SNS COLLEGE OF TECHNOLOGY
An Autonomous Institution
Coimbatore-35

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ITT204 - MICROCONTROLLER AND EMBEDDED SYSTEMS

II YEAR/ IV SEMESTER

UNIT I ARCHITECTURE OF 8086 MICROPROCESSOR

TOPIC – SYALLABUS

OUTLINE

19ITT204	MICROCONTROLLER AND EMBEDDED SYSTEMS	L	T	P	J	C
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UNIT I   ARCHITECTURE OF 8086 MICROPROCESSOR   9

Microprocessor Instruction set and Computer Languages- Large Computer to single chip Microcontroller-Intel 8086 Internal Architecture-8086 Addressing Modes-Instruction Set-Assembler Directives-8086 Assembly Language Programming-Interrupts

UNIT II   PERIPHERAL INTERFACING   9

Interfacing Requirements - Memory Mapped I/O- I/O Mapped I/O-8255 PPI -8279 Keyboard and Display Controller-8257 DMA Controller-8251 USART- 8259 interrupt Controller -Serial I/O Standards RS232C

UNIT III   EMBEDDED SYSTEM CONCEPTS AND PROCESSORS   9

Introduction to Embedded Systems-Typical Embedded Systems-Characteristics and Quality Attributes of Embedded Systems-Embedded Processors: 8051 Microcontroller -Functional Block Diagram - Instruction Format and Addressing Modes-Timer-I/O Ports-Serial Communication-Interfacing-Keyboard, LCD, ADC & DAC-ARM Processor-Architecture, Instruction Set and Programming.

UNIT IV   PROCESSES AND OPERATING SYSTEMS   9

Operating System Basics-Types of Operating Systems-Task, Process and Threads-Multiprocessing and Multitasking-Task Scheduling-Task Communication- How to Choose an RTOS?

UNIT V   EMBEDDED SYSTEM DEVELOPMENT   9

Design Issues and Techniques-Security Issues in Embedded Systems-Case Studies: Intruder Alarm System-Automatic Chocolate Vending Machine-Washing Machine-Elevator Controller.

                                        L :45   T: 0   P: 0   J: 0   Total: 45 PERIODS

TEXT BOOKS

L :45   T: 0   P: 0   J: 0   Total: 45 PERIODS

TEXT BOOKS

1 Ramesh S. Gaonkar, "Microprocessor – Architecture, Programming and Applications with the 8085", Penram International Publisher, 7th Ed., 2016.

2 Shibu K V, "Introduction to Embedded Systems", Tata McGraw Hill Education, Private Limited, 5nd Edition, 2014.

REFERENCES

1 Michael J. Pont, "Embedded C", Pearson Education, 2007.

2 The Insider's Guide to the ARM7 Based Microcontrollers, Hitex Ltd., 1st edition, 2005.

3 Steve Furber, ARM System-on-Chip Architecture, Second Edition, Pearson, 2015.

4 Raj Kamal, Embedded System, Tata McGraw-Hill Publishers, 2nd Edition, 2008.

5 Arnold S Berger, "Embedded system design: An introduction to processors, Tools, Techniques", 4th edition, CMP Books, 4th Edition, 2017.
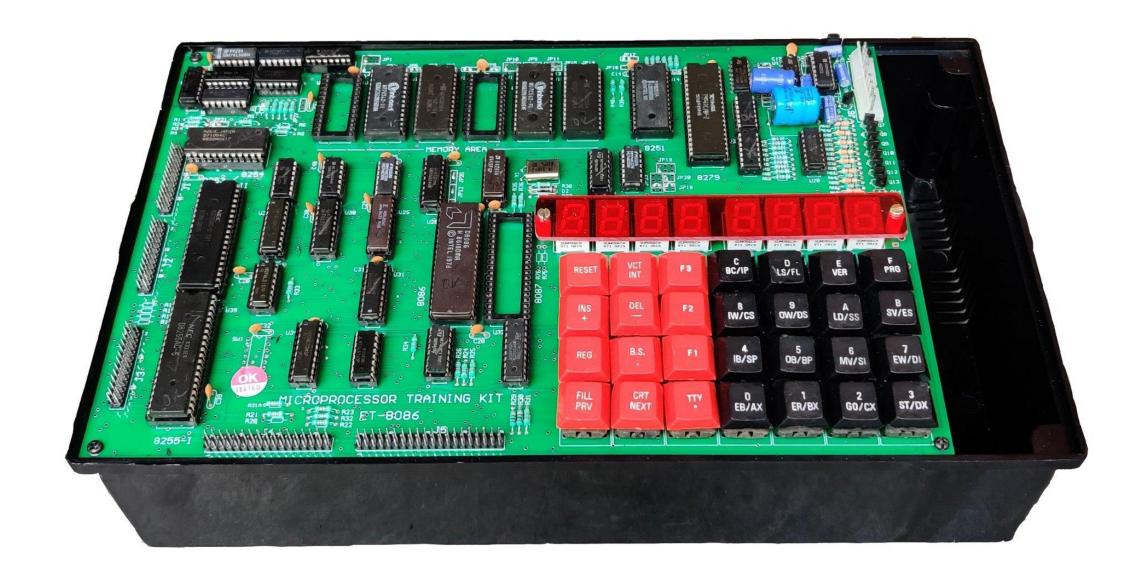
COURSE OUTCOMES

At the end of the course student should be able to:

CO1 Implement programs on 8086, ARM processors

CO2 Illustrate how the different peripherals (8255, 8253 etc.) are interfaced with   Microprocessor.

CO3 Design and implement 8051 microcontroller based systems

CO4 Interpret the basic hardware components, Operating system and their selection method based on the characteristics and attributes

CO5 Apply the knowledge in various embedded system applications

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THANK YOU

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