SCHEME OF COURSE WORK

Course Details:

Course Title	**COMPUTER ORGANIZATION**		
Course Code	**13CT1105**	**L T P C**	**4 0 0 3**
Program:	**B.Tech.**		
Specialization:	**EEE**		
Semester	**V**		
Prerequisites	Nil		
Courses to which it is a prerequisite	Knowledge of Computer Organization, Operating system		

Course Outcomes (Cos):

At the end of the course, a student will be able to

1	Discuss basic structure and organization of computers.
2	Explain register transfer and micro operations.
3	Apply fixed and floating point arithmetic algorithms.
4	Discuss memory and input/output organizations
5	Explain pipeline and vector processing.

Programme Outcomes (POs):

The graduate of Electrical and Electronics Engineering will be able to:

1	Apply the knowledge of basic sciences and electrical and electronics engineering fundamentals to solve the problems of power systems and drives.
2	Analyze power systems that efficiently generate, transmit and distribute electrical power in the context of present Information and Communications Technology.
3	Design and develop electrical machines and associated controls with due considerations to societal and environmental issues.
4	Design and conduct experiments, analyze and interpret experimental data for performance analysis.
5	Apply appropriate simulation tools for modeling and evaluation of electrical systems.
6	Apply the electrical engineering knowledge to assess the health and safety issues and their consequences.
7	Demonstrate electrical engineering principles for creating solutions for sustainable development.
8	Develop a techno ethical personality that help to serve the people in general and Electrical and Electronics Engineering in particular.
9	Develop leadership skills and work effectively in a team to achieve project objectives.
10	Communicate effectively in both verbal and written form.
11	Understand the principles of management and finance to manage project in multi disciplinary environments.
12	Pursue life-long learning as a means of enhancing the knowledge and skills.

Course Outcome versus **Program Outcomes:**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	S	M										M
CO-2			M	S			M					
CO-3			M	M	S		M					
CO-4		M	M			S		M				M
CO-5				M	M							S

S - Strongly correlated, *M* - *Moderately* correlated, *Blank* - *No correlation*

Assessment Methods:	Assignment / Quiz / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	Sample questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	What is Computer? Characteristics of Computers, Structure and Function, Computer Components, Computer Function	CO1	1) Describe the Characteristics of a Computer? 2) Explain briefly about the Basic computer organization?	▫ Lecture / Discussion	Assignment 1 (Week-5) Mid-Test 1
2	Basic Computer Organization, Bus Interconnection, Processor Organization, Register Organization	CO1	1) Draw the functional diagram of Bus Interconnection? 2) Explain briefly about Processor Organization?	▫ Lecture / Discussion	Assignment 1 (Week-5) Mid-Test 1
3	BASIC COMPUTER ORGANIZATION AND DESIG: Instruction codes, Computer instructions, Memory reference instructions, Instruction Cycle	CO1	1) Explain briefly about Memory reference instructions? 2) Describe about Instruction Cycle?	▫ Lecture/ Discussion	Assignment 1 (Week-5) Mid-Test 1
4	CENTRAL PROCESSING UNIT: Stack organization, instruction formats, addressing modes, data transfer and manipulation, program control, RISC.	CO1	1) Explain about the addressing modes? 2)Describe about different types of RISC and CISC?	▫ Lecture/ Discussion	Assignment 1 (Week-5) Mid-Test 1
5	REGISTER TRANSFER AND MICRO OPERATIONS:Register transfer language, Register transfer, Bus and Memory transfers, Arithmetic	CO2	1) Explain about the Register transfer language? 2) Describe about Bus and Memory transfers?	▫ Lecture/ Discussion	Assignment 1 (Week-5) Mid-Test 1
6	Micro operations, Logic Micro operations, Shift Micro operations, Arithmetic Logic Shift Unit.	CO2	1) Explain briefly about Arithmetic Logic Shift Unit.?	▫ Lecture/ Discussion	Assignment 1 (Week-5) Mid-Test 1
7	MICRO PROGRAMMED CONTROL: Control Memory, Address Sequencing, Micro Program examples, Design of control unit, Hardwired control.	CO2	1) Explain about Address Sequencing?	▫ Lecture/ Discussion	Quiz 1(Week-8) Mid-Test 1

8	COMPUTER ARITHMETIC: Data representation- Fixed point representation, Floating point representation, Addition and Subtraction, Multiplication Algorithms, Division Algorithms	CO3	1) Calculate the floating point algorithms?	▫ Lecture/ Discussion ▫ Problem solving	Quiz1 (Week-8) Mid-Test 1
9	**Mid-Test 1**			Revision and discussion	
10	Floating-point Representations, Floating-point Arithmetic Operations, Decimal Arithmetic Units, Decimal Arithmetic Operations	CO3	1) Explain briefly about Floating-point Arithmetic Operations? 2) 2) Explain about Decimal Arithmetic Operations?	▫ Lecture/ Discussion Problem solving	Assignment 2 (Week-14) Mid-Test 2
11	MEMORY ORGANIZATION: Memory system overview, Memory Hierarchy	CO1 and C04	1) Explain briefly about MEMORY ORGANIZATION?	▫ Lecture/ Discussion	Assignment 2 (Week-14) Mid-Test 2
12	Semi-conductor Main Memory, Cache Memory principle, Elements of cache design	CO1 andC04	1) Explain briefly about Elements of cache design?	▫ Lecture/ Discussion	Assignment 2 (Week-14) Mid-Test 2
13	Virtual Memory, Magnetic Disk, Optical Memory, Magnetic Tape, RAID	CO1 and C04	1) Explain different Magnetic Tape, RAID?	▫ Lecture/ Discussion	Assignment 2 (Week-14) Mid-Test 2
14	INPUT- OUTPUT: External Devices, I/O modules, Interrupts	CO1 and C04	1) Explain briefly about I/O modules and Interrupts?	▫ Lecture/ Discussion	Assignment2 (Week-14) Mid-Test 2
15	Programmed I/O, Interruptdriven I/O, Direct Memory Access, I/O Channels and Processors, PCI.	CO1 and C04	1) Explain the needs of Memory Access, I/O Channels and Processors?	▫ Lecture/ Discussion	Quiz 2 (Week-17) Mid-Test 2
16	Asynchronous Data Transfer, Priority Interrupt, Serial Communication.	CO1 and C04	1) Define Priority Interrupt, Serial Communication?	▫ Lecture/ Discussion	Quiz 2 (Week-17) Mid-Test 2
17	PIPELINE AND VECTOR PROCESSING: Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline, Vector Processing, Array Processors.	CO5	1) Explain about Parallel Processing, Pipelining, Arithmetic Pipeline?	▫ Lecture/ Discussion	Quiz 2 (Week-17) Mid-Test 2
18	MULTI PROCESSORS: Multiprocessors and Multi computers, Symmetric Multi-Processors, Cache Coherence, Clusters, (NUMA)	CO5	1) Explain briefly about Multiprocessors and Multi computers? 2) Define Cache Coherence,?	▫ Lecture/ Discussion	
19	**Mid-Test 2**			Revision and discussion	
20	**END EXAM**				

Faculty Member