

Computer Organization and Architecture

Paper Code: ETCS-204

Credits: 4

Total lecture/ Tutorial classes available: 44

S.No.	CONTENTS	Total No. of Lectures/Tutorials
	Ist TERM	
	Unit-1 (Arithmetic and Register transfer language)	
1.	Unsigned notation, Signed notation, Binary coded decimal, floating point numbers	2
2	IEE 754 floating point standard, Micro-operation	2
3	Bus and Memory transfers, Bus architecture, Bus Arbitration	4
4	Arithmetic logic, Shift micro-operation, Arithmetic Logic Shift Unit	2
	Unit-II (Instruction set architecture & computer organization)	
5	Levels of programming Languages, Assembly language instructions	2
6	8085 Instruction set architecture, Instruction codes Computer Registers	3
7	Computer Instructions, Timing & control, Instruction cycle	3
	IInd TERM	
8	Memory Reference Instructions, Input-Output and Interrupts	2
	Unit-III (Control Design)	
9	Instruction sequencing and interpretation, Hardwired & micro programmed (control unit)	2
10.	Microprogrammed computers, microcoded CPU: Pentium processor	2
11	Specifying a CPU, Design and implementation of simple CPU, General register organization	3
12	Stack organization, instruction formats, Addressing modes	4
13	Internal architecture of 8085 microprocessor	2

	Unit-IV (Memory & input/output organization)	
14	Memory Technology, Main memory (RAM and ROM chips, Virtual memory, High speed memories	3
	IIIrd TERM	
15	Asynchronous Data Transfer, Programmed I/O Interrupts	4
16	Direct memory access, Serial communication UARTS RS-232-C & RS-422 Standard	4

Text Books:

- [T1] J. D. Carpinelli, "Computer Systems Organization and Architecture", Pearson Education, 2006.
[T2] J. P. Hayes, "Computer Architecture and Organization", McGraw Hill, 1988.

Reference Books:

- [R1] J. L. Hennessy and D. A. Patterson, "Computer Architecture: A quantitative approach", Morgan Kaufman, 1992.
[R2] W. Stallings, "Computer organization and Architecture", PHI, 7th ed, 2005.
[R3] B. Parhami, "Computer Architecture: From Microprocessors to Supercomputers", Oxford University press, 2006.