

<b>Course Title</b>	<b>Microprocessor and Interfacing</b>
<b>Course Code</b>	<b>EC410</b>
<b>Course Credit</b>	Lecture : 03
	Practical : 01
	Tutorial : 00
	Total : 04
<b>Course Learning Outcomes</b>	
<p>After completing the course students will be able to:</p> <ul style="list-style-type: none"> <li>• <b>Understand</b> architecture and the operation of microprocessor</li> <li>• <b>Describe</b> the interfacing techniques with various peripheral chips</li> <li>• <b>Solve</b> basic problems using the microprocessor</li> <li>• <b>Develop</b> the programming skill using assembly language and simulation based projects</li> </ul>	
<b>Detailed Syllabus</b>	

Sr. No.	Name of chapter & Details	Hours Allotted
<b>Section – I</b>		
<b>1</b>	<b>Introduction to microprocessor</b> Micro processing concept Microprocessor system with bus organization Architecture and operations: overview I/O devices and operations	<b>03</b>
<b>2</b>	<b>8-Bit Processor Architecture:-</b> 8085 Microprocessor Architecture System Bus organization 8085 Microprocessor Signals and functions De-multiplexing of buses Control signal generations Instruction cycles, Machine Cycle and T-states Memory interfacing	<b>08</b>
<b>3</b>	<b>Interfacing Peripherals I</b> I/O device: concepts, interfacing and techniques Interrupts in 8085. Block Diagram, Pin Diagram, Modes, Control & Status word of 8255 – Programmable Peripheral Interface 8237 – DMA Controller 8251- Programmable Communication Interface	<b>07</b>
<b>4</b>	<b>Introduction to 8086 microprocessor</b> Introduction to 16-bit microprocessors, 8086 architecture, Segments, Flags, 8086 pin functions, memory banks	<b>03</b>

Section – II

4	<b>Introduction to Assembly Language Programming</b> Programming Model Instruction to classification Instruction & Data Format Writing, Assembling & Executing a simple program Addressing Modes	04
5	<b>Instruction Set</b> Data transfer, Arithmetic, Logical, Branch & Machine Control Instructions sets and their programming	06
6	<b>Programming</b> Programming Tech : Looping, Counting & Indexing Counter & Time Delays Stack & Subroutine	08
7	<b>Interfacing Peripherals II</b> Block Diagram, Pin Diagram, Modes, Control & Status word of 8259 – Programmable Interrupt Controller 8253/8254 – Programmable Interval Timer 8279 – Programmable Keyboard/Display Interface	06

**Instructional Method and Pedagogy:**

- Lectures will be conducted with the aid of multi-media projector, black board, power point presentation etc.
- Assignments and Exercise will be given to the students for each unit/topic and will be evaluated at regular interval.
- Surprise tests/Quizzes/Seminar/Tutorials will be conducted.

**List of Experiments:**

Sr.No.	Name of Experiment
1	To <b>study</b> the Architecture of 8085 & Dyna-85 Kit.
2	To <b>describe</b> various addressing Modes of 8085.
3	To <b>learn</b> and <b>develop</b> programs based on data transfer instructions.
4	To <b>learn</b> and <b>develop</b> programs based on Arithmetic instructions.
5	To <b>learn</b> and <b>develop</b> programs based on Logical instructions.
6	To <b>learn</b> and <b>develop</b> programs based on Branching instructions.
7	To <b>learn</b> and <b>develop</b> programs for code conversion
8	To <b>demonstrate</b> various techniques to generate time delay.
9	To <b>demonstrate</b> 8279 chip with 8085.
10	To <b>demonstrate</b> 8255 chip with 8085.
11	To <b>demonstrate</b> 8259 chip with 8085.
12	To <b>demonstrate</b> traffic light application with 8085.

**Reference Books:**

1. Microprocessor Architecture, Programming, and Applications with the 8085 - Ramesh S. Gaonkar Publication: Penram International.
2. Microcomputers and Microprocessors: The 8080, 8085 and Z-80 Programming, Interfacing and Troubleshooting by John E. Uffenbeck.
3. Microprocessor and Microcontroller fundamentals. The 8085 and 8051 Hardware and Software by William Kleitz.
4. Microprocessor & Interfacing - Douglas Hall, TMH.

**Additional Resources:**

- [www.intel.com](http://www.intel.com)
- <http://www.8085projects.info>