



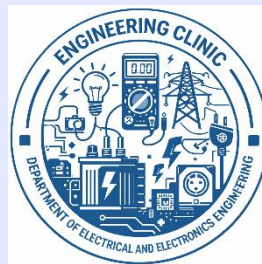
**SRI MANAKULA VINAYAGAR**  
ENGINEERING COLLEGE  
(AN AUTONOMOUS INSTITUTION)



**DEPARTMENT OF  
ELECTRICAL AND ELECTRONICS ENGINEERING**

**ENGINEERING CLINIC – REPORT**

(ACADEMIC YEAR 2025- 2026)



## Preface 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.



**Dr. D. Raja**  
Program co-convener

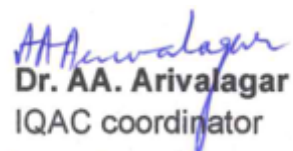


**Mr. G. Rajavel**  
Program Coordinators



H&D/ EEE

**(Dr. P. Jamuna)**



Dr. AA. Arivalagar  
IQAC coordinator



Dean Academics  
(Dr. S. Abumalar)



Director cum Principal  
(Dr. V.S.K. Venkatachalapathy)

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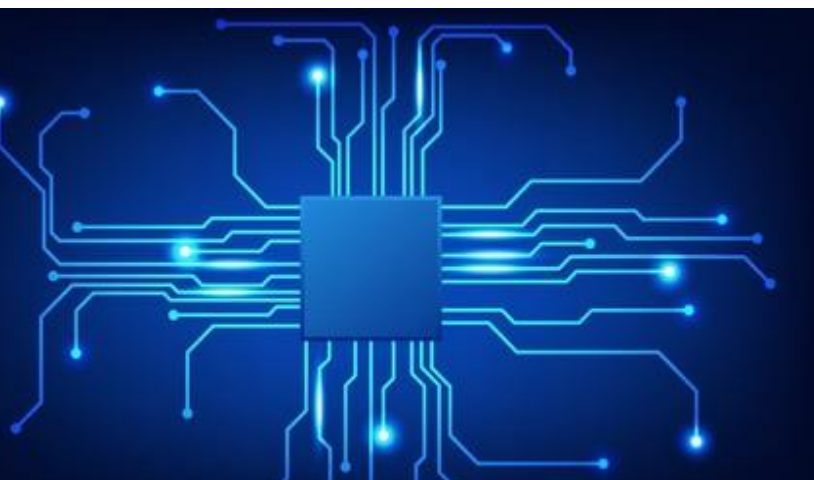
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## ABOUT THE INSTITUTE

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

### Vision

- To nurture the cornerstone of excellence in engineering education and drive innovation by seamlessly integrating the fundamentals of Science and Humanities

### 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.



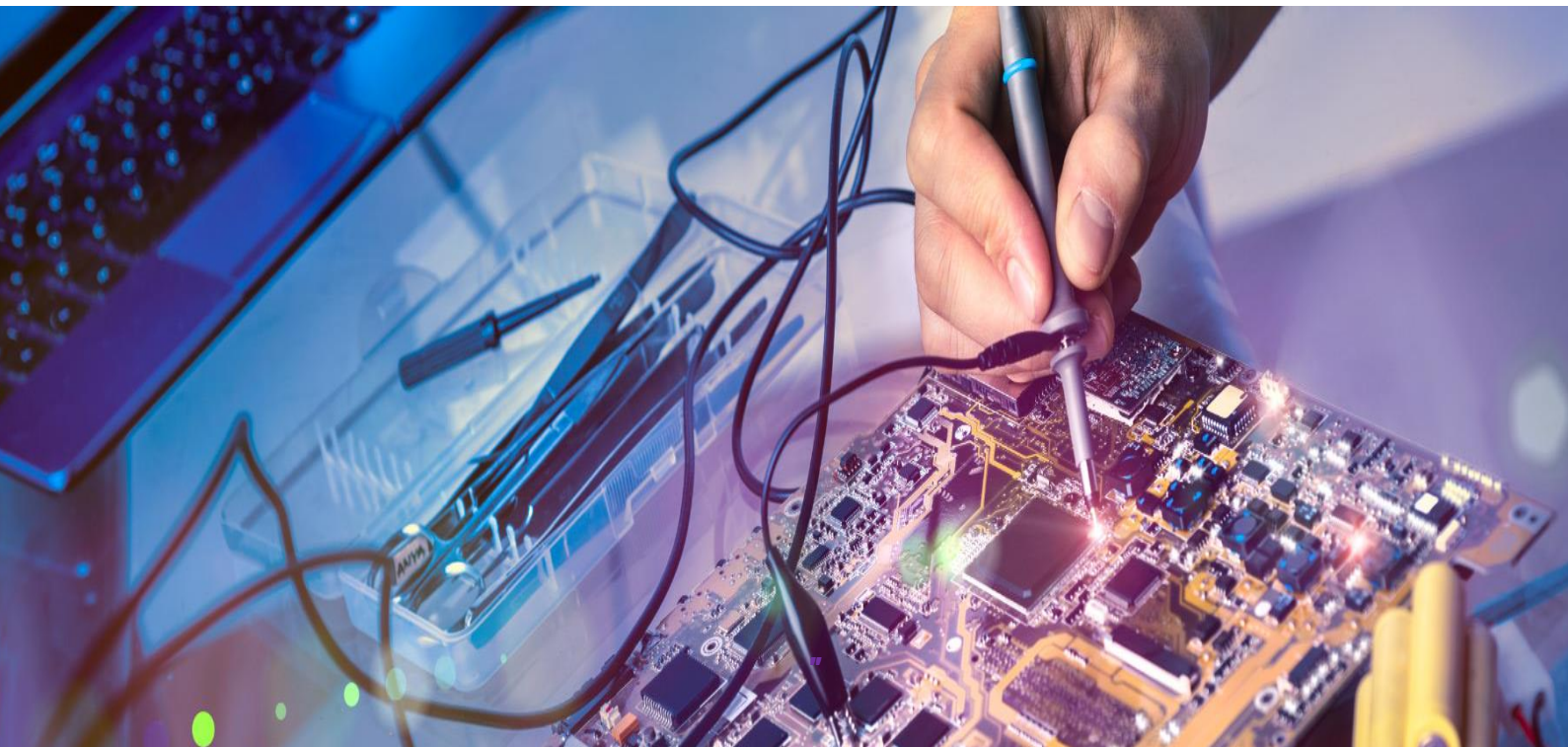
## DEPARTMENT VISION AND MISSION

### Vision

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

### Mission

- Academic Excellence: To impart high quality technical education with problem solving capabilities by innovative pedagogy in emerging technologies
- Industrial and Societal Needs: To cater the dynamic needs of the industry and society by strengthening industry - institute interaction.
- Research and Innovation: To nurture the spirit of research attitude by carrying out innovative technologies pragmatically.
- 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

The objective of the “Engineering Clinic” is to form a student’s forum those who are interested in handling Electronics gadgets/Home appliances and in turn to troubleshoot the Electronics gadgets/Home appliances which are not in working conditions. Also, this forum will help to enhance students’ skills in multidisciplinary aspects.

### 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  | Program Convener    |
| 2.    | Dr. P. Jamuna           | Professor / EEE | Program co-convener |
| 3.    | Dr. D. Raja             | Professor / EEE | Program co-convener |
| 4.    | Mr. G. Rajavel          | AP/EEE          | Program Coordinator |
| 5.    | Dr.S. Ganesh Kumaran    | Asso.Prof       | Program Coordinator |
| 6.    | Dr.Sivaraj              | AP/EEE          | Member              |
| 7.    | Mr.K. Thangaraj         | AP/EEE          | Member              |
| 8.    | Mr.J.Muruganandham      | AP/EEE          | Member              |
| 9.    | Mr.Adrien Periyamayagam | AP/EEE          | Member              |
| 10.   | Mr.I. Shivasankkar      | AP/EEE          | Member              |
| 11.   | Mr.R. Vignesh           | AP/EEE          | Member              |
| 12.   | Mrs.K.Kavinelavu        | AP/EEE          | Member              |
| 13.   | Ms. Abinayasaraswathi   | AP/EEE          | Member              |
| 14.   | Mr.Elanthamizh          | AP/EEE          | Member              |



**Dr. D.Rajaj**  
Professor  
Faculty Co-convener



**Mr .G. Rajavel**  
Assistant Professor  
Program Coordinator



**Dr.s.Ganesh Kumaran**  
Associate Professor  
Member



**Mr.I.Sivasankkar**  
Assistant Professor  
Member



**Mr.K.Thangaraj**  
Assistant Professor  
Member



**Mr.J.Muruganandham**  
Assistant Professor  
Member

## ENGINEERING CLINIC

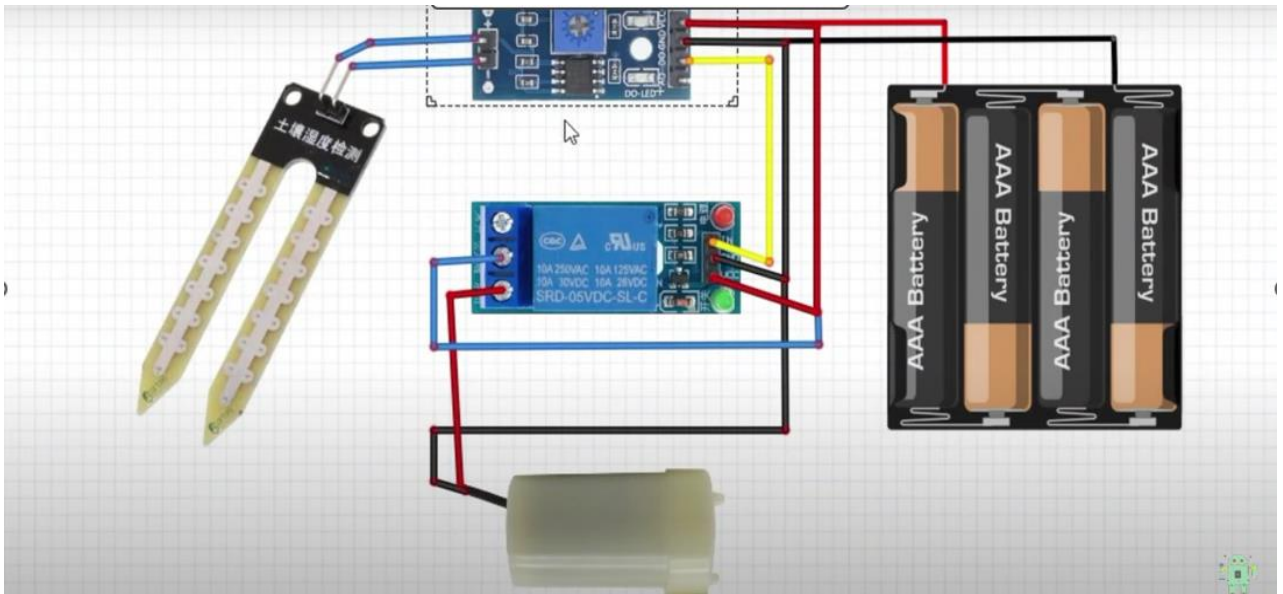
|               |   |  |                              |
|---------------|---|--|------------------------------|
| Academic Year | : | <b>2025 – 2026</b>   |                              |
| Date/Day      | : | <b>09.08.2025/ Saturday</b>                                  | <b>Year/Sem/Sec: III/V/A</b>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

### **INTRODUCTION:**

- This project was developed as part of the Engineering Clinic initiative.
- It aims to solve a real-world problem using basic electronics and automation.
- The system is an automatic plant watering solution based on soil moisture levels.
- A moisture sensor continuously monitors the soil's water content.
- When the soil is dry, a water pump is automatically triggered to irrigate the plant.
- Helps to conserve water and avoid over-watering.
- Minimizes manual effort in gardening or agriculture.
- Ensures better plant health through timely and need-based watering.

### **APPLICATIONS:**

- Home Gardens and Indoor Plants
- Greenhouses
- Agricultural Fields
- Vertical Farming & Hydroponics
- Public Parks & Lawns
- Research & Educational Projects
- Remote & Hard-to-Reach Plantations

**CIRCUIT DIAGRAM:****WORKING:**

- Moisture sensor is placed in the plant's soil to measure its water content.
- Sensor sends the moisture level as an electrical signal to the microcontroller.
- Microcontroller compares the measured value with a preset threshold.
- If moisture is below the threshold, the microcontroller sends a signal to activate the water pump via a relay.
- The pump supplies water to the soil through pipes or drippers.
- As the soil absorbs water, the sensor detects the increasing moisture level.
- Once the moisture level reaches the threshold, the microcontroller turns OFF the pump automatically.
- This process repeats continuously to keep soil moisture at the required level.

**SUMMARY:**

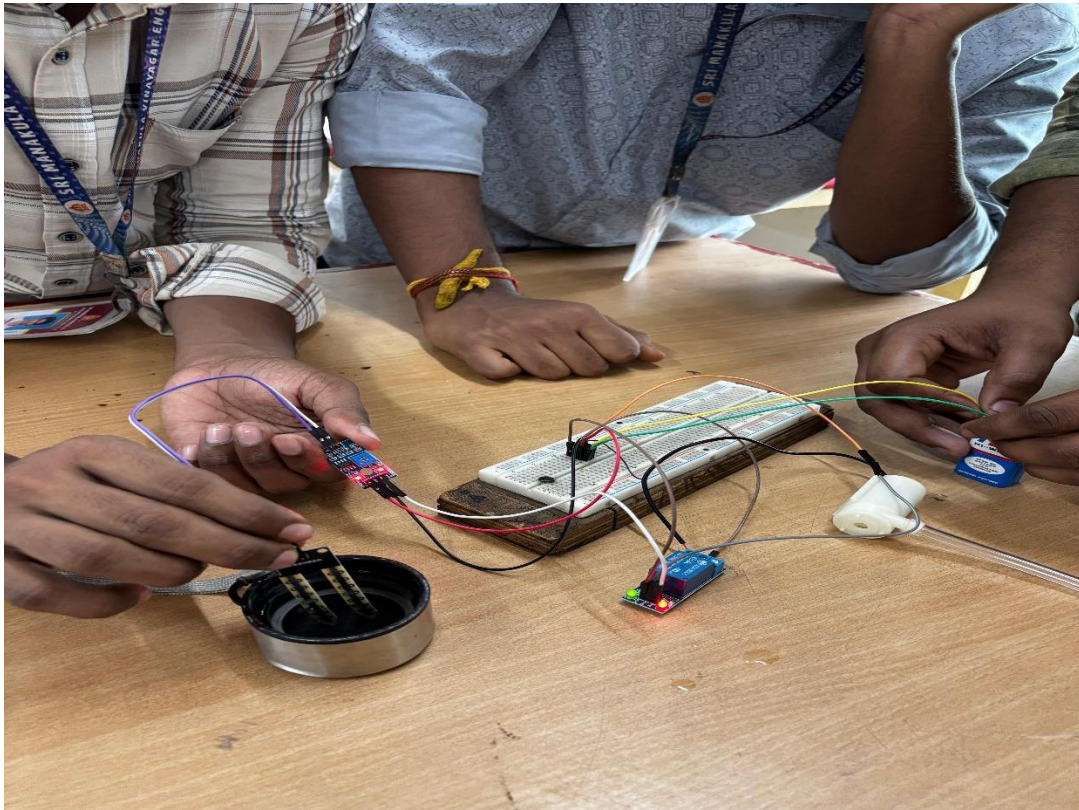
An Automatic Plant Watering System uses a moisture sensor to check soil dryness. If the soil is dry, a pump automatically waters the plant until the moisture reaches the required level, saving time and water.

**COMPONENTS REQUIRED FOR CIRCUIT:**

| <b><u>S.No:</u></b> | <b><u>Components</u></b>      | <b><u>Specification</u></b> | <b><u>Quantity</u></b> |
|---------------------|-------------------------------|-----------------------------|------------------------|
| 1                   | Soil Moisture Sensor          | -                           | 1                      |
| 2                   | Moisture Sensor Module        | -                           | 1                      |
| 3                   | Relay Module                  | 5V                          | 1                      |
| 4                   | Mini Submersible Water Pump   | 3V to 6V                    | 1                      |
| 5                   | Wires (Male-Female/Male-Male) | -                           | 1                      |
| 6                   | Zero PCB or Breadboard        | -                           | 1                      |
| 7                   | Battery                       | 9V                          | 1                      |
| 8                   | DC Motor                      | 12V                         | 1                      |
| 9                   | Connecting wires              | -                           | As required            |

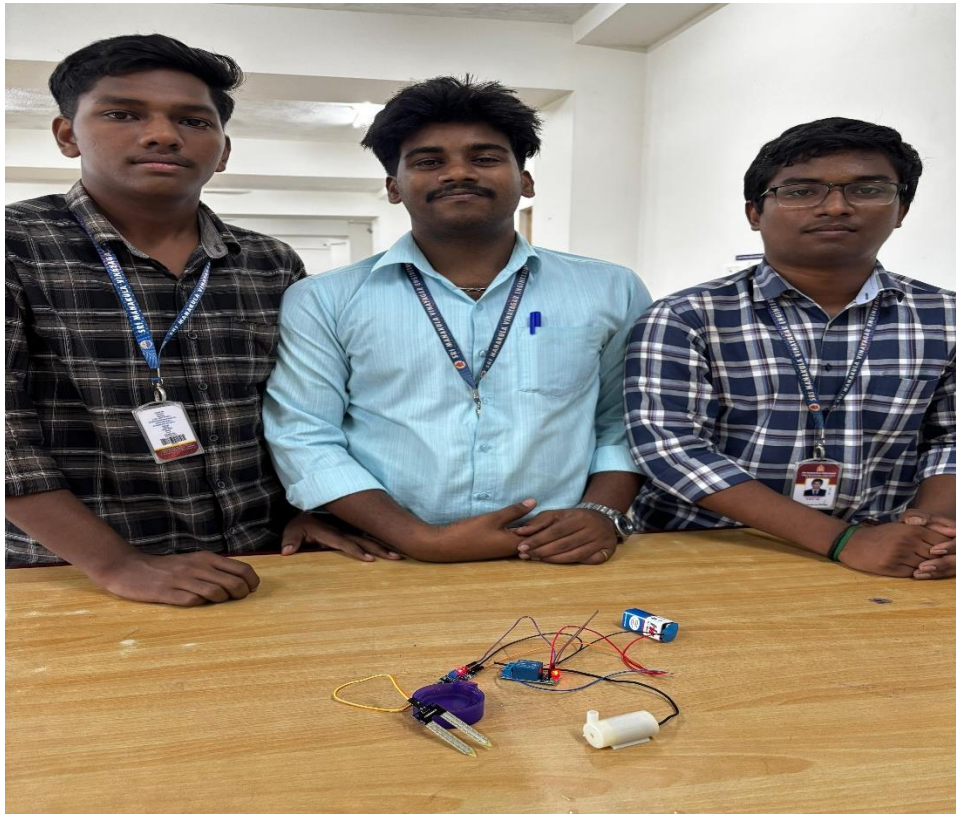


**Students of EEE Department, III-year, A section are performing the Construction of Automatic Plant Watering System using Moisture Sensor under the guidance of Mr.S.JOHNPOWL,AP/EEE and Mr.S.ELANTHAMIZH, AP/EEE**



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**



























