

PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY
 (Autonomous)
 Kanuru, Vijayawada-520007

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (DATA SCIENCE)

II B. TECH – II SEM CSE(DATA SCIENCE)

DIGITAL LOGIC & COMPUTER ORGANIZATION

Course Code	23DS3403	Year	II	Semester	II
Course Category	PCC	Branch	CSE (DATA SCIENCE)	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	BEEE
Continuous Internal Evaluation	30	Semester End Examination	70	Total Marks:	100

Course Outcomes		
Upon successful completion of the course, the student will be able to:		
CO1	Describe the basic concepts of digital circuits, functional units of computer system and its organization.	L2
CO2	Apply the concepts of digital logic and sequential circuits to enhance the system design.	L3
CO3	Apply the principles of processor organization, computer arithmetic and memory management to perform different types of operations	L3
CO4	Analyze the performance of digital logic circuits and processor organization.	L4

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:High, 2: Moderate, 1:Low)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2													
CO2	3													
CO3	3													
CO4		3										2		

Syllabus		
Unit No.	CONTENTS	Mapped

		CO
I	<p>Data Representation: Binary Numbers, Number base conversions, Octal and Hexadecimal Numbers, complements of Numbers, Signed binary numbers, Binary codes, Basic Gates.</p> <p>Digital Logic Circuits-I: Basic Theorems and Properties of Boolean Algebra, Boolean Functions, Canonical and Standard forms, The Map Method, Four-Variable K-map, Product of Sums simplification, Don't Care Conditions.</p>	CO1,CO2,CO4
II	<p>Digital Logic Circuits-II: Combinational Circuits, Analysis of Combinational circuits, Binary Adder – Subtractor, Decoders, Encoders, Multiplexers.</p> <p>Sequential Circuits: Latches, Flip-Flops, Shift Registers.</p>	CO1,CO2,CO4
III	<p>Processor Organization: General Register Organization, Stack Organization, Instruction Formats and Addressing Modes.</p> <p>Computer Arithmetic: Addition and Subtraction, Multiplication Algorithms, Decimal Arithmetic Unit, Decimal Arithmetic Operations.</p>	CO1,CO3
IV	<p>The Memory Organization: Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, Cache Memory and Virtual Memory.</p>	CO1, CO3,CO4
V	<p>Input/output Organization: Peripheral Devices, Input Output Interface, Asynchronous Data Transfer, Modes of Transfer, Priority Interrupt, DMA.</p>	CO1, CO3

Learning Resources	
Text Books	
<ol style="list-style-type: none"> 1. Digital Design, M. Morris Mano, Sixth Edition, Pearson Education. 2. Computer Systems Architecture, M. Moris Mano, Revised Third Edition, Pearson. 3. Computer Organization, Carl Hamacher, ZvonkoVranesic, SafwatZaky, Sixth edition, McGraw Hill. 	
Reference Books	
<ol style="list-style-type: none"> 1. Computer Organization and Design, David A. Paterson, John L. Hennessy, Elsevier. 2. Fundamentals of Logic Design, Roth, Fifth Edition, Thomson. 3. Computer Organization and Architecture, William Stallings, Eleventh Edition, Pearson. 	
E-Resources & other digital material	
<ol style="list-style-type: none"> 1. https://nptel.ac.in/courses/117105080 2. https://archive.nptel.ac.in/courses/106/105/106105163/ 3. https://nptel.ac.in/courses/106/103/106103068/ 	