



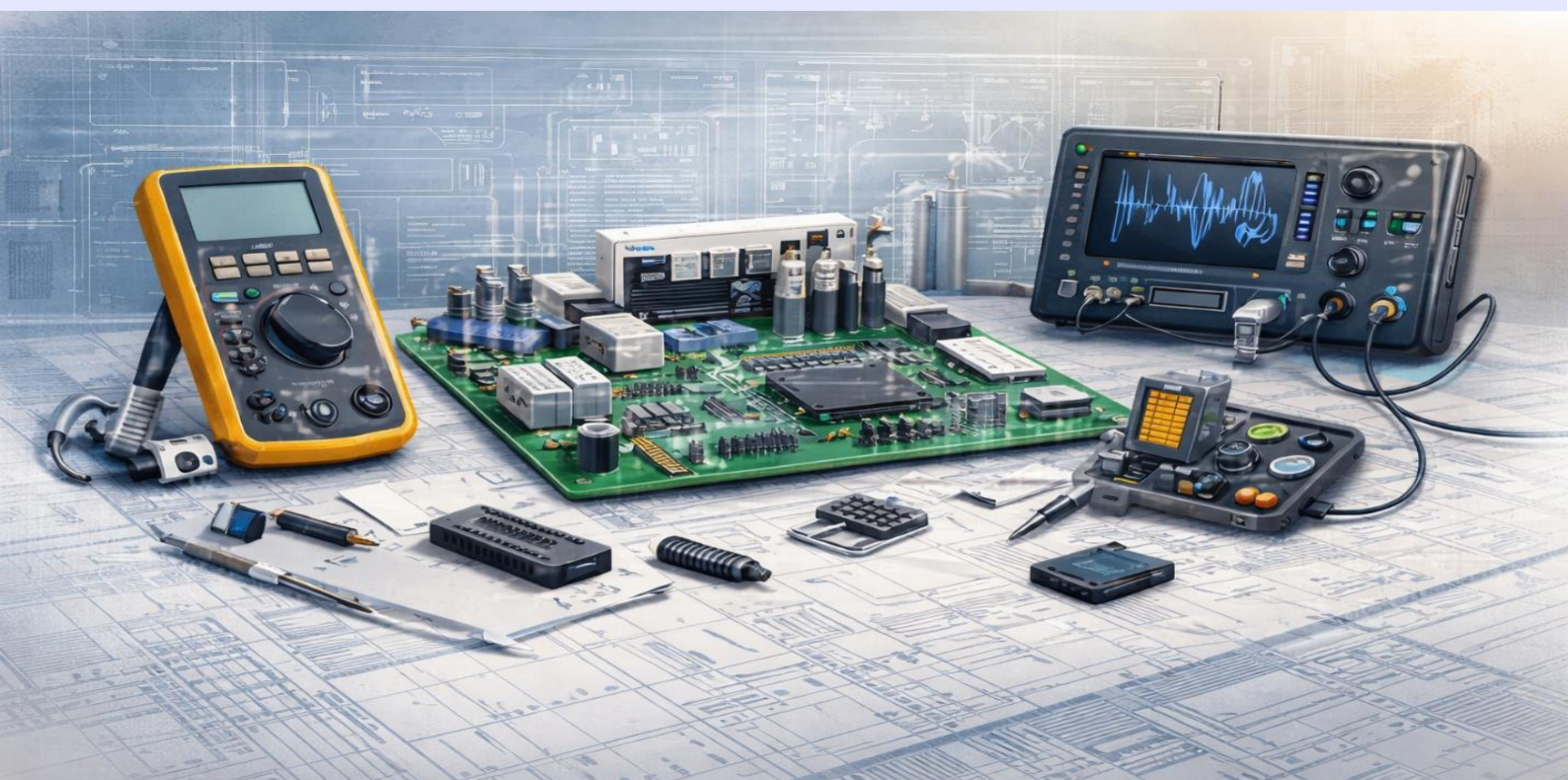
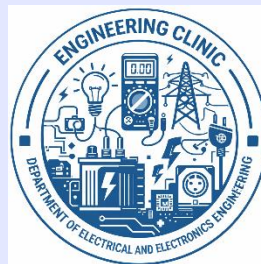
SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(AN AUTONOMOUS INSTITUTION)

26 YEARS

**DEPARTMENT OF
ELECTRICAL AND ELECTRONICS ENGINEERING**

ENGINEERING CLINIC – REPORT

(ACADEMIC YEAR 2025- 2026)



Preface

The Engineering Clinic of the Department of Electrical and Electronics Engineering at Sri Manakula Vinayagar Engineering College functions as a structured academic platform designed to strengthen students' technical competence through experiential and application-oriented learning. The initiative is guided by the Dean, Head of the Department, and dedicated faculty coordinators, with the active support of committed teaching staff. It provides a systematic environment where undergraduate students participate in organized technical activities and hands-on training sessions. The clinic primarily focuses on the troubleshooting and maintenance of real-time electrical and electronic appliances, allowing students to connect theoretical concepts with practical implementation.

Through these activities, students gain exposure to fault identification, component-level analysis, and system-level diagnostics. They are trained to follow structured problem-solving methodologies, use appropriate testing instruments, and adopt safe working practices. The Engineering Clinic also encourages interdisciplinary learning, technical documentation, and collaborative teamwork among students. By working on real-world problems, students improve their analytical thinking, technical accuracy, and decision-making skills.

In addition, the clinic promotes professional ethics, responsibility, and effective communication, which are essential qualities for modern engineers. Regular technical sessions, demonstrations, and guided practice help students build confidence in handling electrical and electronic systems. The initiative not only enhances practical knowledge but also prepares students to meet industry expectations. Overall, the Engineering Clinic plays a significant role in producing competent, industry-ready engineers and contributes to the academic excellence and technological development of the institution.

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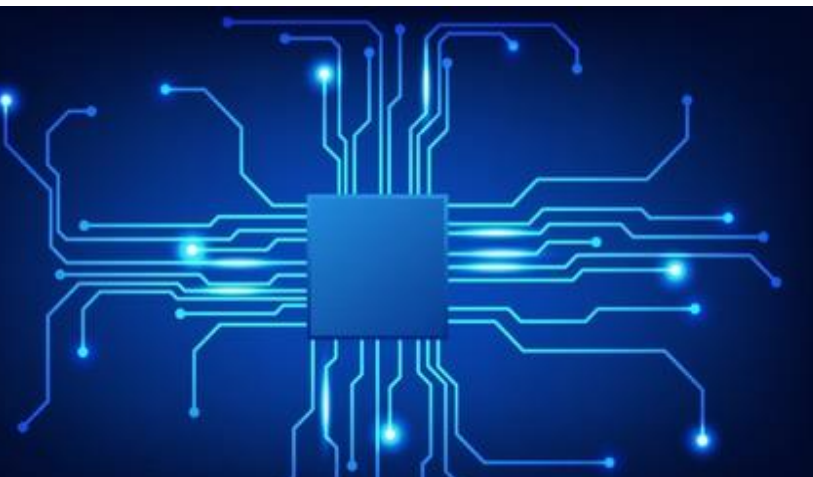
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ABOUT THE INSTITUTION

Sri Manakula Vinayaga Educational Trust was founded to provide quality and affordable education to the weaker sections of society. The trust established Sri Manakula Vinayagar Engineering College (SMVEC) in 1999. SMVEC is an autonomous institution affiliated to Pondicherry University. It offers 13 undergraduate, 8 postgraduate and 11 Research programme in engineering. SMVEC has been accredited by NAAC with “A” grade and NBA. The institution is also accredited by TATA consultancy services. The college has a good placement record with students getting job offers from top companies in India and abroad. SMVEC students have won many awards and accolades for their academic achievements.

Vision

- To be globally recognized for excellence in quality education, innovation and research for the transformation of lives to serve the society

Mission

M1: Quality Education : To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.

M2: Research and Innovation : To foster value-based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.

M3: Employability and Entrepreneurship : To inculcate the employability and entrepreneurial skills through value and skill based training.

M4: Ethical Values : To instill deep sense of human values by blending societal righteousness with academic professionalism for the growth of society.



DEPARTMENT VISION AND MISSION

Vision

To promote proficiency in the field of Electrical and Electronics Engineering by creating a stimulating environment for research, innovation and entrepreneurship.

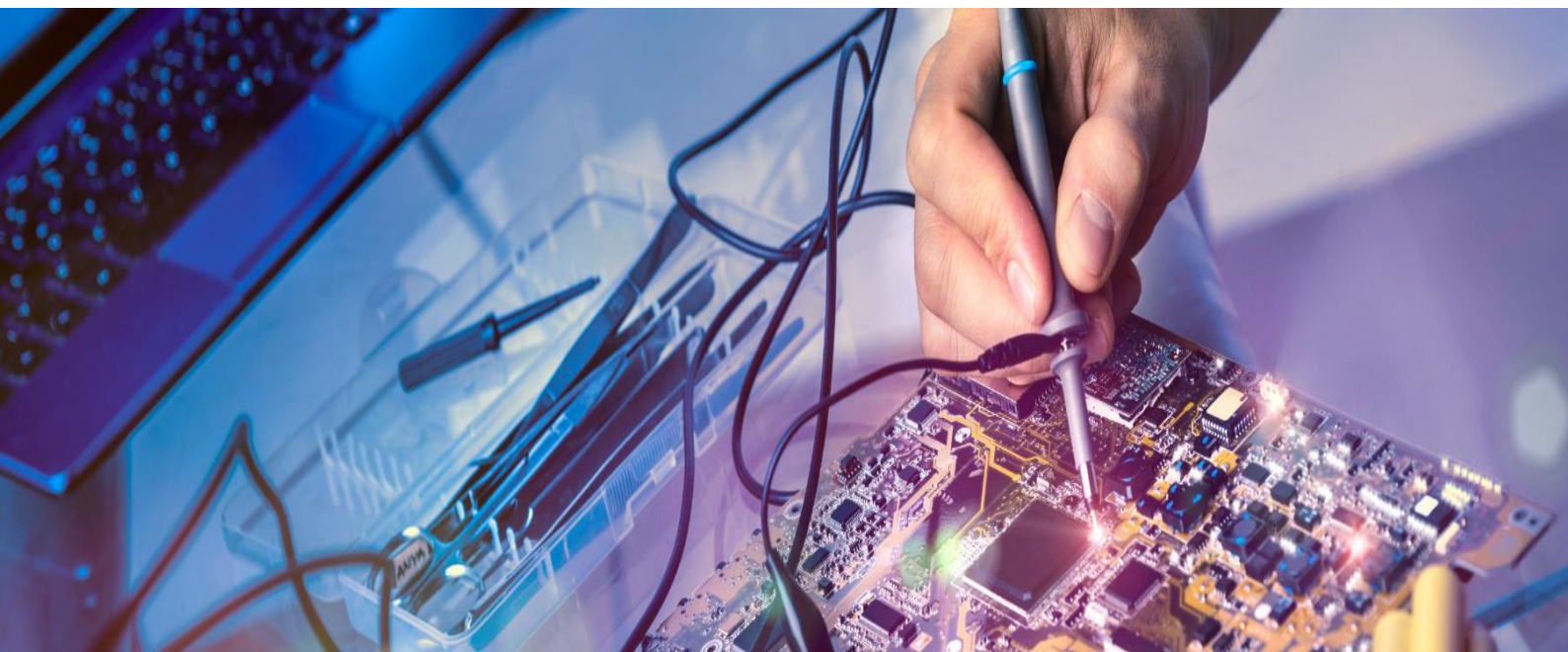
Mission

M1: Quality Education: To impart high quality technical education with problem solving capabilities by innovative pedagogy in emerging technologies.

M2: Industrial and Societal Needs: To cater the dynamic needs of the industry and society by strengthening industry-institute interaction.

M3: Research and Innovation: To nurture the spirit of research attitude by carrying out innovative technologies pragmatically.

M4: Placement and Entrepreneurship: To inculcate the professionalism in career by advancing synergetic skills to compete in the corporate world.



Engineering Clinic

Objective of Engineering clinic club

- To provide students with practical exposure to electrical and electronic systems used in daily life.
- To develop hands-on skills in troubleshooting, servicing, and repairing domestic electrical appliances.
- To enhance students' understanding of electrical components, circuits, and their functions through real-time applications.
- To train students in essential electrical practices such as wiring, soldering, component testing, fuse replacement, and earthing.
- To strengthen problem-solving and fault diagnosis abilities through systematic analysis of equipment failures.
- To bridge the gap between theoretical concepts learned in the classroom and practical industrial requirements.
- To improve technical competency, safety awareness, and maintenance skills in handling electrical equipment.
- To encourage innovation, self-learning, and confidence in addressing real-world electrical and electronic challenges.
- To prepare students for employment and entrepreneurial opportunities in electrical maintenance and service sectors.
- To promote community service by enabling students to provide basic repair and maintenance support for electrical appliances.

Functions of Engineering Clinic

- Hands on - Students apply what they are learning about.
- Integrated - Demonstrate correlations with supporting course work.
- Multidisciplinary - Involve students as a community of problem solvers.
- Teamwork - Emphasize the advantage of effective teaming.
- Entrepreneurial - Reinforce value-based engineering.
- Contextual - Help students understand the big picture.
- Every Saturday Faculties have to explain about the troubleshooting of domestic electrical appliances.
- The faculty members have to train the students to identify the Fault in an electrical appliance.
- The faculty members need to provide the hands-on training to the students.

Student Members of the Club:

All I Year, II Year & III Year students of the Department

OFFICE BEARERS AND THEIR PORTFOLIOS

SL.NO	NAME OF THE FACULTY	DESIGNATION	POSITION
1.	Dr.S. Anbumalar	Dean Academics	Convener
2.	Dr. P. Jamuna	Professor / EEE	Faculty Coordinators
3.	Dr. D. Raja	Professor / EEE	
4.	Dr.S. Ganesh Kumaran	Assoc. Prof. /EEE	
5.	Mr.Parthiban,B	AP/EEE	
6.	Mr. G. Rajavel	AP/EEE	
7.	Dr.Sivaraj	AP/EEE	Member
8.	Mr.K. Thangaraj	AP/EEE	Member
9.	Mr.J.Muruganandham	AP/EEE	Member
10.	Mr.Adrien Periyamayagam	AP/EEE	Member
11.	Mr.I. Shivasankkar	AP/EEE	Member
12.	Mr.R. Vignesh	AP/EEE	Member
13.	Mrs.K.Kavinlavu	AP/EEE	Member
14.	Ms. Abinayasaraswathi	AP/EEE	Member
15.	Mr.Elanthamizh	AP/EEE	Member



Dr. D.Raja
Professor



Mr .G. Rajavel
Assistant Professor



Dr.s.Ganesh Kumaran
Associate Professor



Mr.I.Sivasankkar
Assistant Professor
Member



Mr.K.Thangaraj
Assistant Professor
Member



Mr.J.Muruganandham
Assistant Professor
Member

ACTIVITIES CONDUCTED IN ENGINEERING CLINIC – (2025 – 2026)

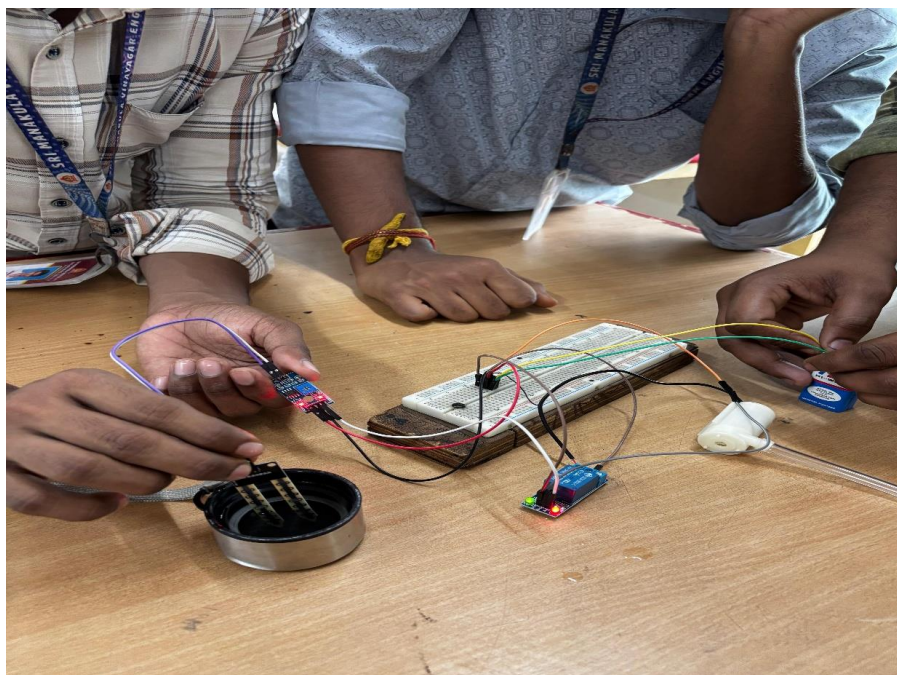
Sl. No	Activity	Date	Year/Sem/
1.	Automatic plant watering system using moisture sensor	09.08.2025	III/V/A/2023-2027
2.	Fabrication and assembly of electrical junction box	31.01.2026	I / II / 2025-2029
3.	Troubleshooting and repair of electric iron box	14.02.2026	I -A / II / 2025-2029
4.	Troubleshooting and maintenance of mixer grinder	14.03.2026	I -B/ II / 2025-2029
5.	Comprehensive troubleshooting and evaluation of domestic electrical appliances	11.04.2026	I / II / 2025-2029
6.	Troubleshooting of ceiling fan	14.02.2026	I / II / A/ 2025-2029
7.	Construction of an electrical junction box (extension box)	31.01.2026	I / II / A/2025-2029
8.	Design of RC triggering circuits for SCR	27.12.2025	III/VI/A/2023-2027
9.	Trouble shooting of induction stove	11.04.2026	I/II/A/ 2025-2029
10.	Introduction to electrical measuring devices, testing procedures and safety measures	24.01.2026	I/II/A/ 2025-2029
11.	Trouble shooting of mixer grinder	28.03.2026	I/II/A/ 2025-2029

Engineering Clinic – Activity Report-1

Academic Year	: 2025 – 2026	
Date/Day	: 09.08.2025/ Saturday	Year/Sem/Sec: III/V/A
Activity	Automatic Plant Watering System using Moisture Sensor	
:		



Students of EEE Department, III-year, A section are performing the Construction of Automatic Plant Watering System using Moisture Sensor under the guidance of Mr.S.JOHNPOWL, AP/EEE and Mr.S.ELANTHAMIZH, AP/EEE



The students are engaged in the practical implementation of the Automatic Plant Watering System prototype, involving the connection of the moisture sensor, control circuit, and water pump for testing purposes.



It shows the successful working of the Automatic Plant Watering System. The moisture sensor detects the soil's dryness, and the microcontroller activates the water pump to supply water until the required moisture level is reached. This ensures efficient watering, reduces manual effort, and conserves water

Engineering Clinic – Activity Report-2

Academic Year	:	2025 – 2026
Date/Day/Time	:	31.01.2026/Saturday / 8.45 a.m to 11.15 a.m
Year/Sem/Batc	:	I / II / 2025-2029
Activities	:	FABRICATION AND ASSEMBLY OF ELECTRICAL JUNCTION BOX



Students analyzing the circuit schematic before commencing the fabrication of the 6A and 20A switch socket assembly.



Practical execution of component mounting and terminal block connections within the PVC enclosure.

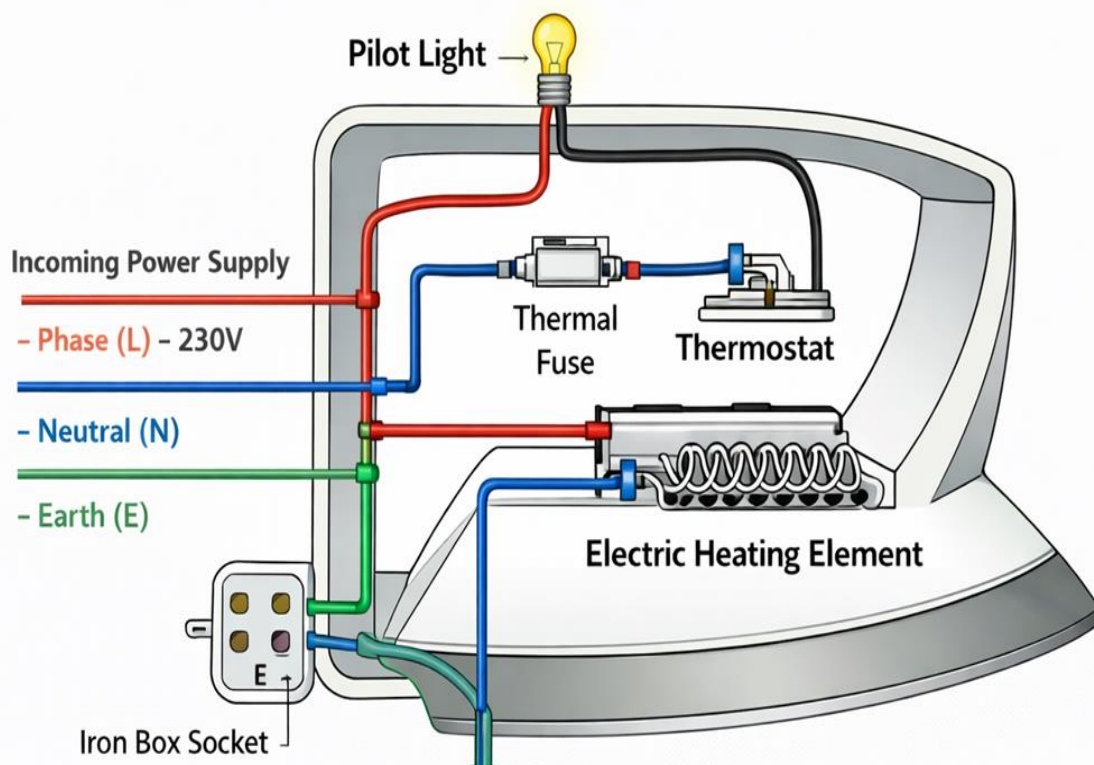
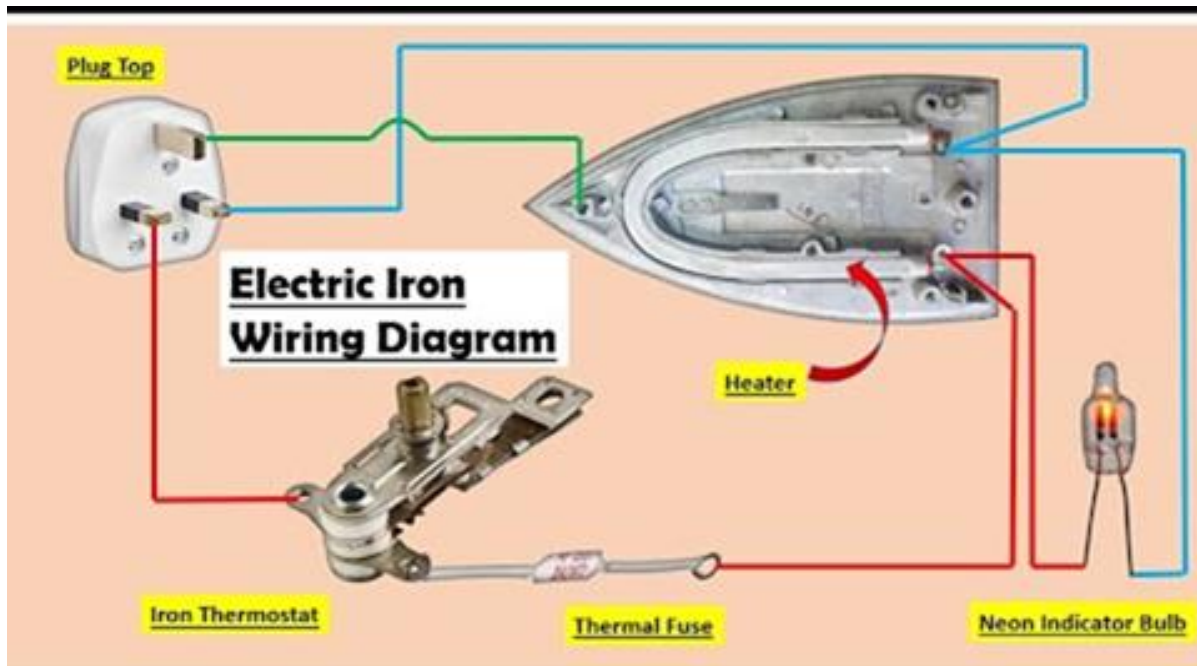


Real-time integration of 6A and 20A switches and sockets under the supervision of faculty member.

Engineering Clinic – Activity Report-3

Academic Year	:	2025 – 2026
Date/Day/Time	:	14.02.2026/Saturday / 8.45 a.m to 11.15 a.m
Year/Sem/Batch	:	I -A/ II / 2025-2029
Activities	:	TROUBLESHOOTING AND REPAIR OF ELECTRIC IRON BOX

CIRCUIT DIAGRAM AND PARTS OF IRON BOX





Faculty coordinator explaining the internal construction of an electric iron box and the working principle of the bimetallic thermostat.



Students performing a visual inspection of the soleplate and power cord for physical damage or carbon buildup.



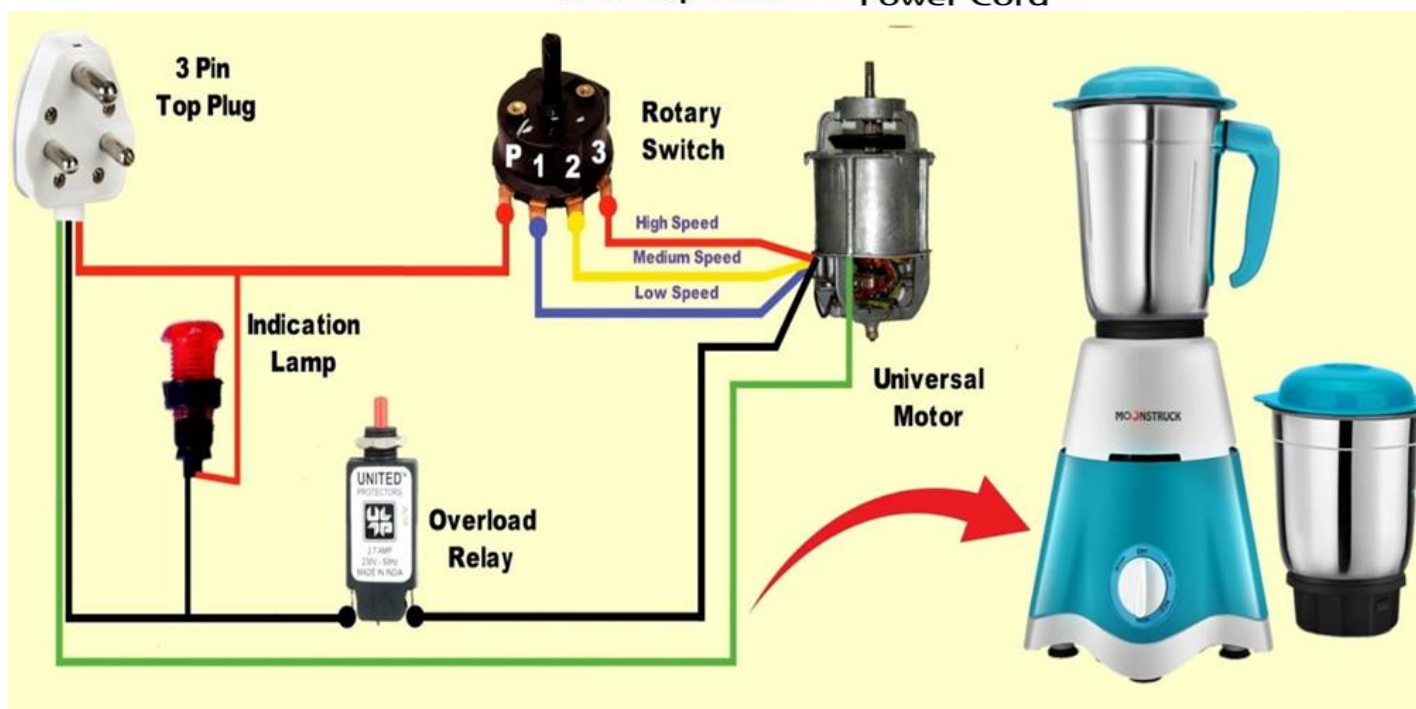
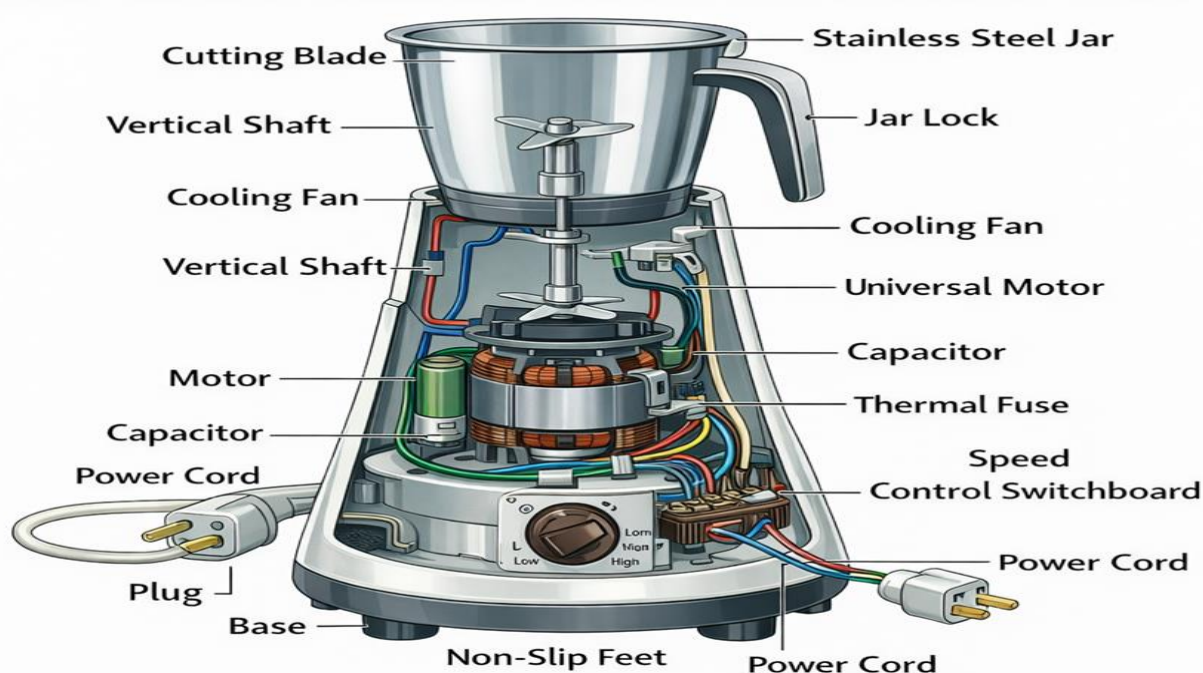
Students using a multimeter to verify the continuity of the heating element and checking for insulation resistance

Engineering Clinic – Activity Report-4

Academic Year	:	2025 – 2026
Date/Day/Time	:	14.03.2026/Saturday / 8.45 a.m to 11.15 a.m
Year/Sem/Batch	:	I -B/ II / 2025-2029
Activities	:	TROUBLESHOOTING AND MAINTENANCE OF MIXER GRINDER

CIRCUIT DIAGRAM AND PARTS OF MIXIE

INTERNAL PARTS OF A MIXIE





Systematic disassembly of the mixer grinder base to access the motor assembly and the Overload Protector (OLP) switch



Identification of the primary components including the rotary switch, cooling fan, and motor field coils.



Using a multimeter to check the continuity of the 3-core power cord and the integrity of the speed selector switch

Engineering Clinic – Activity Report-5

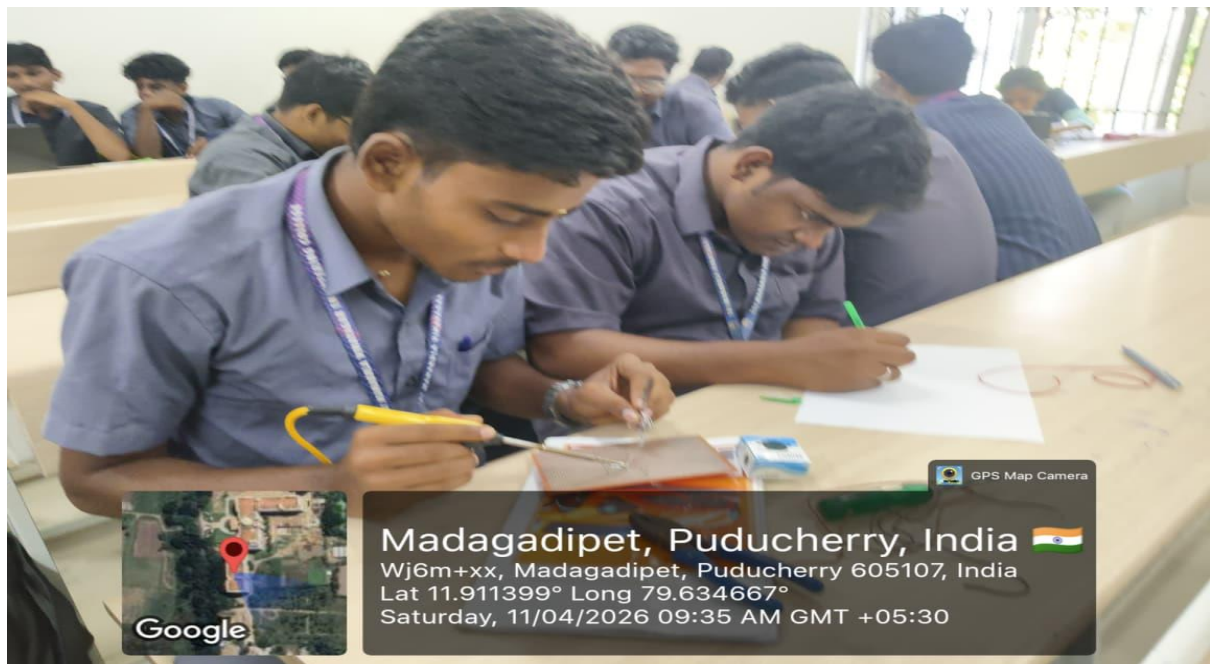
Academic Year	:	2025 – 2026
Date/Day/Time	:	11.04.2026/Saturday / 8.45 a.m to 11.15 a.m
Year/Sem/Batch	:	I / II / 2025-2029
Activities	:	COMPREHENSIVE TROUBLESHOOTING AND EVALUATION OF DOMESTIC ELECTRICAL APPLIANCES



Students reviewing circuit schematics and internal architecture diagrams before commencing the multi-unit troubleshooting session.



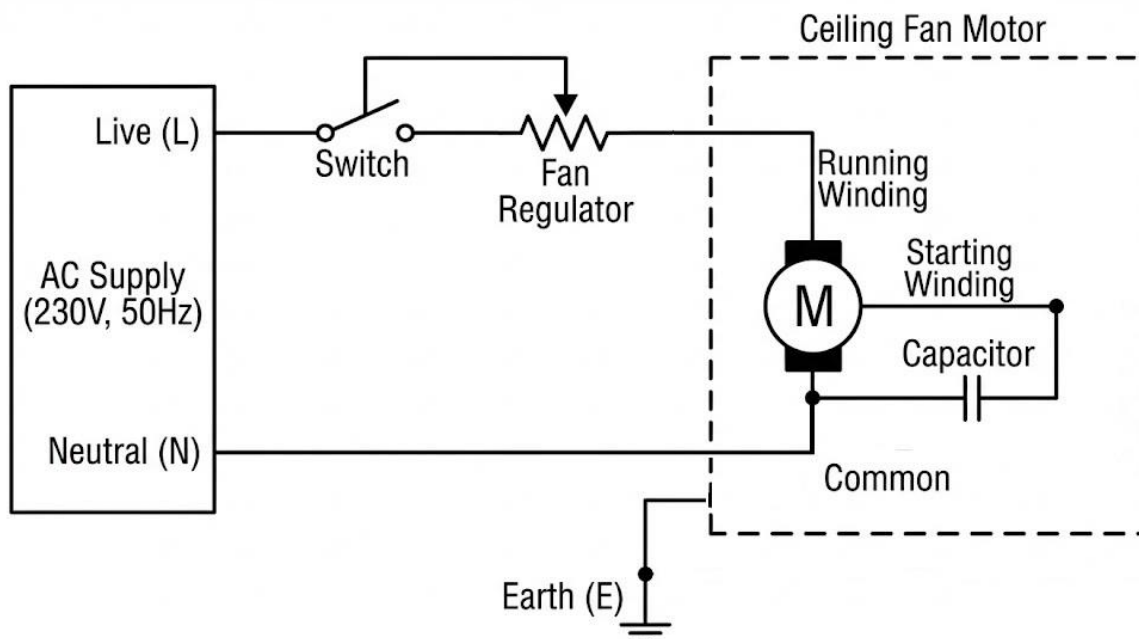
Student batches independently performing systematic disassembly to access the internal control circuits of various appliances.



Students presenting their successfully troubleshot units, demonstrating their proficiency in real-time electrical maintenance.

Engineering Clinic – Activity Report-6

Academic Year	:	2025 – 2026		
Date / Day	:	14.02.2026 / Saturday	Year / Sem / Sec: I / II / A	
Activity	:	Troubleshooting of ceiling fan		

CIRCUIT DIAGRAM:

Mr. I. Shivasankkar, AP/EEE, SMVEC demonstrating ceiling fan fault diagnosis procedures to I year A section EEE department students during Engineering clinic activity on 14.02.2026



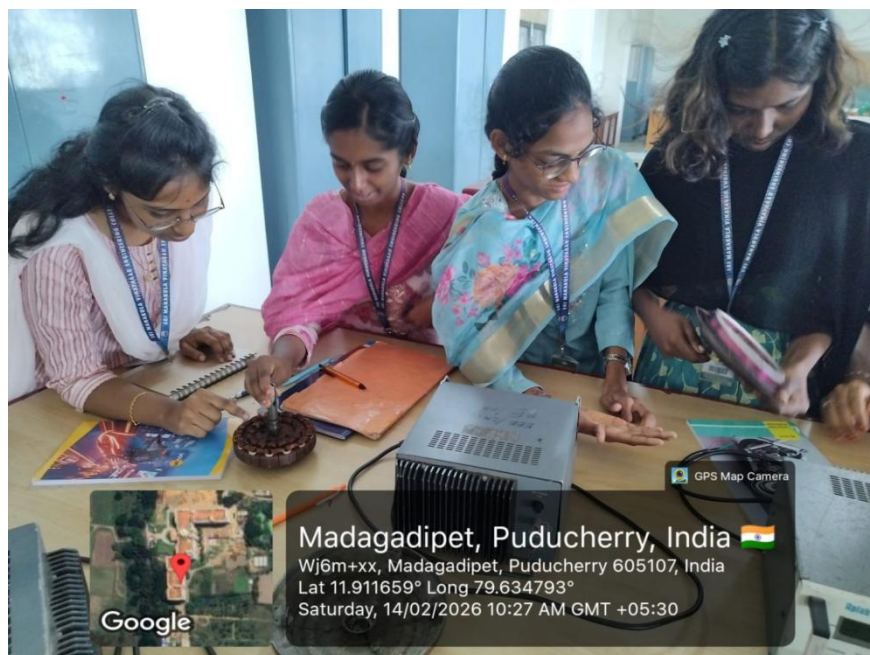
Students inspecting internal winding connections of ceiling fan



Students explaining identified faults and corrective measures as a part of Engineering clinic activity in “Troubleshooting of ceiling fan”



Students actively engaged in troubleshooting a faulty bearing in the ceiling fan under supervision.



EEE students gaining practical exposure to ceiling fan wiring techniques through troubleshooting.

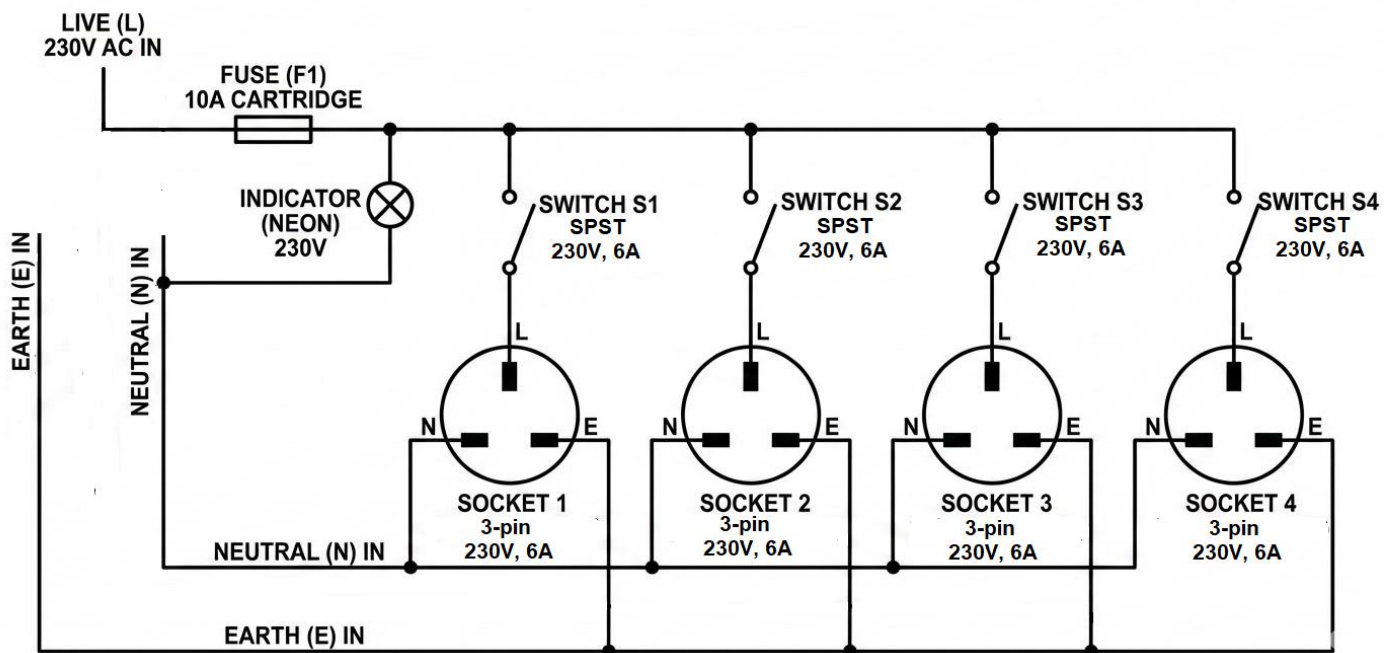


Students explaining the construction and working of the ceiling fan during engineering clinic activity on 14.02.2026

Engineering Clinic – Activity Report-7

Academic Year	: 2025 – 2026	
Date / Day	: 31.01.2026 / Saturday	Year / Sem / Sec: I / II / A
Activity	: Construction of an Electrical Junction Box (Extension Box)	

CIRCUIT DIAGRAM:



Mr. S.Elanthamizh, AP/EEE, SMVEC demonstrating the step-by-step construction and testing of electrical junction / extension box to I year A section EEE department students during Engineering clinic activity on 31.01.2026



Students assembling switches, sockets, and wiring connections as part of hands-on training in junction box construction



Mr. J. Muruganandham, AP / EEE, SMVEC explaining the internal wiring connections and essential safety precautions in junction box construction



Students actively engaged in wiring and mounting electrical components inside the junction box under supervision.



EEE students gaining practical exposure to domestic wiring techniques through junction box fabrication.

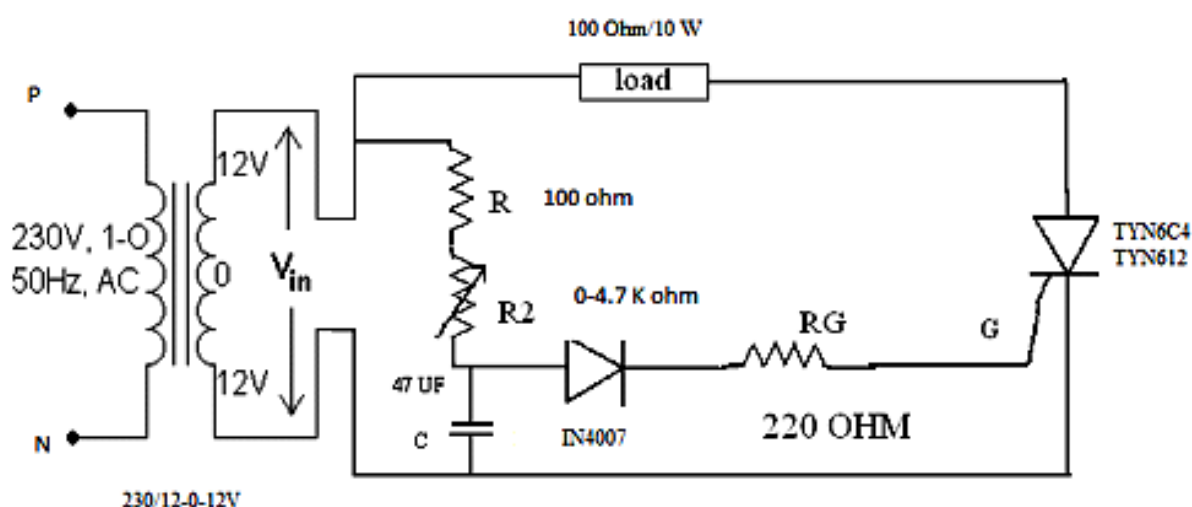


Students explaining the construction and working of the completed electrical junction box during engineering clinic activity on 31.01.2026

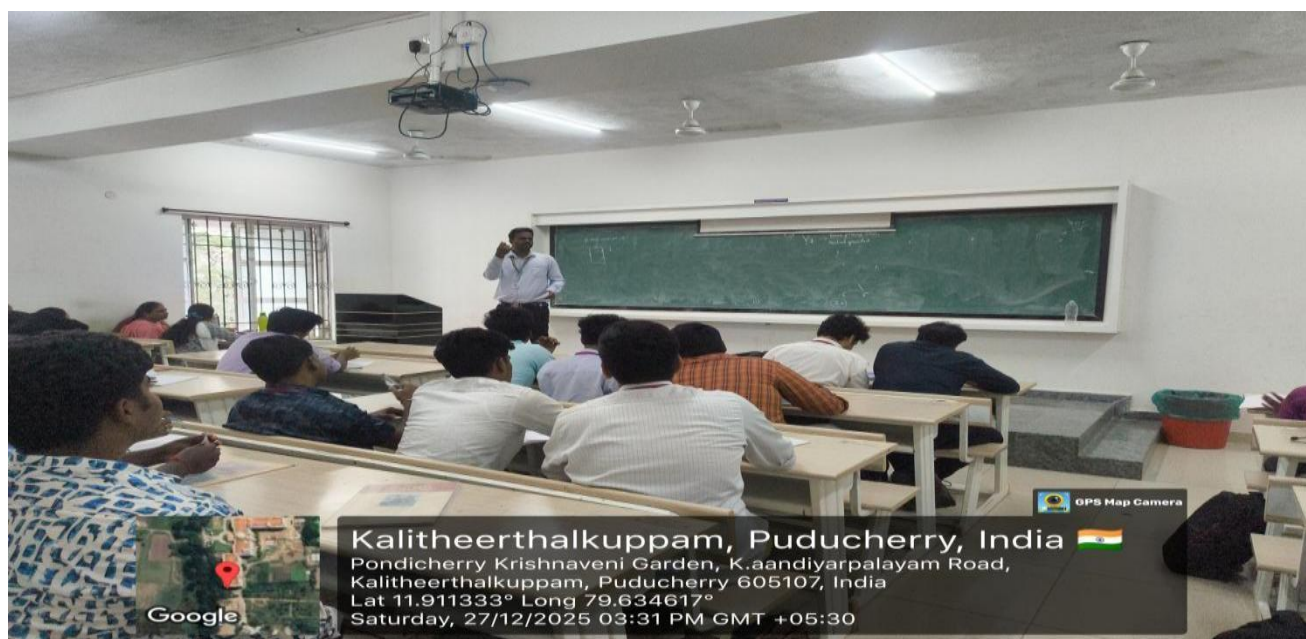
Engineering Clinic – Activity Report-8

Academic Year	2025 – 2026	
Date/Day	27.12.2025/ Saturday	Year/Sem/Sec: III/VI/A
Topic	Design of RC Triggering Circuits for SCR	

CIRCUIT DIAGRAM:



PHOTOS



As part of the Engineering Clinic activity, the Design of RC Triggering Circuits for SCR was conducted for third-year students to enhance their practical understanding of RC triggering circuit. The objective of this activity was to study the principle of SCR triggering and to design an RC phase control circuit capable of controlling the firing angle.

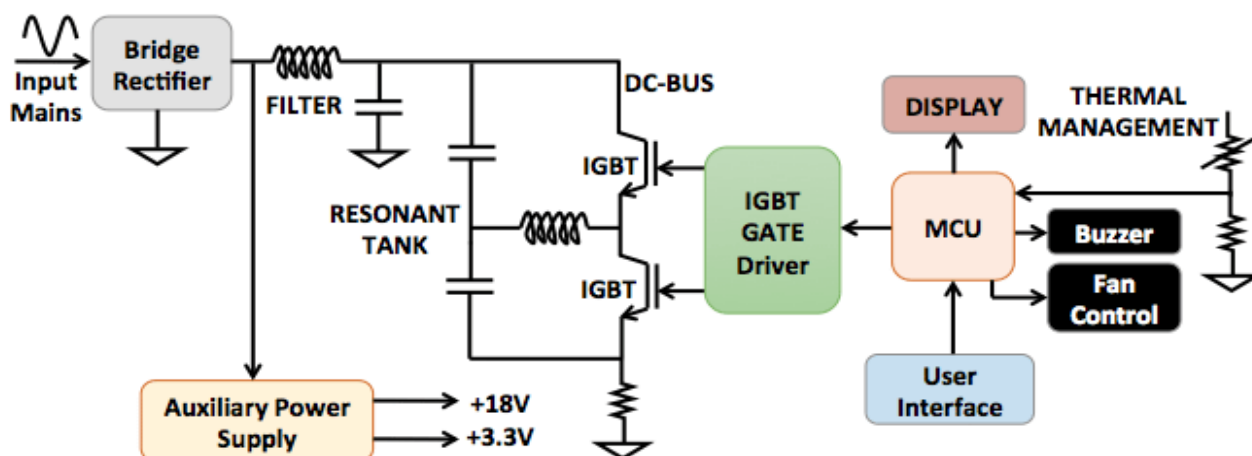


Through this Engineering Clinic activity, students gained simulation experience in RC triggering techniques of SCRs using MATLAB-based simulation of power electronic circuits. The activity helped bridge the gap between theoretical concepts and practical implementation, thereby strengthening students' understanding of SCR- based power control applications.

Engineering Clinic – Activity Report-9

Academic Year	2025 – 2026	
Date/Day	11.04.2026/ Saturday	Year/Sem/Sec: I/II/A
Topic	Trouble Shooting of Induction Stove	

Circuit diagram



Mr. I. Shivasankkar, AP/EEE, SMVEC, demonstrated the fault diagnosis procedures of an induction stove to I Year A Section EEE students during the Engineering Clinic activity held on 11.04.2026.



Mr. S. Elanthamizh, AP/EEE, SMVEC, demonstrated the step-by-step construction and testing of an induction stove to I Year A Section EEE students during the Engineering Clinic activity held on 31.01.2026.

Engineering Clinic – Activity Report-10

Academic Year	2025 – 2026	
Date/Day	24.01.2026/ Saturday	Year/Sem/Sec: I/II/A
Topic	Introduction to Electrical Measuring Devices, Testing Procedures and Safety Measures	



A session was conducted by the faculty to enhance students'.



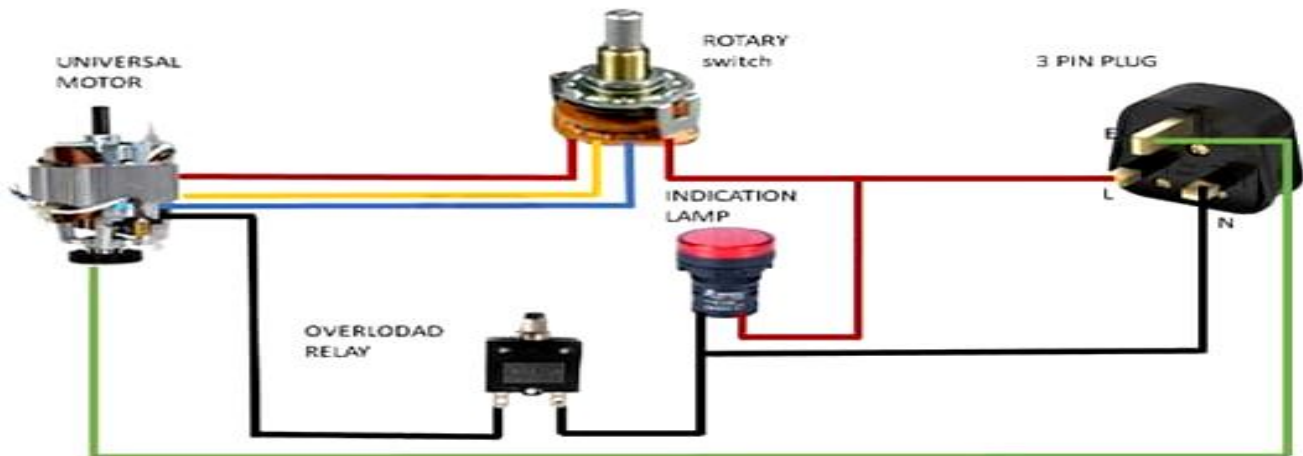


The faculty demonstrated different ratings of switches and sockets (5 A, 6 A, 15 A, and 16 A) and explained their selection based on load requirements and safety standards. Students were guided to identify current ratings, voltage ratings, and manufacturer specifications printed on the devices.

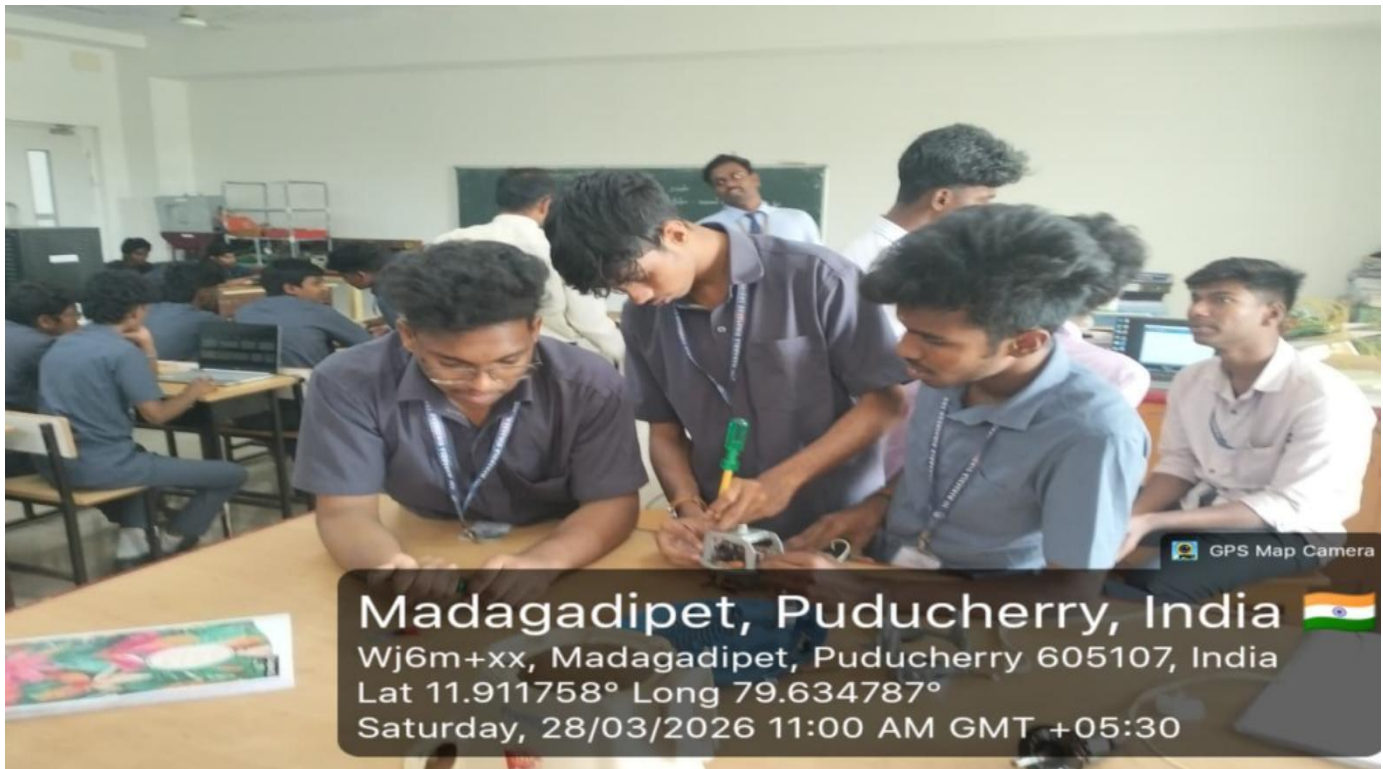
Engineering Clinic – Activity Report-11

Academic Year	2025 – 2026	
Date/Day	28.03.2026/ Saturday	Year/Sem/Sec: I/II/A
Topic	Trouble Shooting of Mixer Grinder	

Circuit diagram of Mixer Grinder:



Students actively engaged in wiring and mounting electrical components inside the Mixer Grinder under supervision.



EEE students gaining practical exposure to internal wiring connection of mixer grinder.



Students are actively participating in the troubleshooting activity of the mixer grinder.

