ABCA (Activity Based Continuous Assessment)
Session: Jan.-June 2025
Electrical Engineering Department
SOET, ITM University, Gwalior

Batch: 2022-2026 Year/Semester: III/VI

Sl. No.	Subject Name	Subject Code	ABCA activities Conducted
1	Power System-III	EEL0613	Assignments, Open Book Test
2	Power Electronics	EEL0614	Assignments
3	High Voltage Engineering	EEL0615	Quiz test
4	Linear Control Systems	EEL0612	Virtual labs, Open Book Test
5	AI And Machine Learning	EEL0650	Assignments

Batch: 2023-2027 Year/Semester: II/IV

Sl. No.	Subject Name	Subject Code	ABCA activities Conducted
1	Power Generation Transmission and Distribution	EEL0441	Assignments, Quiz test
2	Electrical Machine-I	EEL0405	Assignments, Quiz Test
3	Analog and Digital Communication	ECL0427	Assignments, Quiz Test, Open Book Test
4	Electrical and Hybrid Vehicles	EEL0435	Virtual labs, Open Book Test, Gamified activity Quiz, Report writing on a workshop conducted by mime.
5	Electrical Instrumentation	EEL0650	Virtual labs, Open Book Test, Flip Class
6	The Joy of Computing with Python	EEL0451	Quiz Test, Open Book Test

Batch: 2024-2028 Year/Semester: I/II

Sl. No.	Subject Name	Subject Code	ABCA activities Conducted
1	Principle of Electrical Engineering	EEL0201	Assignments, Open Book Test
2	Solar Technology for EV	EEL0249	Assignments, Open internet Test, Quiz Test

Report on Gamified Activity for EEL435 - Hybrid and Electrical Vehicles
Organized by: Department of Electrical Engineering
Participants: Second-year Electrical Engineering students & Third-year Mechanical Engineering students

Subject Code: EEL435 – Hybrid and Electrical Vehicles

Introduction

The Department of Electrical Engineering organized a gamified quiz activity for students enrolled in the course EEL435 – Hybrid and Electrical Vehicles. This event was designed to enhance students' understanding of key concepts related to hybrid and electric vehicles in an engaging and interactive manner. The quiz competition aimed to align with the course outcomes (COs) and provide a hands-on learning experience.

Objective of the Activity

The primary objectives of this gamified activity were:

- To reinforce fundamental concepts related to hybrid and electric vehicles.
- To encourage interdisciplinary learning among Electrical and Mechanical students.
- To assess students' comprehension of the subject through an engaging quiz-based format. • To enhance problem-solving and analytical thinking skills relevant to the domain of electric vehicles.

Alignment with Course Outcomes (COs) of EEL435

The gamified quiz activity was structured in a manner that aligned with the following course outcomes of EEL435:

1. CO1: Understanding the fundamentals and classification of hybrid and electric vehicles – Questions in the quiz covered different types of hybridization, powertrains, and classifications of HEVs and EVs.
2. CO2: Analyzing energy storage systems and battery management – Several rounds included technical questions on battery technology, energy storage mechanisms, and charging infrastructure.
3. CO3: Evaluating power electronics and electric drives – The quiz assessed students' knowledge of power converters, motor controllers, and efficiency optimization in HEVs and EVs.
4. CO4: Comparing different propulsion systems and their environmental impact – Students answered scenario-based questions that analyzed sustainability, emissions, and regulatory frameworks.
5. CO5: Application of simulation and testing methodologies in hybrid vehicle development – The final round included practical problem-solving questions related to testing and simulation.

Structure of the Quiz Activity

The quiz competition was conducted in two rounds:

Round 1: Qualifying Round

- Format: Multiple-choice questions (MCQs) and concept-based questions.
- Evaluation Criteria: Accuracy, speed, and conceptual clarity.
- **Students who qualified for the second round**:

1. Yashraj Tomar
2. Mayank Yadav
3. Tanya Mangal
4. Sujal Kushwaha
5. Sujal Gupta (Mechanical)
6. Madhav Sharma

Round 2: Final Round

- Format: Advanced technical questions and scenario-based problem-solving.
- Evaluation Criteria: Depth of knowledge, application skills, and teamwork.
- **Winners of the Final Round:**

1. Yashraj Tomar
2. Madhav Sharma
3. Mayank Yadav

Out of the 5 marks assigned to this activity 3 will be awarded to all participants, 4 marks will be awarded to those who qualified the first round, and 5 marks to all the three winners.

Outcome of the Activity

- Enhanced understanding of hybrid and electric vehicle technologies among students.
- Increased engagement and active participation in technical discussions.
- Development of teamwork and problem-solving abilities in an interdisciplinary setting.
- Recognition and motivation for students through a competitive learning approach.

Conclusion

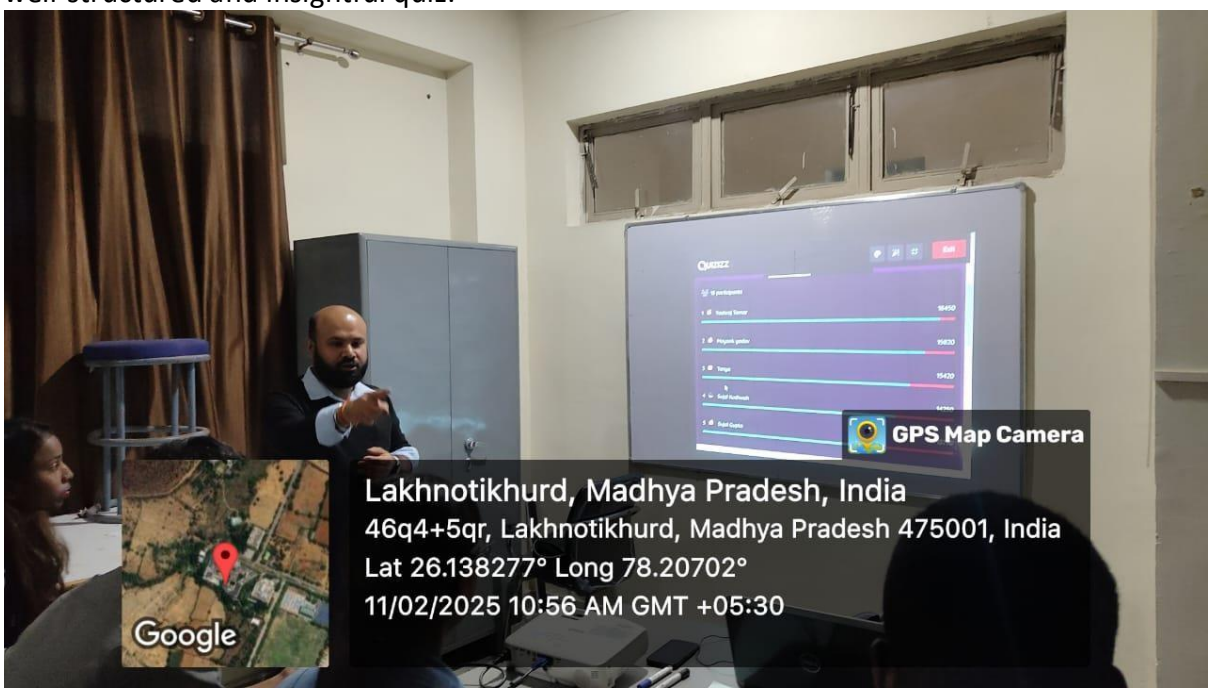
The gamified quiz activity successfully met its intended objectives and provided an enriching learning experience to the students. By aligning with the course outcomes of EEL435, this activity ensured that students not only grasped theoretical knowledge but also developed analytical and problem-solving skills crucial for the field of hybrid and electric vehicles. The participation of both Electrical and Mechanical students encouraged knowledge sharing and interdisciplinary collaboration.

The Department of Electrical Engineering looks forward to organizing similar interactive events in the future to further enhance students' learning experiences.

Feedback of the students

1. Mayank Yadav- The HEV quiz activity was a helpful way to test my understanding of the topic. Some questions were challenging, but they made me think critically and reinforced what I had learned. Overall, it was a useful experience, though I'd appreciate more practice on some of the tricky areas.

2. Yashraj - The HEV quiz was well-designed, covering all key concepts clearly and effectively. The questions were engaging, balanced in difficulty, and tested both theoretical and practical knowledge. It provided a great learning experience while assessing our understanding. Overall, a well-structured and insightful quiz.

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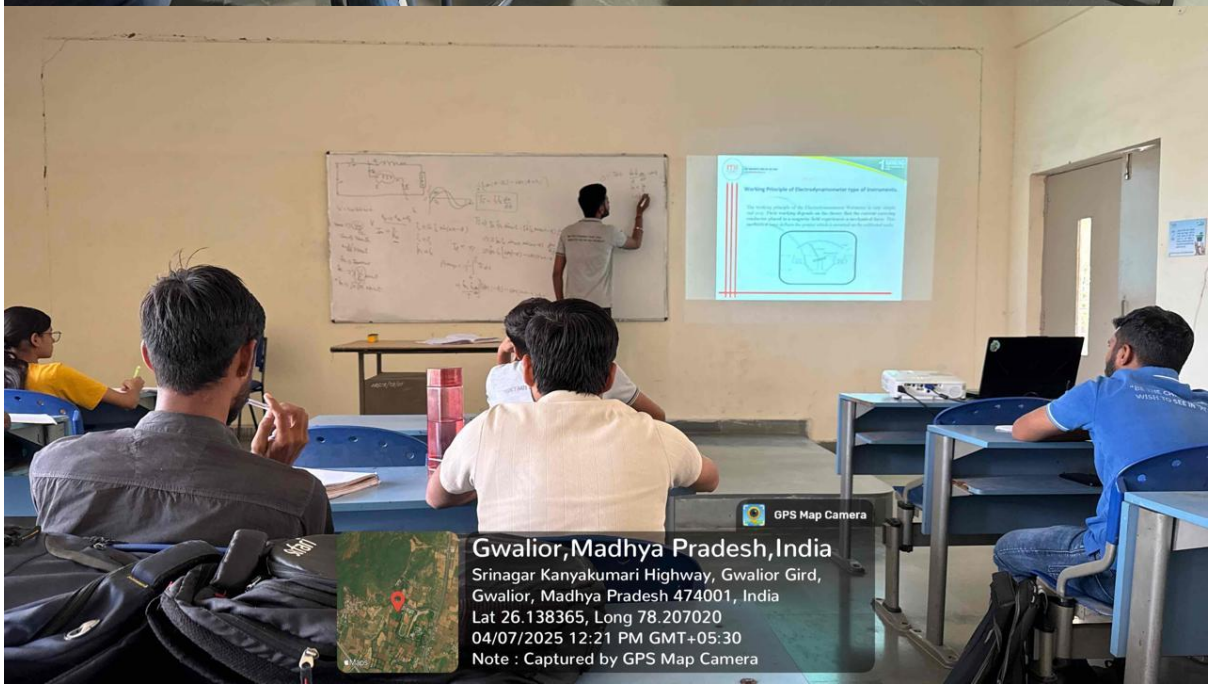
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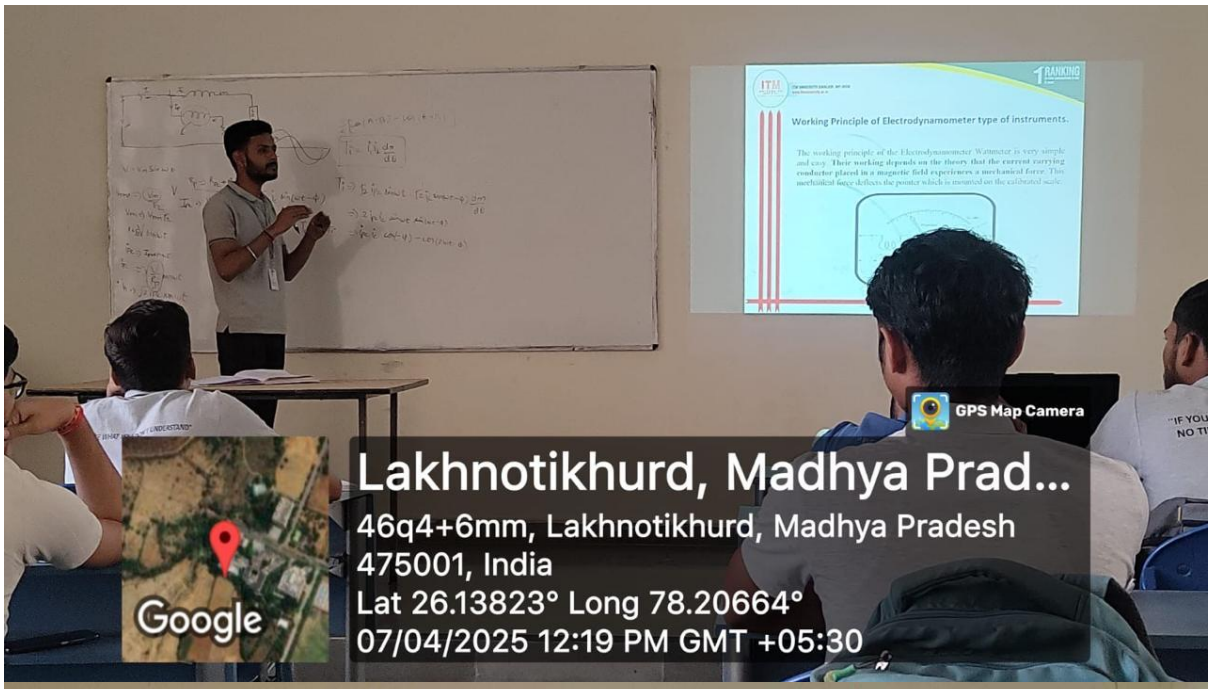
Working Principle of Electrodynamometer type of instruments.
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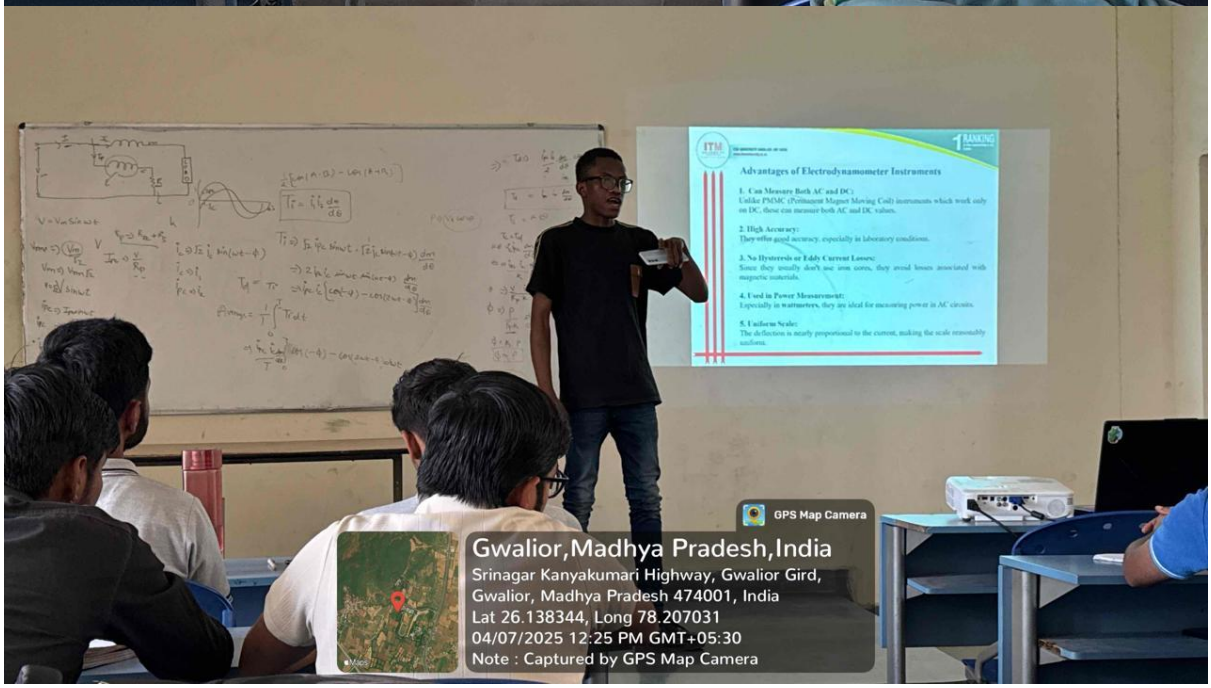
Advantages of Electrodynamometer Instruments
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Why Accurate readings are important:-
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