



**RAMCO INSTITUTE OF TECHNOLOGY**

Approved by AICTE, New Delhi & Affiliated to Anna University

NAAC Accredited with 'A+' Grade & An ISO 9001: 2015 Certified Institution

NBA Accredited UG Programs: CSE, EEE, ECE and MECH

**DEPARTMENT OF  
ELECTRONICS AND COMMUNICATION  
ENGINEERING**

**VALUE ADDED COURSE  
ON  
Microprocessors and Its Interfacing**

**12.02.2025 to 16.02.2025**

**Resource Persons**

**Coordinator:**

Dr.A.Azhagu Jaisudhan Pazhani (AAJ), Associate Professor/ECE

**Faculty Members:**

Mr.B.Kannan (BK), Assistant Professor (S.G.)/Ramco Institute of Technology

Mr.P.Gunasekaran (PG), Assistant Professor/Ramco Institute of Technology

Mr.G.Sivakumar (GSK), Assistant Professor/Ramco Institute of Technology

Mrs.G.Subhashini (GS), Assistant Professor/Ramco Institute of Technology



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## DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING VALUE ADDED COURSE DETAILS

**Title of the Course:** Microprocessors and Its Interfacing

**Year/Branch/Semester:** III/ ECE A & B Section/VI

**Course Handling Faculty:**

**Coordinator:**

1. Dr.A.Azhagu Jaisudhan Pazhani (AAJ), Associate Professor/ECE

**Faculty Members:**

1. Mr.B.Kannan (BK), Assistant Professor(S.G.)/Ramco Institute of Technology
2. Mr.P.Gunasekaran (PG), Assistant Professor/Ramco Institute of Technology
3. Mr.G.Sivakumar (GSK), Assistant Professor/Ramco Institute of Technology
4. Mrs.G.Subhashini (GS), Assistant Professor/Ramco Institute of Technology

### **Introduction**

The Department of Electronics and Communication Engineering organized a five-day Value-Added Course (VAC) on Microprocessors and Embedded Systems from 12th February 2025 to 16th February 2025. The course was designed to provide both theoretical knowledge and practical exposure to students, focusing on the architecture, programming, and interfacing techniques of the 8085 and 8086 microprocessors along with an introduction to modern embedded platforms like NodeMCU.

### **Course Objectives**

- To introduce students to the fundamental concepts of microprocessors and embedded systems.
- To provide hands-on experience with 8085 and 8086 microprocessor programming.
- To understand peripheral interfacing using various programmable devices.
- To introduce students to IoT applications using NodeMCU.
- To enable students to design and demonstrate a basic embedded project.

### **Day-wise Report**

#### **Day 1 – 12.02.2025**

**Venue:** ECE Seminar Hall & Embedded Lab

**Theory Sessions:**

- Introduction to Microprocessor
- PIN Diagram and Architecture of 8085
- 8085 Buses, Status Signals, Power Supply, Clock Frequency Signals
- Externally Initiated Signals, Interrupts & Serial I/O Signals
- Addressing Modes and Instruction Set
- Instruction Timing Diagram and Machine Cycle

**Practical Session:**

- Programming the 8085 for Arithmetic, Logical, Sorting, and Searching operations.

## Day 2 – 13.02.2025

**Venue:** ECE Seminar Hall & Embedded Lab

Resource Persons: AAJ & BK

**Theory Sessions:**

- PIN Diagram and Architecture of 8086
- General Purpose Registers, Segment Registers & Flag Registers
- Introduction to 8086 Instruction Set

**Practical Session:**

- Programming the 8086 for Arithmetic, Logical, Sorting, and Searching operations.

## Day 3 – 14.02.2025

**Venue:** ECE Seminar Hall & Embedded Lab

Resource Persons: AAJ, BK & GSK

**Theory Sessions:**

- Addressing Modes and Instruction Set of 8086
- Hardware and Software Interrupts in 8086
- Programmable Peripheral Interface (8255)
- ADC0808 and DAC0808 Interface

**Practical Session:**

- Interfacing ADC and DAC with the 8086 microprocessor.

## Day 4 – 15.02.2025

**Venue:** ECE Seminar Hall & Embedded Lab

Resource Persons: AAJ, BK, GS & GSK

**Theory Sessions:**

- Keyboard Display Controller (8279)
- Programmable Timer Controller (8254)
- Programmable Interrupt Controller (8259)
- Serial Communication Interface (8251)

**Practical Sessions:**

- Interfacing keyboard, display, and traffic light controller with 8086.
- Interfacing stepper motor with 8086 microprocessor.

## Day 5 – 16.02.2025

**Venue:** ECE Seminar Hall & Embedded Lab

Resource Persons: PG, BK, GSK & GS

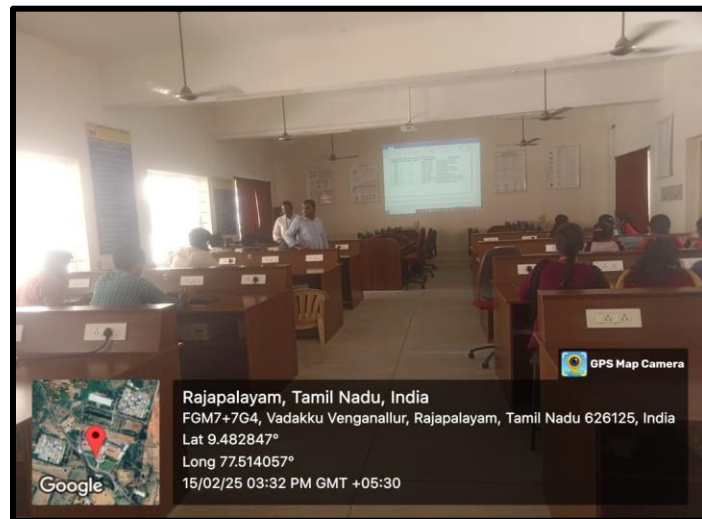
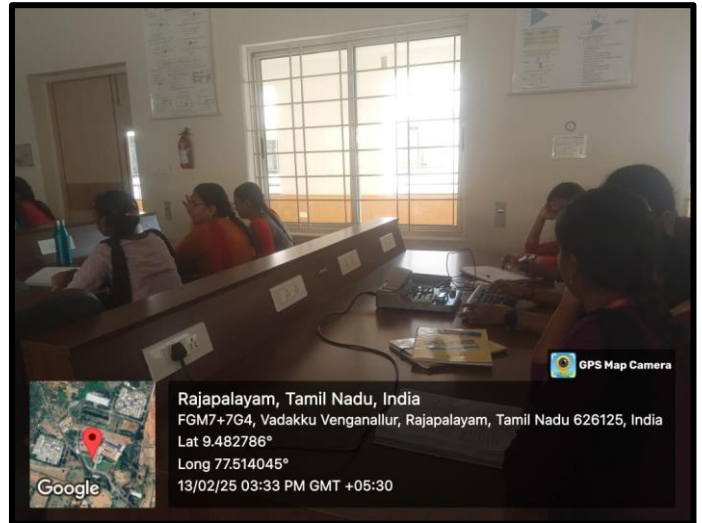
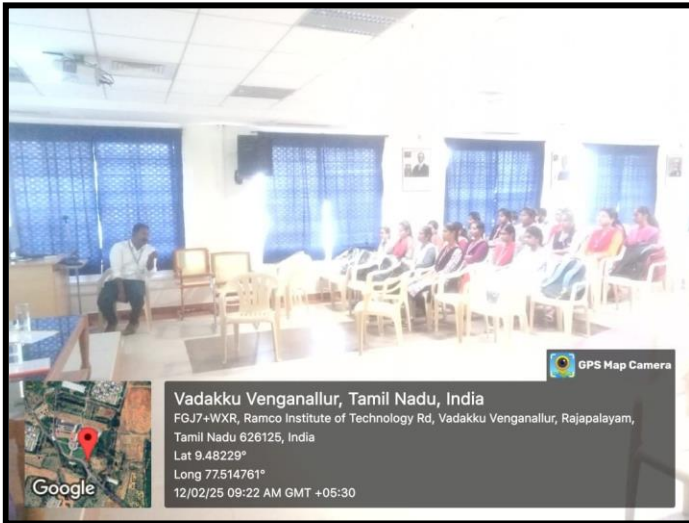
**Theory Session:**

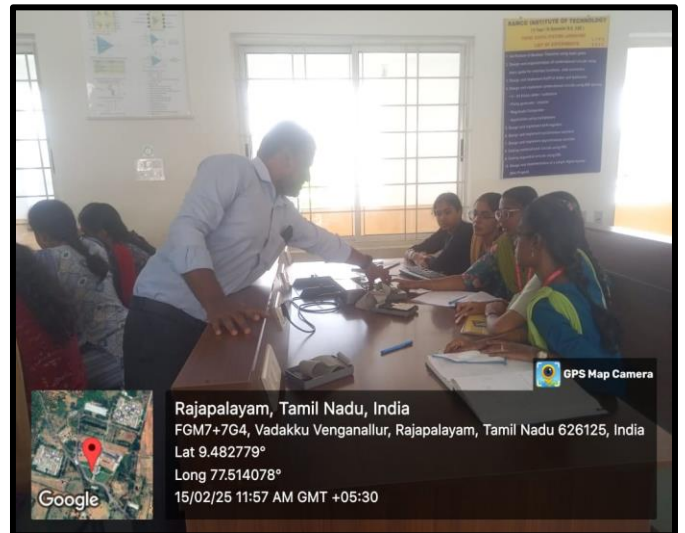
- Introduction to NodeMCU and its Applications in IoT.

**Practical Session:**

- Mini-Project development using microprocessors and interfacing modules.
- Final demonstration and evaluation of mini-projects.

# Gallery





### **Conclusion**

- ❖ The value-added course offered students a blend of conceptual clarity and hands-on practice, strengthening their foundation in microprocessor architecture, instruction sets, and interfacing techniques.
- ❖ Through practical sessions and mini-projects, students applied their learning to real-time applications, culminating in the development of basic embedded systems.
- ❖ The successful completion of the course has enhanced students' readiness for both academic and industry-based embedded system projects.

### **Acknowledgment**

- ❖ We sincerely thank the Principal, Vice-Principal, HoD/ECE, the VAC Coordinator, and the dedicated faculty members who contributed as resource persons and lab instructors.
- ❖ Special thanks to the Evaluation Team, which included the Head of the Department and senior faculty members, for assessing the student projects and providing valuable feedback.