1	Python Programming	Sheetal Taneja, Naveen Kumar	Pearson	5th (2022)

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Internal	Final Exam	Total
BCAMJ-302	Computer Organization	Major	4	4	0	0	40	60	100

Course Outcomes

At the end of the course the student will be able to	
CO1	Analyze the logic expressions using Boolean algebra principles, logic gates, and truth tables.
CO2	Implement basic combinational circuits to solve digital logic problems.
CO3	Describe the operation and characteristics of Sequential Circuits.
CO4	Explain the key components of computer organization and to understand their role in computer system.
CO5	Describe the various types of memory and their roles in the memory hierarchy.

Detailed Syllabus
Section-A

Unit 1: Introduction to Boolean algebra -Addition and Multiplication in Boolean algebra: Binary logic function, Logic gates and Truth tables; AND logic, OR logic, NOT logic, NAND logic, NOR logic, EX-OR logic, EX-NOR logic, Boolean rules and Laws, De-Morgan's theorem, Simplification of logic variable using K-map method.

(10 Hrs)

Unit 2: Combinational Circuits: Introduction, Encoder, Decoder, Comparator, Half Adder, Full Adder, Half Subtractor, Full Subtractor Multiplexer and De-Multiplexer, Truth Tables, Circuit Diagram ,functions and implementation.

(10 Hrs)

Unit 3: **Sequential Circuits:** D Flip Flop, SR Flip Flop, JK Flip Flop Circuit Diagram, JK Flip Flop Truth Table, JK Flip Flop, Race around condition, Master Slave JK Flip Flop, T Flip Flop, Register, Shift Registers(SISO,SIPO,PISO,PIPO), Bi-Directional Shift Register, Counters.

(10 Hrs)

Section-B

Unit 4: Basic computer organization and design: Instruction codes, Stored Program Organization, Indirect Address, Computer Registers, Common bus system, computer instruction, timing and control, Instruction Cycle, input-output and interrupt, design of computer.

(08 Hrs)

Unit 5 Memory System: Memory Hierarchy, Main Memory, RAM ROM Chips, Memory Address Map, Organization of RAM, SRAM, DRAM, Read only memory ROM-EROM, EEPROM, Auxiliary Memory, Associative Memory, Cache Memory, Virtual memory.

(10 Hrs)

Textbooks

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Computer Organization and Architecture	Mano, Morris	Pearson Education	3rd(2017)
2.	Digital Design	M. Morris Mano, Michael D. Ciletti	Pearson Education	6th(2018)

Reference Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Computer Organization and Architecture	Stallings, William	Pearson Education	11th(2022)