the course entitled “Value Engineering”. This led to lot of interactions with the Company and later it has been extended to other Departments as a best practice. Academic Regulations has been revised for the incorporation of this Best Practice by all Engineering Programmes. Subsequently, many courses have been designed with the industry experts from TCS, IBM, CDAC, Tech Mahindra, Honeywell, CTS, BUDDI.AI, Dell, TISCO, Texas Instruments, GE, NPIT, ACCE, CECRI, Trane Technologies, Rexroth Bosch, Symantec Corporation, VMware, Zebra Technologies and Trane Technologies. The Institute periodically monitors this activity by focusing on three different metrics namely number of industry supported courses offered, number of industries involved and number of students benefitted. In the 2018-19, 21 industry supported courses were offered and 1052 students benefitted. The challenges and lessons learnt through this activity are discussed in the IQAC review meetings and shared with other Departments.

The first major benefit is that student Placements in Core companies has been increased. Students who had attended the industry supported courses on Reliability of Mechatronics systems had been identified by the subject matter expert while handling the course. The identified students had provided with training in their company. Consequently, project Internship on the problem relevant to the course had been awarded and later the students were absorbed for their placements after attending the interview as per the company policy.

The second major benefit is setting up of industry supported laboratories. Further benefits are as follows:

- Collaborative work in curriculum design, customized training for faculty and students in the areas of emerging technologies; Faculty competency is improved.
- Exposure to real time problems on large scale systems while delivering the content by the SMEs during the study
- Industries are willing to provide academic support and sponsorships.
- Practice is accepted and appreciated by the society and higher learning institutions. IIT Jodhpur faculty experts visited us for similar implementations at their institutions

For the past 10 years, this practice has been followed seamlessly across seven Engineering Departments till date.

Best Practice 2: Special Interest Group

In order to synergize the educational and research efforts in various departments, each department has chosen a theme area, based on the technology trends, the expertise available and the directions in which TCE wants to grow. The theme areas are subdivided into Special Interest Groups (SIGs) similar to the verticals as in industries and research organizations. Members of SIGs include faculty with PhD, pursuing PhD, research scholars, postgraduate and undergraduate students who work in the respective sub domains of theme area. Each Department of the College has faculty members specializing in a particular technical domain. They are grouped under SIGs to meet the objectives of the programmes offered. Each of the SIG focuses on improving the competencies of the faculty, staff and students in the chosen field. The faculty members attached to SIGs have been empowered to design courses and foster industrial linkage in the respective domains and theme areas of the department. This innovative approach has enabled sustained academic excellence at our institution. Further, it also motivated to redraft the curriculum and syllabi of courses pertaining to SIG. Based on Programme Outcomes (POs) and the reports of feedback by internal and external stakeholders of a particular engineering program. For example, the theme area of the Department of Electronics and Communication Engineering is Wireless Technologies. The SIGs are RF & Microwave Engineering, Signal Processing, Image Processing, Communication Networking, VLSI Systems and Embedded Systems

Major Benefit: SIG activities such as learning concepts beyond curriculum helps students in participating hackathons and in reputed conferences, getting associated with sponsored projects of faculty and publishing technical papers in reputed journals impart enhanced learning experience