

2EC15: MICROPROCESSOR AND COMPUTER ARCHITECTURE
CREDITS - 3 (LTP:3,0,0)

Course Objective:

To acquaint the students with the programming, interfacing, applications of microprocessors and computer architecture.

Teaching and Assessment Scheme:

Teaching Scheme (Hours per week)			Credits	Assessment Scheme				Total Marks
L	T	P		Theory		Practical		
			ESE	CE	ESE	CE		
3	0	0	3	60	40	00	00	100

Course Contents:

Unit No.	Topics	Teaching Hours
1.	Introduction To 8-bit Microprocessor : History of Microprocessor, 8085 Microprocessor architecture, buses, register, flags. 8085 pin configuration & function of each pin. Fetch, Decode and execute operations. Op-code Fetch, execute cycle, T state, Machine cycle. Memory and I/O read and write cycles WAIT state, interrupt timing diagram.	10
2.	8085 Microprocessor Instruction Set and Programming : Addressing modes of 8085. Data transfer, Arithmetic, Logical, Rotate, Branch and machine control instructions. Development of 8085 assembly language programs, time delays. Concept of stack and Instruction related to stack. 8085 interrupts, RST, RIM, SIM instructions. Subroutines and conditional call instruction.	12
3.	Interfacing of Memory Chips & Input / Output Chips : Memory mapped I/O and I/O mapped I/O. Address decoding, interfacing of memory chips with 8085. Interfacing of input/output devices and special purpose peripheral IC 8255(PPI), 8253(Timer), 8259(PIC), 8237(DMAC) with 8085.	12
4.	Computer Architecture Control Unit : Hard wired control - Design methods, and CPU control unit. Micro programmed Control - Basic concepts, minimizing microinstruction size, multiplier control unit. Micro programmed computers - CPU control unit.	6
5.	Memory organization : Classification and Introduction, RAM, ROM, Memory management, Concept of Cache& associative memories, Virtual memory.	5
Total		45

List of References:

- Ramesh S. Gaonkar, "Microprocessor Architecture, Programming, and Applications with the 8085", Pub: Penram International.
- N.K.Srihath, "8085 Microprocessor: Programming And Interfacing" PHI

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3. V. Carl Hamacher, Zvonko G. Varanescic and Safat G. Zaky, “*Computer Organization*”, VI edition, McGraw-Hill Inc, 2012.
4. William Stallings “*Computer Organization and Architecture*”, Seventh Edition, Pearson Education, 2006.
5. D A Patterson and J H Hennessy, “*Computer Organization and Design The hardware and software interface*”, Morgan Kaufman Publishers

Course Outcomes (COs):

By learning this course students will be able to ...

1. Understand the concepts of microprocessors architecture their principles and practices.
2. Write efficient programs in assembly language of the 8085 family of microprocessors.
3. Interface microprocessor with memory modules and I/O modules.
4. Apply the concept of the logic design for developing Control unit.
5. Demonstrate architectural design of modern processors, memories and I/Os.