



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 – SYLLABUS



OUTLINE



19ITT204	MICROCONTROLLER AND EMBEDDED SYSTEMS	L	T	P	J	C
		3	0	0	0	3
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



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, 5th Edition, 2014.

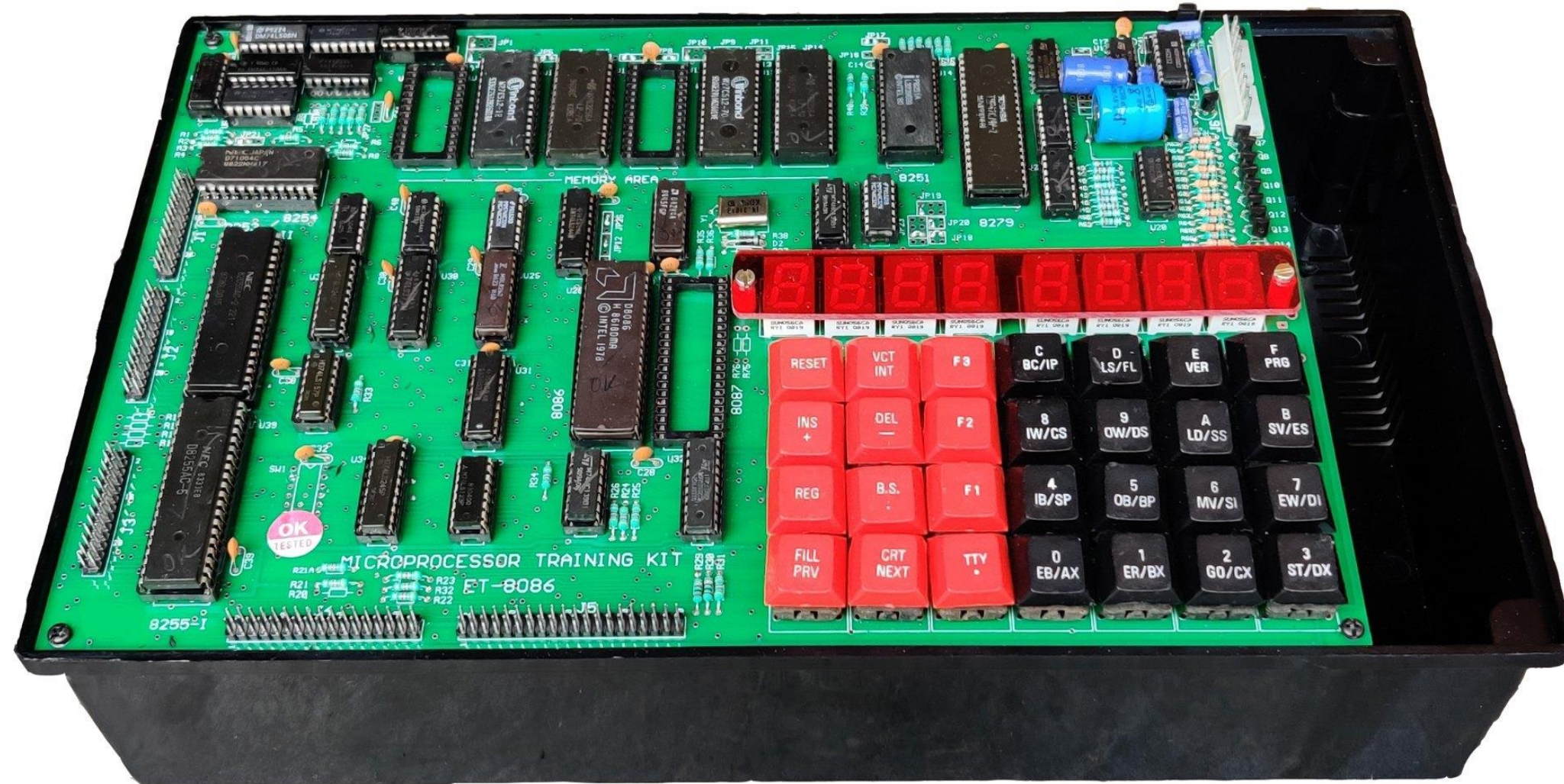
REFERENCES

- 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







THANK YOU