A Report on Six-Day Skill Development Training Program

on

"EMBEDDED SYSTEMS"

Organized by

Skill Development Cell

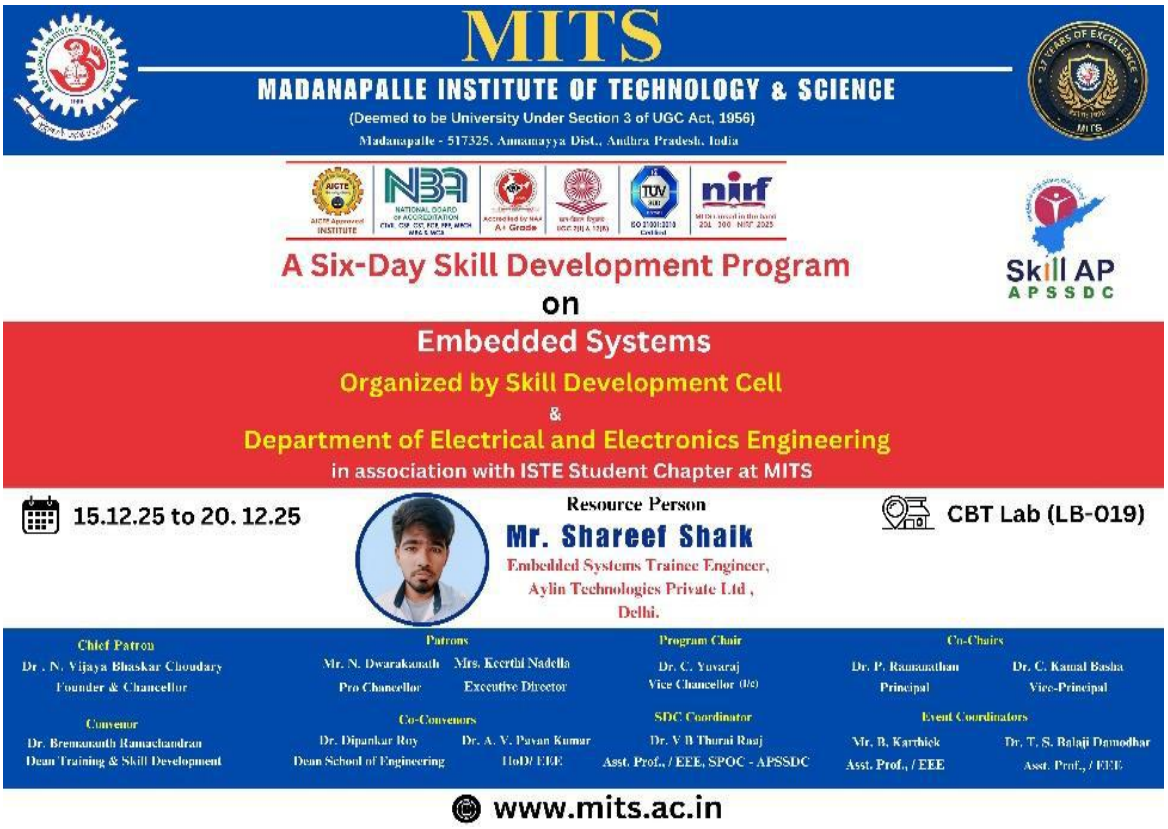
in

Association with

Department of Electrical and Electronics Engineering

From

15.12.2025 to 20.12.2025



Report Submitted by: Mr.B. Karthick, Assistant Professor/EEE.

Event Coordinator: Mr. B. Karthick & Dr.T.S. Balaji Damodhar, Assistant Professors/EEE.

Skill Development Cell Coordinator: Dr.V.B. Thurai Raaj, Assistant Professor/EEE, SPOC – APSSDC.

Resource Person Details: Mr. Shareef Shaik, Embedded Systems Trainee Engineer, Aylin Technologies Private Ltd, New Delhi.

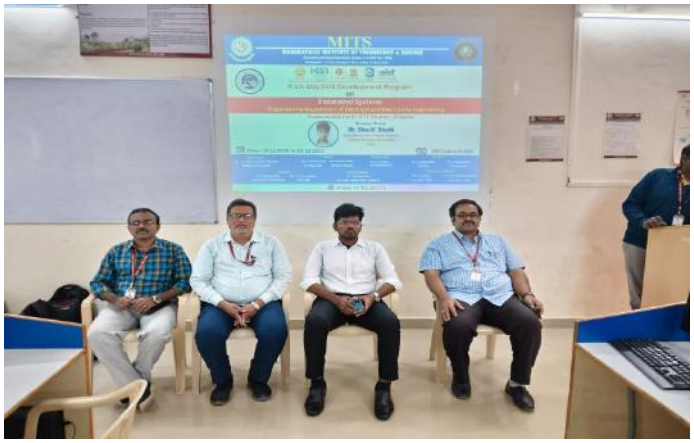
Date & Timing of Training: 15.12.2025 to 20.12.2025, FN (9.30AM – 12.30PM) & AN (1.30PM – 4.30PM)

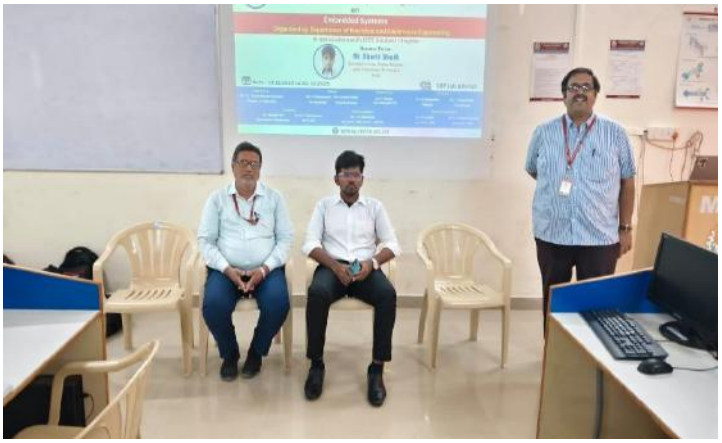
Total Participants: 68 students and 2 faculty members from the Dept. of **EEE**

Venue: Computer Based Training Laboratory (LB:019)

Mode of Conduct: Offline.

The Skill Development Cell, Madanapalle Institute of Technology and Science, Andhra Pradesh, Madanapalle, in association with the Department of Electrical and Electronics Engineering, MITS, has organized a Six-Day Skill Development Program on "EMBEDDED SYSTEMS" from 15.12.2025 to 20.12.2025. In this program, 68 participants participated and made the event a great success.





A summary of the skill development program is as follows:

Dr. A. V. Pavan Kumar, Professor and Head of the Department of Electrical and Electronics Engineering, along with the Co-coordinators **Dr. T.S. Balaji Damodhar** and **Mr. B. Karthick**, Assistant Professors in the Department of EEE, warmly welcomed the resource person. **Dr. A. V. Pavan Kumar** delivered a brief introduction to 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 **68** students from the third year and two faculty members from the Department of Electronics and Electrical Engineering participated in this Six-Day Hands-on Training Program.

Day-1(15.12.2025)

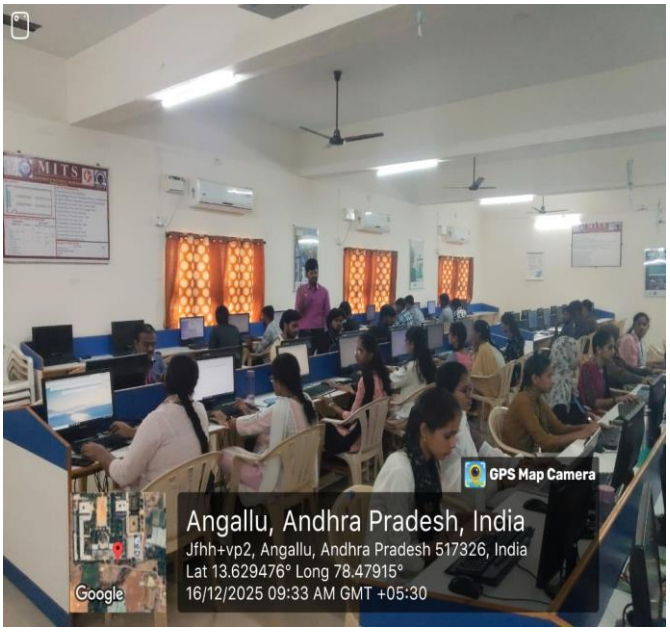
Morning session: History and need of Embedded systems, Basic components of Embedded systems, Programming Language Classification of Embedded Systems.

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(16.12.2025)

Morning session: Control structures and loops, Decision making with if statement. If …else statement, Switch statement, GOTO statement, and FOR statement.

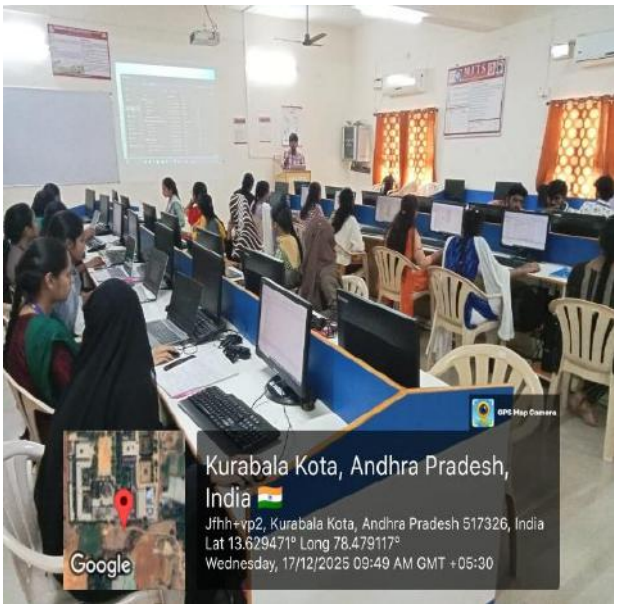
Afternoon session: Introduction to software: software for ARM Cortex, Kiel Compiler for ARM 9,8051 microcontroller, Arduino series, Proteus for interfacing of Microcontroller and discrete components simulation.

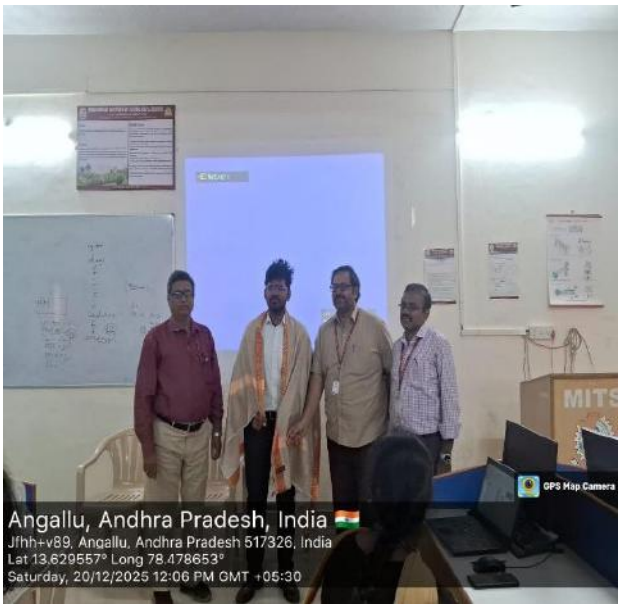


Day-3(17.12.2025)

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(18.12.2025)

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(19.12.2025)

Morning session: Interfacing of Motors: Introduction to motors, types of motors used in Embedded systems, Programming and controlling of motors in Embedded systems.

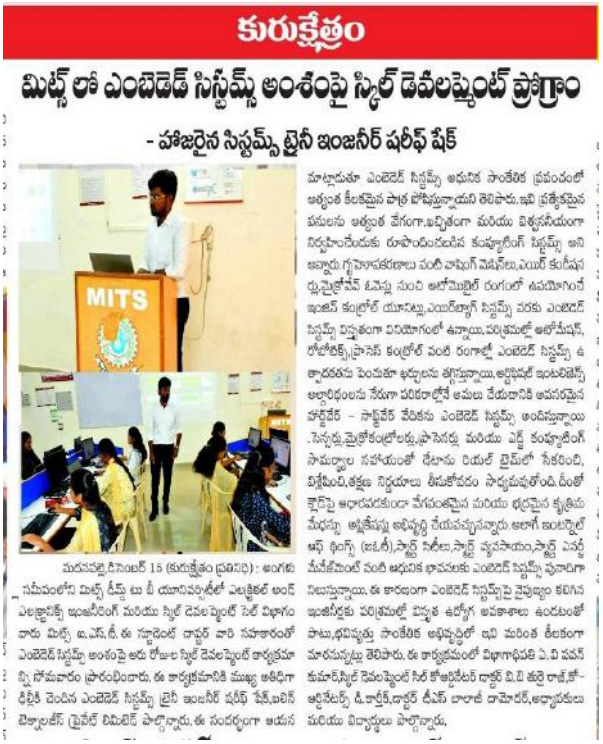
Afternoon session: Interfacing of wireless modules, Interfacing Website, Zigbee interfacing website, Bluetooth interfacing website, Wi-Fi module interfacing.

Day-6(20.12.2025)

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.

Media



కురుక్షేత్రం

మిట్స్ లో ఎంబెడెడ్ సిస్టమ్స్ అంశంపై స్కిల్ డెవలప్మెంట్ ప్రోగ్రాం

- హాజరైన సిస్టమ్స్ ట్రైనీ ఇంజనీర్ షరీఫ్ షేక్

మదనపల్లి,డిసెంబర్ 15 (కురుక్షేత్రం ప్రతినిధి): అంగగు సమీపంలోని మిట్స్ డీమ్డ్ టు బీ యూనివర్సిటీలో ఎలక్ట్రికల్ అండ్ ఎలక్ట్రానిక్స్ ఇంజనీరింగ్ మరియు స్కిల్ డెవలప్మెంట్ సెల్ విభాగం వారు మిట్స్ ఐ.ఎస్.టీ.ఈ స్టూడెంట్ చాప్టర్ వారి సహకారంతో ఎంబెడెడ్ సిస్టమ్స్ అంశంపై ఆరు రోజుల స్కిల్ డెవలప్మెంట్ కార్యక్రమాన్ని సోమవారం ప్రారంభించారు. ఈ కార్యక్రమానికి ముఖ్య అతిథిగా ఛత్తీస్‌గఢ్ కు చెందిన ఎంబెడెడ్ సిస్టమ్స్ ట్రైనీ ఇంజనీర్ షరీఫ్ షేక్,ఐసిస్ టెక్నాలజీస్ (ప్రైవేట్ లిమిటెడ్ పాల్గొన్నారు. ఈ సందర్భంగా ఆయన మాట్లాడుతూ ఎంబెడెడ్ సిస్టమ్స్ ఆధునిక సాంకేతిక ప్రపంచంలో అత్యంత కీలకమైన పాత్ర పోషిస్తున్నాయని తెలిపారు. ఇవి ప్రత్యేకమైన పనులను అత్యంత వేగంగా,కచ్చితంగా మరియు విశ్వసనీయంగా నిర్వహించేందుకు రూపొందించబడిన కంప్యూటింగ్ సిస్టమ్స్ అని అన్నారు. గృహోపకరణాలు మరియు వాషింగ్ మెషీన్‌లు,ఎయిర్ కండీషనర్లు,మైక్రోవేవ్ ఓవెన్ల నుంచి ఆటోమొబైల్ రంగంలో ఉపయోగించే ఇంజన్ కంట్రోల్ యూనిట్లు,ఎయిర్‌బ్యాగ్ సిస్టమ్స్ వరకు ఎంబెడెడ్ సిస్టమ్స్ విస్తృతంగా వినియోగంలో ఉన్నాయి. పరిశ్రమల్లో ఆటోమేషన్, రోబోటిక్స్,ప్రాసెస్ కంట్రోల్ వంటి రంగాల్లో ఎంబెడెడ్ సిస్టమ్స్ ఉత్పాదకతను పెంచుతూ ఖర్చులను తగ్గిస్తున్నాయి. అధునిక ఇంటలిజెన్స్ అల్గారిథంను నేరుగా పరికరాల్లోనే అమలు చేయడానికి అవసరమైన హార్డ్‌వేర్ - సాఫ్ట్‌వేర్ వేదికను ఎంబెడెడ్ సిస్టమ్స్ అందిస్తున్నాయి. సెన్సర్లు,మైక్రోకంట్రోలర్లు,ఫ్రాసెసర్లు మరియు ఎడ్జ్ కంప్యూటింగ్ సామర్థ్యాల సహాయంతో డేటాను రియల్ టైమ్‌లో సేకరించి, విశ్లేషించి,కక్షణ నిర్ణయాలు తీసుకోవడం సాధ్యమవుతుంది. దీంతో క్లౌడ్‌పై ఆధారపడకుండా వేగవంతమైన మరియు భద్రమైన కృత్రిమ మేధస్సు అప్లికేషన్లు అభివృద్ధి చేయవచ్చున్నారు. అలాగే ఇంటర్నెట్ ఆఫ్ థింగ్స్ (ఐ.ఓ.టీ),స్మార్ట్ సిటీలు,స్మార్ట్ వ్యవసాయం,స్మార్ట్ ఎనర్జీ మేనేజ్‌మెంట్ వంటి ఆధునిక రంగాలకు ఎంబెడెడ్ సిస్టమ్స్ పునాదిగా నిలుస్తున్నాయి. ఈ కారణంగా ఎంబెడెడ్ సిస్టమ్స్‌పై నైపుణ్యం కలిగిన ఇంజనీర్లకు పరిశ్రమల్లో విస్తృత ఉద్యోగ అవకాశాలు ఉంటాయని పాటు,భవిష్యత్తు సాంకేతిక అభివృద్ధిలో ఇవి మరింత కీలకంగా మారనున్నట్లు తెలిపారు. ఈ కార్యక్రమంలో విభాగాధిపతి ఏ.వి పవన్ కుమార్,స్కిల్ డెవలప్మెంట్ సెల్ కోఆర్డినేటర్ డాక్టర్ వి.వి తురై రాజ్,కో-ఆర్డినేటర్స్ డి.కార్తీక్,డాక్టర్ టీఎస్ బాలాజీ దామోదర్,అధ్యాపకులు మరియు విద్యార్థులు పాల్గొన్నారు.

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Six-day skill development program on Embedded Systems organized for MITS students

Madanapalle, December 15(Skyline daily): At MITS Deemed to be University near Madanapalle, the Department of Electrical and Electronics Engineering and the Skill Development Cell, in collaboration with the MITS ISTE Student Chapter, launched a six-day skill development program on Embedded Systems. The chief guest for the program was Sharif Shaik, an Embedded Systems Trainee Engineer from Ailin Technologies Private Limited, Delhi. Speaking at the event, he stated that embedded systems play a crucial role in the modern technological world. He said that these are computing systems designed to perform specific tasks quickly, accurately, and reliably. He added that embedded systems are widely used in various applications, from household appliances such as washing machines, air conditioners, and microwave ovens to engine control units and airbag systems used in the automotive industry. He further mentioned that in industries, embedded systems are increasing productivity and reducing costs in areas such as automation, robotics, and process control. He stated that embedded systems provide the necessary hardware-software platform to directly implement artificial intelligence algorithms on devices, and that with the help of sensors, microcontrollers, processors, and edge computing capabilities, it is possible to collect and analyze data in real-time and make immediate decisions. This allows for the development of faster and more secure artificial intelligence applications without relying on the cloud. He added that due to this, engineers with expertise in embedded systems have extensive job opportunities in the industry, and these systems will become even more crucial in future technological advancements. The event was attended by the Head of the Department, AV Pavan Kumar, Skill Development Cell Coordinator Dr VB Thurai Raj, Co-coordinators D Karthik and Dr TS Balaji Damodhar, faculty members, and students.

Overall Outcomes: -

1. 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.
2. Developing proficiency in control structures and loops such as if-else, switch, and for, enabling effective decision-making and control in embedded programming.
3. 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.
4. 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.

Program Outcomes (PO) and Mapping

Activity Aspect	Related PO
Understanding strong foundational and applied knowledge of embedded systems, microcontrollers, programming and interfacing techniques.	**PO1 – Engineering Knowledge**
Analysis of interfacing problems, debugging Embedded C programs, and understanding hardware–software interactions.	**PO2 – Problem Analysis**
Hands-on design and development of embedded applications using LEDs, LCDs, motors, sensors, ADCs, and wireless modules.	**PO3 – Design/Development of solutions**
Extensive use of modern tools such as ARM Cortex platforms, Keil Compiler, Arduino, and Proteus simulation software.	**PO5 – Modern Tool Usage**
Discussion on continuous learning in embedded systems, IoT, and advanced electronics technologies.	**PO12 – Life-Long Learning**

Sustainable Development Goal (SDG) and Mapping

Focus Area	Related SDG	SDG Badge
Enhancing the technical knowledge and hands-on skills in embedded systems.	**Quality Education**	**SDG 4**
Improving the employability through industry-oriented embedded skills.	**Decent Work and Economic Growth**	**SDG 8**
Promoting the innovation using embedded systems and automation technologies.	**Industry, Innovation and Infrastructure**	**SDG 9**
Strengthening the academic–industry collaboration.	**Partnerships for the Goals**	**SDG 17**

Acknowledgement:

As Event coordinators, we expressed our gratitude to the **Management,** Vice Chancellor, **Dr. C. Yuvaraj**, and Registrar**, Dr. D. Pradeep Kumar** of MITS Deemed to be University, for their ongoing support.

We thank **Dr. P. Ramanathan**, Principal, for granting permission and providing financial support to organize this program. We appreciate **Dr. C. Kamal Basha**, Professor and Vice Principal of Administration, for offering necessary support promptly.

We are grateful to **Dr. A. V. Pavan Kumar**, Professor & Head of the Department of Electrical and Electronics Engineering, for providing us with this excellent opportunity and constant encouragement to successfully coordinate this program.

Additionally, we sincerely appreciate **Mr. Shareef Shaik**, the resource person for this training and the entire SDC team for their support.

Coordinator
(B. Karthick)

HOD-EEE
(Dr. A V Pavan Kumar)