Innovative practices

Teaching and Learning Method	Description	Process Implementation	Outcome
Flipped Classroom	A flipped classroom is an instructional strategy and a type of blended learning. It aims to increase student engagement and learning by having students complete readings at home, and work on live problem-solving during class time	Video Lectures, Google Classroom	Students take responsibility for their learning, Opportunities for higher level learning.
Case Study	A case study is a rich narrative or demonstration in which individuals or groups must make a decision or solve a problem. Narrations of Case studies by the teacher provide information, but neither analysis nor conclusions. The analytical work of explaining the relationships among events in the case, identifying options, evaluating choices and predicting the effects of actions, is the work done by students during the classroom discussion, facilitated and monitored by the teacher.	PPTs	Bridges theory to practice, Allows in-depth, multi-faceted explorations of complex issues in real-life settings.
Skill Inducive Learning	Skill-Inducive Learning is a group task aimed at inculcating skills so required to become an effective Engineer, such as, Communication skills, Team work, Technical Skills, Practical understanding, and Soft skills. Most of the times, during regular classroom sessions, it becomes difficult to inculcate these skills, due to lack of time. Hence, this initiative. Herein, the role of student is more important than the teacher. The role of the teacher is more towards facilitating and less towards teaching. Teacher will be less hands-on, but will be observing, monitoring, and may provide directions if necessary. Teacher will pitch in only if absolutely required.	Mindmapping	Inculcate self-learning skills and continuous learning skills.
Project based learning	Project-Based Learning in a Circuit Analysis course allows students to apply theoretical concepts to real-world problems, reinforcing their understanding and developing problem-solving skills. Students receive unique circuits, analyze them using techniques like Ohm's Law, KCL, KVL, and various theorems, and then simulate the circuits using Orcad. By comparing hand calculations with simulation results and compiling their findings in a report, students gain hands-on experience with essential tools and foster independent learning, critical thinking, and practical application, better preparing them for real-world engineering challenges.	Hand calculations and Orcad Simulation Tool	improve students' learning motivation, problem-solving skills, teamwork, and communication skills.

Blended Learning	In the Electromagnetics Theory course, a combination of flipped classrooms, video demonstrations, animations, PPTs, chalk and talk, and enacting methods enhances student engagement and understanding. This approach allows students to prepare beforehand, making class time more interactive and focused on deeper comprehension. Visual aids like animations and videos simplify complex electromagnetic laws and principles, while enacting and chalk-and-talk methods cater to different learning styles, making abstract concepts more relatable. This blended teaching strategy not only reinforces theoretical knowledge but also fosters critical thinking and active participation, leading to a more holistic learning experience for students.	Projector, PPT Presenter, Speaker, Laptop, Google Classroom, YouTube	Promotes participation, self-learning and teamwork, opens new forms of interrelation between teachers and students, allows greater flexibility, boosts digital intelligence
Lab Based Learning	Lab-based learning is a type of learning that involves practical experimentation in a laboratory setting. It's often used in science and engineering, but can be used by any instructor to help students actively engage with concepts	Simulation Tools	Apply theoritical concepts to real-world situations, allow understanding of extraneous variables
Self-learning using Online learning resource	In the university curriculum, instructions are given to support self-learning. Courses like Optical and Wireless Communication involved much theoretical learning, recalling topics from earlier semesters, understanding by listening only, and knowing the historical background of technological evolution. Such topics are assigned as self-learning topics. This learning method ensures the student reaches out to various study materials, including textbooks, reference books, online video lectures, etc.	Video lectures, YouTube simulation videos, and Textbooks other than university prescription.	Helps to gather additional knowledge, self confidence
Seminar and Discussion	Seminars and discussions are interactive teaching-learning strategies that actively engage learners in the exploration and exchange of ideas.	PPT, Chalk & talk	Active participation and higher level learning
Think-Pair-Share	The Think-Pair-Share process is a collaborative learning strategy designed to promote individual thinking, peer discussion, and group sharing in classrooms or learning environments. It is widely used in education to engage students in deeper learning and help them articulate their thoughts.	Classroom /Black Board	Improved comprehension, communication skills, confidence building, collaboration, receive feedback
Online Certification Course	Online certification course provides learners with the essential knowledge and practical skills required to excel in VLSI. Designed for beginners to advanced learners, this course offers a flexible, self-paced learning experience that fits scheduled time.	Online resources	Develop new skills/improve skills, Professional development
Self -reflection	Given each student a unique question like numericals , understanding level questions ect to answer. This kind of approach can encourage independent thinking and help assess how each student understands the material individually.	Assessment tests	Develop self awareness, clarifications, Enhanced problem-solving and creativity.

Peer-based Teaching Learning	In the Network Analysis course, a peer-based teaching-learning approach was implemented. Fast learners were grouped into teams and assigned specific topics from the syllabus. These students prepared and delivered lectures using a combination of PowerPoint presentations, blackboard explanations, and problem-solving sessions to ensure comprehensive topic coverage. The team-based teaching sessions were designed to engage both the presenters and their peers actively.	PPT, Chalk & talk, Online resources	Improved understanding of concepts for both fast learners and slow learners through active teaching and learning. - Enhanced communication, teamwork, and problem-solving skills among students. - Increased confidence and ownership of learning among student presenters. - Better peer-to-peer interaction and collaboration, fostering a cooperative learning environment.