



Course: BTech

Semester: 4

Prerequisite: Basic understanding of computer system

Rationale: This course provides detail of computer system's functional components, their characteristics, performance and interactions including system bus, different types of memory and input/output organization and CPU. This course also covers the architectural issues such as instruction set program and data types. On top that, the students are also introduced to the increasingly important area of parallel organization. This course also serves as a basic to develop hardware-related projects. And hence it is an important course for all students of computer engineering branch.

Teaching and Examination Scheme

Teaching Scheme					Examination Scheme					Total
Lecture Hrs/Week	Tutorial Hrs/Week	Lab Hrs/Week	Hrs/Week	Credit	Internal Marks			External Marks		
					T	CE	P	T	P	
3	0	0	0	3	20	20	-	60	-	100

SEE - Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content

W - Weightage (%) , T - Teaching hours

Sr.	Topics	W	T
1	Introduction to Microprocessor 8085 Microprocessor, Instruction set and computer languages, 8085 Programming Model, Instruction Data Format and storage.	10	4
2	Microprocessor architecture and interfacing Microprocessor architecture and its operations, Memory and I/O devices, Memory interfacing, Interfacing I/O devices	20	8
3	Programming methods with Instructions 8085 Instructions, Looping, Counting and Indexing, Logic operations Rotate and Compare	15	5
4	Additional Programming techniques Counter, time delay, Stack & Subroutines, Restart, Call and Return Instruction, Code conversion	15	8
5	8085 Interrupts Interrupt structure of 8085 microprocessor, processing of vectored and non-vectored interrupts, latency time and response time; Handling multiple interrupts	10	4
6	Computer Organization - Register Transfer and Basic Computer Design Register Transfer: Register Transfer language, Bus design using multiplexer and Tri-state buffer, Memory Transfers, Arithmetic Micro- Operations, Logic Micro-Operations, Shift Micro-Operations, Arithmetic logical shift unit. Basic Computer Design: Instruction codes, Computer registers, computer instructions, Timing and Control, Instruction cycle, Memory-Reference Instructions, Register Reference Instructions, IO Reference Instructions, Interrupt, Design of Accumulator Unit.	15	8
7	Computer Organization - Assembler and Memory Organization Assembler: Machine Language, Assembly Language, Assembler, Program loops, Programming Arithmetic and logic operations, subroutines, I-O Programming. Memory Organization: Memory hierarchy, Main memory, Auxiliary memory, Flash memory, Associative memory, Cache memory, Virtual memory	15	8



Reference Books

1.	Microprocessor Architecture, Programming, and Applications with the 8085 (TextBook) By Ramesh S. Gaonkar Penram International.
2.	Computer System Architecture By M.Morris Mano PHI 3rd Edition
3.	Microprocessor 8085 and its Interfacing By Sunil Mathur PHI Learning Pvt. Ltd
4.	8085 Microprocessor And its Applications By A. NagoorKani TMH Education Pvt. Ltd

Course Outcome

After Learning the Course the students shall be able to:

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1. Explain 808microprocessor architecture.
2. Design assembly language program for 808microprocessor.
3. Design Interfacing with various hardware with 808microprocessor.
4. Debug program written in assembly language.

Miscellaneous

Exam Requirement

It consists of Assignments/Seminars/Presentations/Quizzes/Surprise Tests (Summative/MCQ) etc