A Report on Six-day Skill Development Training Program on "Embedded System"

Organized by Skill Development Cell

In Association with

Department of Electronics & Communication Engineering

from 12.05.2025 to 17.05.2025

Report Submitted by: Dr. V.B. Thurai Raaj, Assistant Professor in EEE & SPOC- APSSDC t-SDI.
Co-coordinator: Mr. S. Rizwan, Assistant Professor, Dept. of ECE; Mr. B. Subbarayudu, Assistant Professor, Dept. of ECE, MITS.
Resource person Details: Mr. Mahidhar Banka, Executive -Technical, APSSDC, Govt. of AP, Vijayawada.
Total Participants: 46 students and 2 faculty members from Dept. of EEE
Venue: Embedded Lab (EB:201)
Mode of Conduct: Offline
Report Received on 04.06.2025.

The APSSDC- Skill Development Cell, Madanapalle Institute of Technology and Science, Andhra Pradesh**,** Madanapalle, in association with the Department of Electronics and Communications Engineering, MITS, has organized a **six-day skill development program** on **"Embedded System"** from 12.05.2025 to 17.05.2025. In this program, 61 participants participated and made the event a great success.

A summary of the skill development program is as follows:

Dr. S. Rajasekaran, Professor & Head of the Dept., Dept. of Electronics & Communication Engineering, along with Dr. V. B. Thurai Raaj, Assistant Professor in EEE and SPOC – APSSDC t-SDI and Mr. S. Rizwan, Mr. B. Subbarayudu, Assistant Professors, Dept. of ECE, MITS, warmly welcomed the resource person. Dr. S. Rajasekaran delivered a brief introduction about the six-day skill development program and officially inaugurated the event with an inspiring speech. Following this, Dr. V. B. Thurai Raaj, Assistant Professor in EEE and SPOC – APSSDC t-SDI, formally introduced the resource person and handed over the session to him.

The **46** students from the third year and two faculty members from the Department of Electronics & Communication Engineering participated in this six-day hands-on training program.

Day-1(12.05.2025)

- **Morning session:** History and need of Embedded systems, Basic components of Embedded systems, Programming Language Classification of Embedded Systems.
- **Afternoon session:** Introduction of Embedded C: Introduction of Embedded C: Introduction to Embedded, Difference between C and Embedded, Programming style, Basic Structure of C program

Day-2(13.05.2025)

- **Morning session:** Control structures and loops, Decision making with if statement. If …else statement, Switch statement, GOTO statement, and FOR statement.
- **Afternoon session:** Introduction to software: software for ARM Cortex, Kiel Compiler for ARM 9,8051 microcontroller, Arduino series, Proteus for interfacing of Microcontroller and discrete components simulation.

Day-3(14.05.2025)

- **Morning session:** Interfacing of LEDs: Interfacing of LEDs, Interfacing circuit, Description of LEDs, Programming of LEDS Interfacing.
- **Afternoon session:** Interfacing of Seven Segment Display: Introduction to 7 Segment Display, Types of 7 Segment Display, Interfacing Circuit Description of 7 Segment Display, Programming of 7 Segment Display Interfacing.

Day-4(15.05.2025)

- **Morning session:** Interfacing to 16x2 LCD, commands of 16x2 LCD, interfacing circuit Description of 16x2 LCD, Programming of 16X2 LCD
- **Afternoon session:** Timers and counters programming: Introduction to Timers and counters, Difference between Timer and counter, Description of SFR associated with timers and counters, Programming of Timers and counters

Day-5(16.05.2025)

- **Morning session:** Interfacing of Motors: Introduction to motors, types of motors used in Embedded systems, Programming and controlling of motors in Embedded systems.
- **Afternoon session:** Interfacing of wireless modules, Interfacing Website, Zigbee interfacing website, Bluetooth interfacing website, wifi module interfacing.

Day-6(17.05.2025)
Morning session: Interfacing of ADC: introduction to ADC, programming of ADC.

Afternoon session: Sensor Interfacing: introduction to sensing devices, Interfacing of IR sensors, Interfacing of temperature SENSOR ADC.

The Chief Guest was felicitated by Dr Sathesh K, Associate Professor/ECE, along with the event Coordinator, Dr. V B Thurai Raaj, Asst. Prof./EEE, Co-Coordinators Mr. S. Rizwan & Mr. B. Subbarayudu. The session concluded with a vote of thanks proposed by Mr. B. Subbarayudu , Assistant Professor, ECE.

Outcomes: **Students can be able to**

1. Understanding the history, significance, and wide-ranging applications of embedded systems, along with familiarity with their basic components and their respective functions.
2. Gaining knowledge of various programming languages used in embedded systems, with a focus on Embedded C, including its differences from standard C and the use of basic programming structures.
3. Developing proficiency in control structures and loops such as if-else, switch, and for, enabling effective decision-making and control in embedded programming.
4. Introduction to essential software tools like ARM Cortex, Keil Compiler, and Proteus for microcontroller programming and simulation, along with hands-on experience in interfacing LEDs, 7-segment displays, and LCDs.
5. Acquiring practical skills in using timers and counters, interfacing motors, and integrating wireless modules such as Zigbee, Bluetooth, and Wi-Fi, as well as working with ADCs and sensors like IR and temperature sensors.

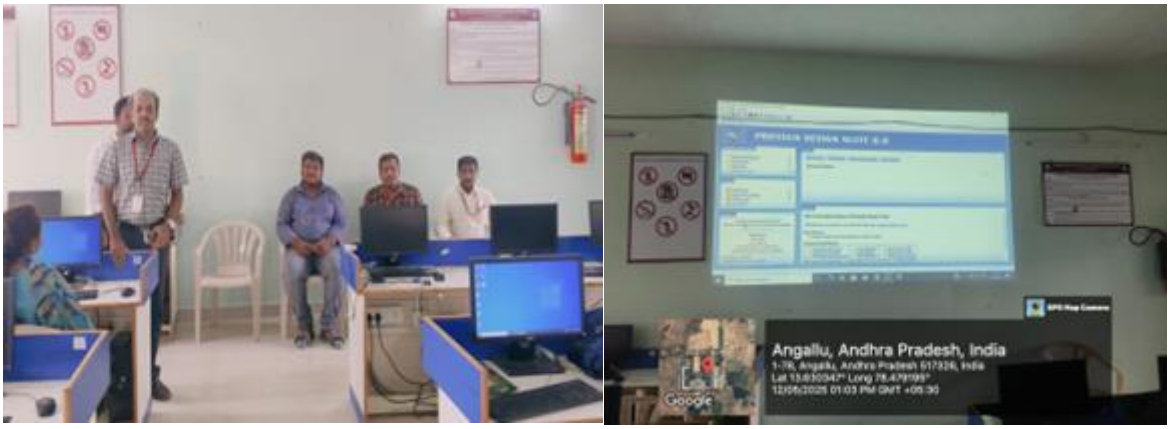

Photo Clips During and Training Sessions Inauguration

Photo Clips During Training Sessions

As the Event Coordinator, I would like to express my heartfelt gratitude to the **Management** and **Dr. C. Yuvaraj**, Principal, for granting permission and extending financial support to organize this program. My sincere thanks go to **Dr. C. Kamal Basha,** Professor/EEE & Vice Principal – Administration, for his timely assistance and unwavering support. I am deeply grateful to **Dr. S. Rajasekaran**, Professor & Head of the Department of Electronics and Communication Engineering (HoD/ECE), for his consistent guidance and encouragement throughout the planning and execution of this event. I also extend my appreciation to **Mr. S. Rizwan** & **Mr. B. Subbarayudu**, Assistant professors from the Department of ECE, for their dedicated coordination and valuable support in making this event a success Lastly, I take this opportunity to thank all the **faculty members of the ECE Department**, as well as the teaching and non-teaching staff and students, for their enthusiastic involvement, cooperation, and active participation.