

Subject Code	Subject Name	Teaching Scheme			Credits Assigned			
		Theory	Practical	Tutorial	Theory	TW	Tutorial	Total
EXC 403	Microprocessor and Peripherals	04	--	--	04	--	--	04

Subject Code	Subject Name	Examination Scheme								
		Theory Marks					Term Work	Practical and Oral	Oral	Total
		Internal assessment			End Sem. Exam					
		Test 1	Test 2	Ave. Of Test 1 and Test 2						
EXC 403	Microprocessor and Peripherals	20	20	20	80	--	--	-	100	

Course Objective:

To create a strong foundation by studying the basics of Microprocessors and interfacing to various peripherals which will lead to a well designed Microprocessor based System. The course is a pre-requisite for all further courses in Microcontrollers and Embedded systems.

Course Outcome:

1. Students will be able to understand and design Microprocessor based systems.
2. Students will be able to understand assembly language programming
3. Students will be able to learn and understand concept of interfacing of peripheral devices and their applications

Module No.	Topics	Hrs.
1	Introduction to Intel 8085 Microprocessor: Basic functions of the microprocessor, System bus, Architecture, Pin Configuration and Programmer's model of Intel 8085 Microprocessor.	06
2	Intel 8086 Architecture: Major features of 8086 processor, 8086/88 CPU Architecture and the pipelined operation, Programmer's Model and Memory Segmentation	06
3	Instruction Set of 8086 and Programming: Instruction Set of 8086 microprocessor in details, Addressing modes of 8086/88, Programming the 8086 in assembly language, Mixed mode Programming with C-language and assembly language. Assembler Directives Procedures and Macros.	10
4	8086 Interrupts: Interrupt types in 8086, Dedicated interrupts, Software interrupts,	04
5	Designing the 8086 CPU module: 8086 pin description in details, Generating the 8086 System Clock and Reset Signals, 8086 Minimum and Maximum Mode CPU Modules, Memory interfacing with timing consideration, Minimum and Maximum Mode Timing Diagrams	10

6	Peripheral Controllers for 8086 family and System Design: Functional Block Diagram and description, Control Word Formats, Operating Modes and Applications of the Peripheral Controller namely 8255-PPI, , 8259- PIC and 8237-DMAC. Interfacing of the above Peripheral Controllers. Keyword and Display Interface using 8255.	08
7	Multiprocessor Systems: Study of Multiprocessor Configurations namely Closely Coupled System (CCS) and Loosely Coupled System (LCS), CCS with the case study of the Maths Coprocessor, Various System Bus Arbitration Schemes in LCS, and Role of the Bus Arbiter (Intel 8289) in the LCS.	08
	Total	52

Recommended Books:

- 1) Microprocessor architecture and applications with 8085: By Ramesh Gaonkar (Penram International Publication).
- 2) 8086/8088 family: Design Programming and Interfacing: By John Uffenbeck (Pearson Education).
- 3) 8086 Microprocessor Programming and Interfacing the PC: By Kenneth Ayala
- 4) Microcomputer Systems: 8086/8088 family Architecture, Programming and Design: ByLiu & Gibson (PHI Publication).
- 5) Microprocessor and Interfacing: By Douglas Hall (TMH Publication).

Internal Assessment (IA):

Two tests must be conducted which should cover at least 80% of syllabus. The average marks of both the test will be considered as final IA marks

End Semester Examination:

1. Question paper will comprise of 6 questions, each carrying 20 marks.
2. The students need to solve total 4 questions.
- 3: Question No.1 will be compulsory and based on entire syllabus. 4: Remaining question (Q.2 to Q.6) will be set from all the modules. 5: Weightage of marks will be as per Blueprint.