

COMPUTER ORGANIZATION AND DESIGN

Course Code	19EC4501E	Year	III	Semester	I
Course Category	Program Elective-1	Branch	ECE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	Nil
Continuous Internal Evaluation:	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to

CO1	Know the functional unit of the processor such as the register file and arithmetic logical unit and with the basic of system topic (L2)
CO2	Outline the sequence of instruction execution, concept of pipelining, and modes of data transfer. Analyse the CPU design including the RISC/CISC architectures (L3)
CO3	Demonstrate the basic knowledge of I/O devices and interfacing of I/O devices. (L2)
CO4	Analyse various issues related to memory hierarchy (L3)

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)

Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation

* - Average value indicates course correlation strength with mapped PO

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3										3	
CO2	3	3	3										3	
CO3	3	3	3										3	
CO4	3	3	3										3	
Average* (Rounded to nearest integer)	3	3	3										3	

Unit No.	Contents	Mapped CO
I	Register Transfer and Micro operations: Register transfer language, register transfer, bus and memory transfer, arithmetic micro operations, logic micro operations, shift micro operations, arithmetic logic shift unit.	CO1
II	Computer Description: Instruction codes, computer registers, computer instructions, timing and control, instruction cycle, memory-reference instructions, input-output and interrupt.	CO2
III	Micro programmed Control: Control memory, address sequencing. Central Processing Unit: General register organization, stack organization, addressing modes, reduced instruction set computer (RISC).	CO2, CO3

IV	Input-Output Organization: Peripheral devices, input-output interface, modes of data transfer, direct memory access.	CO1,CO3
V	Memory Organization: Memory hierarchy, main memory, cache memory, virtual memory.	CO1, CO4

Learning Resources

Text Books

1. Morris Mano, Computer System Architecture, 3/e, Pearson Education, 2000.

Reference Books

1. William Stallings, Computer Organization and Architecture, 6/e, Pearson Education Asia, 2000.
2. David A. Patterson, John L. Hennessy, Computer Organization and Design: The hardware / software interface, 3/e, Morgan Kaufmann, 2002.
3. John P. Hayes, Computer Architecture and Organization, 3/e, McGraw-Hill, 1998.

e- Resources & other digital material

1. <http://nptel.iitm.ac.in/courses/Webcourse-contents/IITKANPUR/Comp Architecture/page1.htm>
2. http://nptel.iitm.ac.in/courses/Webcourse-contents/IIT20Guwahati/comp_org_arc/web/index.htm
3. <http://williamstallings.com/COA5e.html>
