

## Report

on

### Two -Day Workshop: Embedded System Applications

| Date Organized           | Title of Program               | Name of Resource Person                                                  | Participants                                          |
|--------------------------|--------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------|
| 28/08/2023 to 29/08/2023 | "Embedded System Applications" | Ms. Santhoshi Buddhiraju, Autocracy Machinery Private Limited, Hyderabad | B. Tech. ECE IV (53 Students) and ECE faculty members |



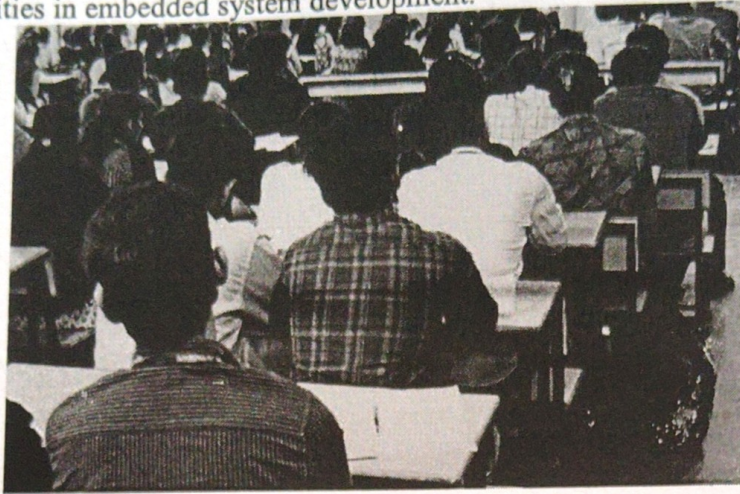
### Purpose of the Program

The workshop was organized to introduce students to embedded systems and their applications in modern electronic products. It aimed to provide practical exposure to microcontrollers, embedded programming, peripheral interfacing, communication protocols, and real-time embedded applications used in industrial automation and consumer electronics.

### Day-wise Report

**Day 1:** The sessions introduced embedded system architecture, microcontrollers, embedded C programming, GPIO programming, LCD interfacing, sensor integration, and peripheral communication. Students observed hardware demonstrations and practiced basic embedded programming concepts.

**Day 2:** The workshop covered communication protocols such as UART, SPI, and I<sup>2</sup>C, interrupt handling, embedded debugging techniques, industrial automation systems, and IoT-based embedded applications. The resource person also discussed current industry trends and career opportunities in embedded system development.

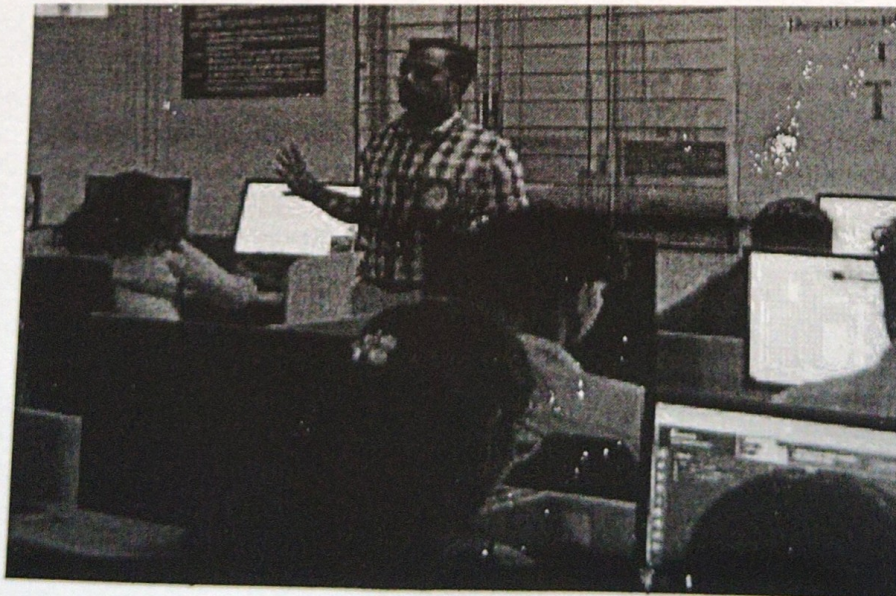


### **Program Highlights**

Students experienced practical demonstrations of embedded hardware, microcontroller programming, communication protocols, and industrial automation systems. Interactive technical discussions and real-world case studies helped bridge the gap between academic concepts and industrial practices.

### **Outcome of the Program**

The workshop improved students' understanding of embedded system architecture, programming techniques, hardware interfacing, and industrial communication protocols. Participants gained practical skills that enhanced their confidence in developing embedded applications and prepared them for careers in embedded systems, IoT, and automation.



## PO-PSO-SDG Mapping

| Program Outcomes (POs)                  | Program Specific Outcomes (PSOs)                        | Sustainable Development Goals (SDGs)          |
|-----------------------------------------|---------------------------------------------------------|-----------------------------------------------|
| PO1 – Engineering Knowledge             | PSO1 – Apply Embedded System Design Principles          | SDG 4 – Quality Education                     |
| PO2 – Problem Analysis                  | PSO2 – Develop Embedded Hardware and Software Solutions | SDG 8 – Decent Work & Economic Growth         |
| PO3 – Design & Development of Solutions |                                                         | SDG 9 – Industry, Innovation & Infrastructure |
| PO5 – Modern Tool Usage                 |                                                         |                                               |
| PO9 – Individual & Team Work            |                                                         |                                               |
| PO12 – Life-long Learning               |                                                         |                                               |

## Outcome Analysis

| Assessment Parameter  | Analysis                                                            |
|-----------------------|---------------------------------------------------------------------|
| Student Participation | Excellent attendance and active involvement                         |
| Knowledge Gain        | Significant improvement in embedded programming concepts            |
| Practical Skills      | Enhanced through hardware demonstrations and programming activities |
| Student Feedback      | Positive feedback with appreciation for practical sessions          |
| Overall Effectiveness | Workshop objectives were successfully achieved                      |

## Overall Impact

The workshop strengthened students' understanding of embedded system design and applications by combining theoretical knowledge with practical implementation. It improved their technical competency, programming skills, and awareness of industrial practices, thereby enhancing their employability in embedded systems, IoT, and automation domains.

  
HoD

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