



BEST PRACTICES

1. Title of the Practice

Project Based Learning (PBL)

Objectives of the Practice

Institute is keen to implement true engineering education to develop graduates as solution providers. Identifying need of getting hands on experimentation and skill development, the institute focused on project based learning approach. Following objectives are set to establish project based learning at institute -

To develop multidisciplinary/interdisciplinary solutions to society/industry.

To study new technologies, trends and to develop hard skills

To develop creative thinking, team spirit and problem solving attitude

The Context

In the ever changing scenario of technical advancements, Engineering graduates need to sustain with skills. Productive engineering practice is key performance indicator. Keeping it in view, the institute established project based learning practice.

On the backdrop of rural sector, institute has opportunity to provide engineering solutions to local issues. Students are from diverse culture and facing multifaceted challenges. Educating them to acquire the fundamental engineering knowledge, to develop engineering skills is important. Team building, professionalism, and ethics is important. Student's needs, to be punctual and proficient during the work to be a professional engineer. These requirements are fulfilled through project based learning.

4. The Practice

Three to four students prepare a group to work on project. Students to identify the project area and need. Reviewing standard literature or survey required. Each project group is allotted to a guide throughout the semester for mini project and the academic year for major project. Title finalized in consultation with guide and approved by the panel members during the presentation of the abstract. Regular progress is reviewed by the guide. Specified contact hours are allotted to project work in the time table.

Being an experiential learning method, project development involves identification of the problem statement, planning of development, literature survey, designing specifications, selecting tools, designing strategy, prototyping, implementation, experimentation and performance analysis.



The institute developed ecosystem for project development in terms of tools, platforms, collaborated laboratories, test setups etc. The institute formulated project development process, project diary, report writing guidelines, assessment sheets, assessment rubrics and progress reports. Students instructed to learn development platforms and related skills. Report writing, presentation skill development workshops conducted. Periodic presentations with progress reports monitored meticulously. Majorly contemporary, local issues driven project titles defined to provide innovative solutions.

Evidence of Success

The institute has been practicing project based learning since its first batch. The institute organizes project competition in open annual academic event “Dnyanavishkar”. Students of the institute demonstrate their projects at various externally organized competitions and received awards.

Students developed self-propelled onion harvester, electronic fencing for farms, automated sowing machine, drones, painting robot, e-waste based paving block development, plastic based paving blocks, solutions against land sliding, plastic waste collecting machine, energy generation from moving vehicles on bridges, bio gas production from solid waste, and e-vehicles at the institute.

The project based learning has developed a solution providing culture and made its identity as true engineering education provider.

6. Problems Encountered and Resources Required

Being self-funded and remote location engineering institute, it is challenging to develop and establish ecosystem beyond the regular requirements. It encompasses attitude development, cultural establishment, motivation, collaboration of other organizations, expert human resource, skill development programs, training to faculty, laboratory test setups, equipment/instruments, sponsoring assistance, guidance and funding. All these challenges have been successfully overcome by the institute with strong support by the management. MoU's partners, collaborators and industry personnel have contributed in successful implementation of this practice at the institute.

2. Title of the Practice:

Guardian Teacher Scheme (GTS)

Objectives:

This practice of the institute is aiming towards minimizing learning problems of student. To increase the effectiveness of the practice following objectives are set.

To monitor and record of students' performances and behavior at the Institute.



To motivate and mentor students to become socially responsible engineer.

To have communication with the parent of the student.

The practice is implemented to maintain conducive learning atmosphere to student. The guardian teacher communicates with parents.

3. The Context:

Being rural based Institute; difficulties associated and are dominantly governed by socioeconomic culture of various students. The percentage of rural based students is more. Most of parents and students have false perceptions about engineering education. This threat results into failures of students in the examinations and may lead to cancellation of admissions. Students are motivated, counseled and helped to minimize their problems. The features of scheme are as follows.

Students of the institute are entertained.

Supports to cater the diversity among students by involving them in Institute practices.

Students and parents are updated about student performances and institute practices.

The practice:

Initially, one of the course teachers is appointed as a guardian teacher for a batch of students. The teacher collects the personal records and previous performances of students in guardian teacher diary.

The teacher arranges weekly meeting of students and understands views about education and institute, guides, motivates and counsel to minimize their weaknesses. Introduce students about institute facilities, support and best practices. These records are updated frequently to add current year performances and parents are also updated. Students are supported to improve their performances. Guardian faculties help students to resolve their difficulties.

The guardian teacher guides students about future opportunities, and required skill set, behavioral aspects, Importance of positive attitudes etc.

Parents are immediately informed by guardian faculty in case of any incivility by student, and called for a meeting to take necessary actions.

The major constraints of this scheme are as mentioned below.

Sometimes it becomes difficult for the parents to spare time due to their busy schedule.

Reluctance of some of parents.

Evidence of success



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The success of scheme is highlighted as follows.

Continuation of better students' performances in the various University examinations. The passing percentage of students is more than 80 % irrespective of their background.

Legacy of better students' attendance in the classes is continued.

Increased number of placements.

Persistency in disciplined culture of the Institute.

Increased participation of students in Institute activities.

Close association and faith among students, teachers, parents and institute.

Problems encountered and Resources Required

Purpose of guardian teacher scheme may remain unfulfilled unless it has been understood by parent and students. Hence no severe problems are encountered in implementing this scheme. Very few resources of the Institute are required to implement this scheme.