

Pedagogical Initiatives

i. Innovative Assignments

Innovative assignments are meticulously designed to foster deeper student engagement, spark creativity, and cultivate critical thinking, moving beyond the limitations of traditional assessment methods. These assignments challenge students to bridge the gap between theory and practice by applying their knowledge to real-world, problem-based scenarios. By integrating cutting-edge technology, hands-on research, and interdisciplinary collaborations prepare students to navigate complex, dynamic environments with confidence and ingenuity.

Such assignments go beyond rote learning, emphasizing active participation, experiential learning, and student-centred exploration. Innovative assignments include project-based learning, case studies, simulations and design thinking challenges. By tackling industry-relevant problems or research-driven inquiries, students develop practical skills, analytical reasoning, and adaptive problem-solving abilities.

ii. Student Seminars

Student seminar offers a dynamic platform for intellectual exchange and academic growth within our community. These regular sessions provide an invaluable opportunity for students to look deeper into diverse subjects, share their insights, and engage in stimulating discussions beyond the traditional classroom setting. Whether exploring groundbreaking research, innovative projects, or critical analyses of current topics, the seminars foster a vibrant environment where curiosity is encouraged and knowledge is collaboratively expanded.

In this learning process, students are given seminar topics on their choice and it is delivered through power point presentation. The students have to refer books, journals to incorporate latest developments in that particular area. This improves the understanding of complex topics by the students. And students can learn by listening to their peers during presentation.

iii. Project-Based Learning (PBL)

Project-Based Learning (PBL) is implemented by identifying real-world problems or challenges relevant to students. PBL emphasizing critical thinking, collaboration, and creativity in the students. Students work in teams to research, brainstorm, and plan solutions, guided by a clear project timeline. Teachers act as facilitators, providing resources, feedback, and support. Students apply knowledge from multiple disciplines to develop practical outcomes, such as prototypes, reports, or presentations. The process culminates in presenting solutions to an audience, fostering accountability and enhancing learning through real-world applications. In the Department of Computer Science and Engineering PBL is conducted in all Lab subjects.

iv. Mind Map

A mind map is a pedagogical method used to visually organize information in a hierarchy, showing relationships among pieces of the whole. It is often created around a single concept, drawn as an image in the centre of a blank page, to which associated

representations of ideas such as images, words and parts of words are added. Major ideas are connected directly to the central concept, and other ideas branch out from those major ideas.

Mind maps can also be drawn by hand, either as "notes" during a lecture, meeting or planning session, for example, or as higher quality pictures when more time is available. Mind maps are considered to be a type of spider diagram.

v. **Mnemonics –Words Approach**

In this teaching method, the teacher avoids explaining a concept for an extended period. Instead, they repeatedly use **mnemonics** or associated words to help students grasp the fundamental meaning. Once students develop a basic understanding, the teacher then explains the concept in complete sentences. This approach is particularly effective in **language courses** to build word power.

vi. **Advanced Technology Laboratory (ATL)**

Advanced Technology Laboratories are established to increase the awareness among the engineering students about the latest technologies in the Practical Oriented Teaching Methodology.

Under ATL students will learn an advanced technology, which is being used by them wasn't as part of their syllabus. After completion of each technology course, an online assessment exam was conducted on different chapters. Based on the final assessment, certificates will be generated and mailed to qualified student.

vii. **Flipped Class Room**

Flipped classroom is a pedagogical approach in which traditional content delivery moves to an individual/self-learning process, and the group activity is transformed into a dynamic, interactive, learning environment where the instructor just guides the learners to apply their creative thinking to provide a fruitful solution in the course content. It provides more benefits than traditional direct content delivery.

viii. **Collaborative Learning**

In collaborative learning the students are being divided into different groups. Each group comprises of three to four students in order to practice collaborative learning. The following activities are implemented in the department:

- **Innovative Project Learning (IPL)/ Real-Time Research projects (RTRP):**

To enrich students' performance, in order to deal with the real time practical complexities of professionalism. To incorporate pragmatic skills among the students to handle Mini/Major Projects, in second year innovative Project Learning/Real-time Research projects are followed in the Department.

- **Hobby Projects:**

Student groups are recommended to do hobby projects on their own interest. Hobby projects are to be executed related to the laboratory topics. The lab faculty shall guide the students who are doing their hobby projects.

These Hobby Projects help the students to develop their deep level of innovative thinking like Reasoning and Problem Solving.

