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St. JOSEPH'S INSTITUTE OF TECHNOLOGY
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OMR, CHENNAI - 119

Department of Electrical and Electronics Engineering

**INNOVATIVE TEACHING AND LEARNING
ACADEMIC YEAR 2022-2023**

S.No	Name of the Teaching Methods	Name of the Faculty	Name of the Subjects/Code	Topic	Year/Sem/Dept	Date
1.	Project based Learning	Mr. I. Cephas	EC8353-Electron Devices and Circuits	PN Junction Diode	II/III/EEE	12-08-2022
2.	Think pair share	Dr.S.Hemalatha	EE8301-Electrical Machines – I	Parallel Operation of DC Generators	II/III/EEE	25-08-2022
3.	Video Lecture	Dr.D.Kirubakaran	EE8552-Power Electronics	Video Lecture on Class D and Class E Commutation	III/V/EEE	July - October 2022
4.	Flipped class room based Learning	Dr. A. Ramesh Kumar	EE3403- Measurement and Instrumentation	Smart Sensors	II/IV/EEE	23-03-2023



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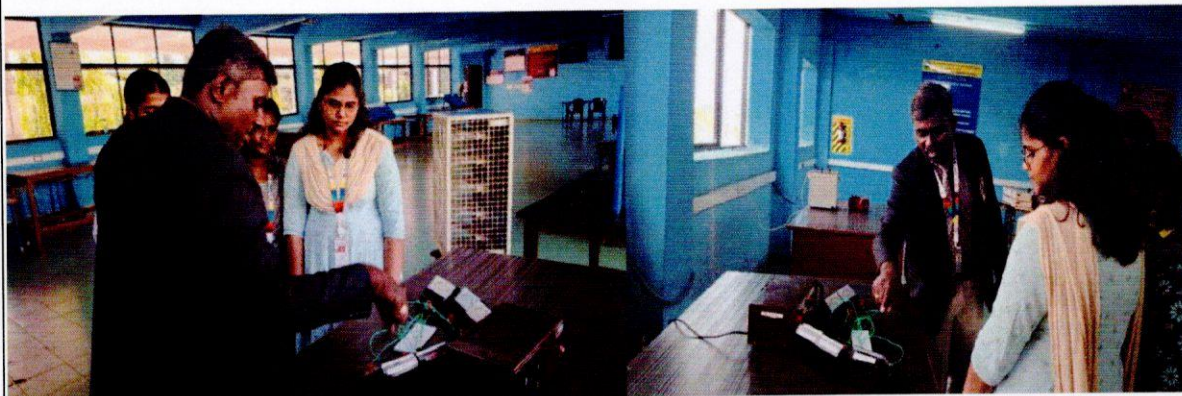
Department of Electrical and Electronics Engineering

Innovative Teaching and Learning

Academic Year: 2022-2023

Name of Teaching method	Project based Learning
Topic	PN Junction Diode
Subject	EC8353-Electron Devices and Circuits
Name of the Faculty	Mr. I. Cephas
Year/Dept.	II EEE
Date/Time	12-08-2022 & 11.40 A.M
Innovative Teaching Method Description	The session focused on the topic “PN Junction Diode” from the subject Electron Devices and Circuits. The students conducted experiments to understand the VI characteristics of the PN junction diode, its forward and reverse bias behavior, and its role in electronic circuits. Through this hands-on activity, students were able to correlate theoretical knowledge with practical observation, gaining a deeper understanding of semiconductor behavior and diode applications. This experimental approach encouraged active participation, analytical thinking, and practical skill development, thereby enhancing students’ confidence in handling electronic devices and circuits.

Photos



Students Feedback	The project-based experiment on the PN junction diode provided a clear understanding of the VI characteristics through hands-on observation, which strengthened theoretical knowledge. Working directly with the components increased confidence in performing electronic experiments and improved the ability to analyze diode behavior in real circuits.
Total number of students	59
Total number of students present	58
Total number of students absent	01
Action plan for absentees	Absent students may be paired with peers who attended the original session to clarify doubts and understand practical challenges faced during the experiment.
Conclusion:	
The Project-Based Learning approach effectively bridged the gap between theory and practice by allowing students to explore semiconductor behavior through direct experimentation. This method fostered deeper understanding, enhanced analytical and practical skills, and motivated students to take an active role in learning electronic devices and circuits.	

Staff Signature

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Dr. D. KIRUBAKARAN, M.E., Ph.D.
Head of the Department
Department of EEE
St. Joseph's Institute of Technology
Chennai - 600 119.



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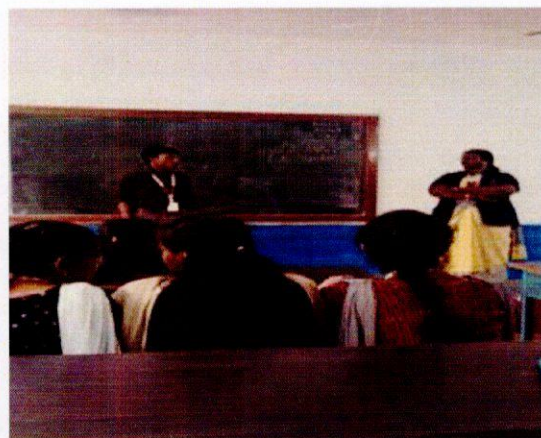
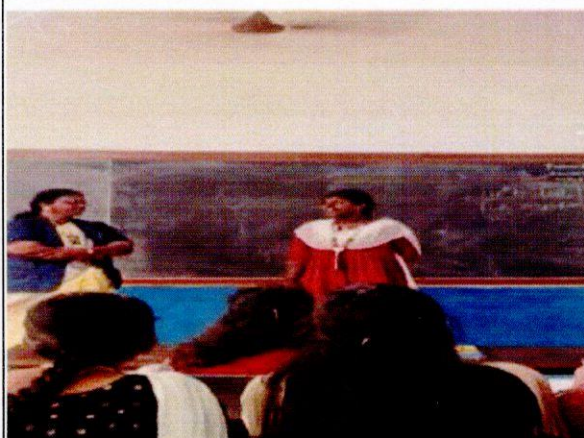
Department of Electrical and Electronics Engineering

Innovative Teaching and Learning

Academic Year: 2022-2023

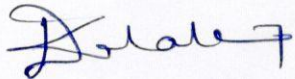
Name of Teaching method	Think pair share
Topic	Starters of DC Motor
Subject	EE8301-Electrical Machines – I
Name of the Faculty	Dr.S.Hemalatha
Year/Dept.	II EEE
Date/Time	25-08-2022 & 11 A.M
Innovative Teaching Method Description	Think-Pair-Share innovative practice was conducted after explaining the concept of starters of DC Motor and its types. First, students were instructed to think individually about the need for a starter for 2 minutes. Then, they were paired to discuss with their classmates and were asked to analyze the equation and concepts related to the principle of starters for 3 minutes. Finally, one of the pairs was invited to explain the concept to the whole class for further discussion. The group shared their points, and the students actively participated in the discussion for 10 minutes.

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Students Feedback	The Think-Pair-Share activity enhanced the understanding of the purpose and principles of DC motor starters by encouraging discussion with classmates. Working in pairs and then sharing ideas with the class improved confidence and made the topic easier to remember and apply in problem-solving.
Total number of students	58
Total number of students present	56
Total number of students absent	02
Action plan for absentees	Students are given study materials to understand the concept
Conclusion:	
The Think-Pair-Share method proved to be an effective participatory learning strategy, as it encouraged active engagement, peer interaction, and deeper conceptual understanding of DC motor starters. By allowing students to think individually, collaborate in pairs, and present their viewpoints, the method enhanced critical thinking skills and supported better course outcome attainment.	


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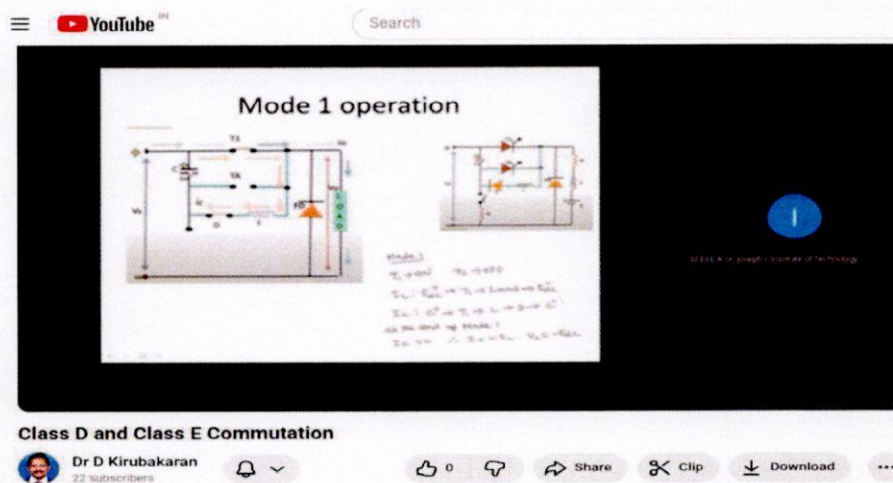
Department of Electrical and Electronics Engineering

Innovative Teaching and Learning

Academic Year: 2022-2023

Name of Pedagogy Used	Video Lecture
Topic	Video Lecture on Class D and Class E Commutation
Subject	EE8552-Power Electronics
Name of the Faculty	Dr.D.Kirubakaran
Year/Dept.	III EEE
Innovative Teaching Method Description	A video lecture on Class D and Class E Commutation was conducted to enhance students understanding of high-efficiency power amplifier operation and switching techniques. This method provided visual demonstrations of circuit behavior, waveforms, and performance comparison, enabling students to grasp theoretical and practical aspects effectively. The approach encouraged self-paced learning and deeper conceptual clarity.

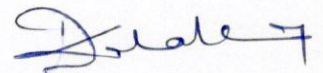
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Students Feedback	The video lecture on Class D and Class E Communication provided a clear understanding of the operating modes and waveforms, which were previously difficult to visualize during regular classes. The use of animations and circuit demonstrations made the concepts more engaging and greatly enhanced confidence in solving related numerical and analytical problems.
Conclusion:	
The video lecture method proved to be an effective innovative teaching approach, as it enhanced students conceptual clarity through visual representation of complex power electronics operations. The method supported better understanding, improved learner engagement, and facilitated deeper learning and self-paced revision, thereby contributing significantly to the attainment of course outcomes.	



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Innovative Teaching and Learning

Academic Year: 2022-2023

Name of Teaching method	Flipped class room based Learning
Topic	Smart Sensors
Subject	EE3403- Measurement and Instrumentation
Name of the Faculty	Dr. A. Ramesh Kumar
Year/Dept.	II EEE
Date/Time	23-03-2023 & 1.40 P.M
Innovative Teaching Method Description	In this method, students were provided with study materials, videos, and references prior to the class session. This enabled them to gain preliminary knowledge about the concept of smart sensors their types, working principles, and industrial applications before coming to class. During the classroom session, the faculty guided discussions, clarified doubts, and engaged students in collaborative learning activities, demonstrations, and case studies. This interactive session helped students connect theoretical concepts with real-world applications in modern instrumentation systems. The flipped classroom model encouraged active participation, self-learning, and deeper conceptual understanding. It also enhanced students' analytical and problem-solving skills, making the learning experience more engaging and effective.

Photos



Students Feedback

The flipped classroom approach enhanced the understanding of smart sensors by providing clear insights through pre-class videos and materials before the session.

In-class discussions and demonstrations boosted confidence and helped relate smart sensor concepts to real-time industrial applications.

Total number of students

58

Total number of students present

55

Total number of students absent

03

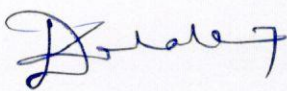
Action plan for absentees

Absent students will receive the study materials, videos, PPTs, shared before the class so they can learn the basic concepts independently.

Conclusion:

The flipped classroom method proved to be an effective learner-centered teaching strategy, as it encouraged students to prepare beforehand and actively participate during the session. By combining pre-class learning with collaborative in-class activities, the method enhanced students conceptual understanding, analytical abilities, and problem-solving skills, making the overall learning experience more meaningful and engaging.


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