



Program	Bachelor of Technology (BTech)	Semester - 4
Type of Course	-	
Prerequisite		
Course Objective	-	
Effective From A.Y.	2021-22	

Teaching Scheme (Contact Hours)				Examination Scheme				
Lecture	Tutorial	Lab	Credit	Theory Marks		Practical Marks		Total Marks
				External Marks (T)	Internal Marks (T)	External Marks (P)	Internal Marks (P)	
-	-	2	1	-	-	60	40	100

SEE - Semester End Examination, CIA - Continuous Internal Assessment (It consists of Assignments/Seminars/Presentations/MCQ Tests, etc.)

Course Content		T - Teaching Hours W - Weightage	
Sr.	Topics	T	W
1	Experiment-1 Design and verification of truth table of logic gates using Logisim tool	2	10
2	Experiment-2 Implementation of Half Adder and Full Adder using logic gates	2	10
3	Experiment-3 Implementation of half subtractor and full subtractor circuits	4	10
4	Experiment-4 Design and verification of truth table of JK Master-slave flip flop	4	10
5	Experiment-5 Design of an n-bit synchronous and asynchronous counters	4	10
6	Experiment-6 Write an Assembly language program to add 8-bit and 16 bit numbers	4	10
7	Experiment-7 Write an Assembly language program to print multiplication of unsigned positive numbers	2	10
8	Experiment-8 Write an Assembly language program to print input String and print it.	2	10
9	Experiment-9 Simulate the machine to determine the contents of AC, E, PC, AR and IR registers in hexadecimal after the execution of each of following register reference instructions: CLA CIR SNA CLE CIL SZA CMA INC SZE CME SPA HLT	4	10
10	Experiment-10 Simulate the machine for the following memory-reference instructions with I= 0 and address part = 082. The instruction to be stored at address 022 in RAM. Initialize the memory word at address 082 with the operand B8F2 and AC with A937. Determine the contents of AC, DR, PC, AR and IR in hexadecimal after the execution. ADD BUN AND BSA LDA ISZ STA ---	2	10
Total		30	100

**Suggested Distribution Of Theory Marks Using Bloom's Taxonomy**

Level	Remembrance	Understanding	Application	Analyze	Evaluate	Create
Weightage	20	20	20	20	10	10

NOTE : This specification table shall be treated as a general guideline for the students and the teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcomes

At the end of this course, students will be able to:

C01	Recall and apply Boolean logic, sequential circuit, and combinational circuit concepts, including logic gates, registers, counters, flip-flops, and arithmetic operations.
C02	Explain computer arithmetic, register transfer, micro-operations, hardware implementation, and instruction sets.
C03	Describe CPU components, memory organization, addressing modes, and program control.
C04	Explain memory hierarchy, cache memory, and virtual memory.
C05	Understand I/O organization, peripheral devices, interrupt handling, and parallel processing concepts.
C06	Analyze multiprocessor characteristics, cache coherence, and interconnection structures.

Reference Books

1.	Computer System Architecture (TextBook) By M. Morris Mano Pearson Education
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