JAI SHRIRAM ENGINEERING COLLEGE

(An Autonomous Institution)

TIRUPPUR – 638 660

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

Recognized by UGC & Accredited by NAAC and NBA (CSE and ECE)

Department of Electrical and Electronics Engineering

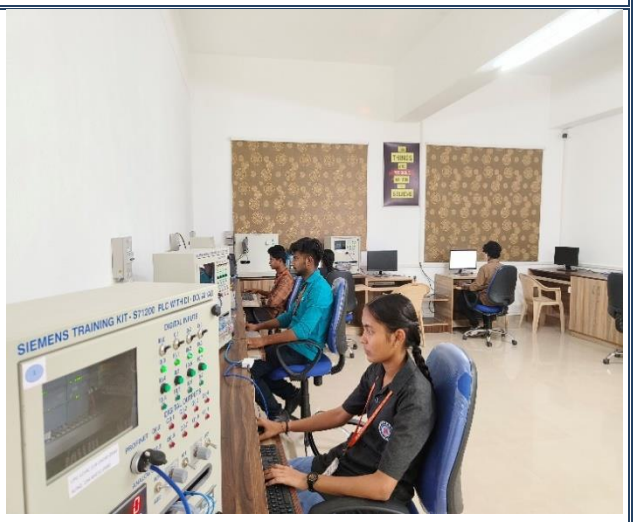
Centre of Excellence Siemens Tech Park

The Department of EEE has established Centre of Excellence Siemens Tech Park in association with Genn Automation, Coimbatore in the year 2025 by signing a MoU.

Objectives of Centre of Excellence Siemens Tech Park

- To provide students and faculty with hands-on training in Siemens industrial automation technologies, including PLC, HMI, SCADA, drives, and industrial communication systems.
- To bridge the gap between academic learning and industry requirements by offering practical exposure to Industry 4.0 concepts and automation solutions.
- To facilitate industry-oriented training, internships, certification programmes, and skill development activities to enhance student employability.
- To promote research, innovation, consultancy, and product development in collaboration with Siemens and industrial partners.
- To strengthen academia–industry interaction through workshops, faculty development programmes, live industrial projects, and technology transfer initiatives.

Inauguration of Centre of Excellence Siemens Tech Park



Training for Students in Centre of Excellence Siemens Tech Park

Two-Day Hands-on Workshop on PLC Automation – External Students

Two-Day Hands-on Training on Industrial Automation Using PLC – External Students

Model No:1	**AUTOMATION OF MULTI-COLOR WATER MIXING USING PLC FOR CUSTOM COLOR CREATION** 
PO & PSO	PO1, PO2,PO3, PO5, PO10, PO11,PSO1 & PSO2
SDG	SDG8 ,SDG9 and SDG12
Objective	• Design and implement a PLC-controlled automated color mixing system that can accurately mix three different colored water inputs in variable ratios to create new colors. • Develop a fully automated system that allows real-time adjustments to

	mixing ratios, enabling the creation of a wide range of color combinations for applications in dye manufacturing, paint formulation, or educational models.
Working Principle	• **Color Input and Storage:** The system consists of three separate water tanks, each containing a different color (e.g., red, blue, and yellow). Each tank is connected to a pump that draws water from the tank. • **PLC Control:** A Programmable Logic Controller (PLC) is used to control the pumps, regulating the amount of water drawn from each tank based on predefined or user-defined ratios. • **Mixing Process:** The colored water from each tank is transferred to a mixing tank, where a motor-driven mixer ensures homogeneous blending of the input colors. • **Ratio Control and Adjustment:** The PLC allows for real-time adjustments to the mixing ratios, enabling the creation of a wide range of color combinations. The system can be programmed to mix colors in specific proportions or adjusted on the fly. • **Output and Storage:** Once the mixing process is completed, the resulting new color is stored in a final output tank for observation, further use, or transfer to other processes.

Model No:2	**JUICE VENDING MACHINE** 
PO & PSO	PO1, PO2,PO3, PO5, PO10, PO11,PSO1 & PSO2

SDG	SDG8 ,SDG9 and SDG12
Objective	• To design and implement an automated beverage filling system using a Programmable Logic Controller (PLC) for efficient and precise operation. • To achieve accurate and consistent filling volumes by controlling HR2 24V solenoid valves. • To integrate a Human-Machine Interface (HMI) for easy monitoring, control, and parameter adjustments.
Working Principle	• Filling Operation: The PLC activates the HR2 24V solenoid valve corresponding to that bottle's nozzle. The solenoid valve opens for a predetermined time or until the required volume is reached, allowing the beverage to flow into the bottle. After the set time, the PLC deactivates the solenoid valve, stopping the flow. • HMI Control and Monitoring: The operator uses the HMI to monitor real-time parameters such as filling time, production count, and valve status.
Outcomes	• Efficient Automation • High Accuracy. • Improved Monitoring and Control • Enhanced Reliability • Scalability • Increased Productivity

Model No:3	**SORTING OF METALLIC AND NON METALLIC ITEMS** 
PO & PSO	PO1, PO2,PO3, PO5, PO10, PO11,PSO1 & PSO2
SDG	SDG8 & SDG9
Objective	• To develop an automated sorting system for separating metallic and non-metallic objects. • To use a PLC for controlling and coordinating the sorting operation. • To detect metallic objects using a metal detection/proximity sensor. • To reduce manual intervention in the material-sorting process. • To improve the speed, accuracy and reliability of sorting operations. • To demonstrate the application of industrial automation and PLC technology in material handling.
Working Principle	• The objects are placed on a conveyor belt. • The conveyor transports the objects towards the sensing area. • A metal detection sensor/proximity sensor detects whether the approaching object is metallic. • The sensor sends the detection signal to the PLC input. • The PLC processes the sensor signal according to the programmed logic. • If the object is metallic, the PLC activates the corresponding sorting Mechanism/actuator to direct it into the metallic collection bin. • If the object is non-metallic, the PLC keeps the appropriate actuator inactive or activates the non-metallic sorting mechanism, directing the object to the non-metallic collection bin.

	• The process continues automatically for each object passing through the conveyor.
Outcomes	• Demonstrate effective PLC-based industrial automation. • Reduce human effort and manual sorting. • Improve sorting speed and consistency. • Provide a simple and scalable solution for automated waste/material segregation. • Provide students with practical knowledge of PLC programming, sensors, actuators and conveyor-based automation.