



Paper Code : MAP:501
Paper Name : Microprocessor Architecture & Programming

Teaching Hours (Per Week)		Examination Scheme		
TH. (hours)	Pr. (hours)	Internal	External	Total
		Th. (marks)	Th. (marks)	100 (marks)
4		30	70	

Lectures = 68 hours

Objective: The Microprocessor is a general –purpose programmable logic device. A thorough understanding of the microprocessor demands concepts and skills from two different disciplines: hardware concepts from electronics and programming skills from computer science. Microprocessor is an exciting, challenging and growing field. It will pervade industry for decades to come. To meet the challenges of this growing technology, you will have to conversant with the programmable aspect of the microprocessor. Programming is the process of problem solving and communication in the language of mnemonics. At the end of the course the students are expected to know how to analyze, specify, and design the assembly language programming. To achieve this objective the students have to develop a semester-long project consisting of specifying, designing, and programming an assembly language program solution to a real life problem.

Detailed Syllabus

UNIT I

8085 Microprocessor Architecture & Microcomputer System: 10 Hrs.

Evolution of Microprocessor, Microprocessor Architecture and its operations, Memory, Buses, Input/Output devices, ALU, Timing and Control Unit, registers, Pin Configuration, Instruction Cycle, Timing Diagram.

UNIT II

Introduction Set of Intel 8085 microprocessor: 18 Hrs.

Instructions Classification, Instruction and Data Formats, Addressing Modes, Opcode and Operands, Instruction Word Size, Static and Dynamic Debugging.

UNIT III:

Introduction to 8085 Instructions: 15 hrs

Counters and Time delays, Stack, subroutine, Restart, Conditional Call and Return Instructions, Advanced subroutine concepts.

UNIT IV

Assembly Language Programming: 15 Hrs.

Assembly Language, High-Level Language, Low- Level Language, Machine Language.



Operations, Arithmetic Operations related to Memory, Logic Operations, and Branch.
BCD to Binary and Binary to BCD Conversion, BCD Addition, BCD Subtraction, Multiplication.

UNIT V

Intel 8086

Microprocessor:

10 Hrs.

Pin Description, Operating Modes, Operation, Registers, Interrupts, Addressing Modes, Assembly Language Programming.

Other Microprocessor:

Brief introduction of Intel Microprocessor: 80186, 8080, 80188, 80386, 80486. Microprocessor: Z80, Z800, Z8000.

RECOMMENDED BOOKS:

1. Microprocessor Architecture, Programming and Applications with 8085/8080A – Ramesh S. Gaonkar, Wiley Eastern Limited.
2. Fundamentals of Microprocessor and Microcomputers--B.RAM, Dhanpat Rai Pub.
3. The Intel Microprocessors 8086/8080,186/286,386,486,Pentium and Pentium Pro Processor Architecture. Programming and Interfacing--Barry R. Brey, PHI.
4. Douglas V. Hall, *Microprocessors and Interfacing*, TMH, 2000.
5. Ray and Bhurchandi, *Advanced Microprocessors and Peripherals*, 2nd Edition Tata McGraw Hill Publishing Company, 2004.
6. Microcomputer Systems , Yu – Cheng Liu
7. Architecture, Programming and Design, Glenn A. Gibson