Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
COM-403	Computer Organization and Architecture	PCC	4	3	1	0	50	100	150

Course Outcomes

At the end of the course the student will be able to	
CO1	Understand the structure, including logical and functional components of a computer.
CO2	Illustrate various elementary concepts of computer architecture including syntax of register transfer language, micro-operations, instruction cycle, and control unit.
CO3	Develop understanding on techniques involved in the computer arithmetic operations.
CO4	Comprehend various instruction formats and addressing modes.
CO5	Articulate the concept of pipelining, multiprocessors, and input-output organization.

Detailed Syllabus

Section-A

Unit 1: Introduction: Overview of Digital Fundamentals.

(5Hrs)

Unit 2: Register Transfer and Micro operation: Register Transfer Language, Register Transfer, Bus and Memory Transfer, Arithmetic Micro operations, Logic Micro operations and Shift, Micro operations.

(10Hrs)

Unit 3: Basic Computer Organization and Design: Instruction Codes, Computer Registers, Computer Instructions, Timing and Control, Instruction Cycle, Memory Reference Instructions, Input-Output Interrupts, Design of Basic Computer, Design of Accumulator Logic.

(10Hrs)

Section-B

Unit 4: Micro-programmed Control Unit: Control Memory, Address Sequencing. Central Processing Unit: Introduction, General Register Organization, Stack Organization, Instruction Formats, Addressing Modes. Computer Arithmetic Introduction, Addition and Subtraction, Multiplication Algorithms, Division Algorithms, Floating Point Arithmetic Operation, Decimal Arithmetic Unit, Decimal Arithmetic Operations.

(12 Hrs)

Unit 5: Peripheral devices, Input - Output interface, Asynchronous Data Transfer, Modes of Data Transfer, Priority Interrupt, Direct Memory Access, Input - Output Processor. Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, Cache Memory, Virtual Memory, Memory Management Hardware, Flynn's classification of parallel processing systems, pipelining concepts.

(12 Hrs)

Text Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Computer System and Architecture	Mano,Morris	Pearson Education	3rd (2017)

Reference Books

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
2	Computer Organization and Architecture	Stallings, William	Pearson Education	10th (2016)