Program	BS Data Science	
Course Code	CC-110	
Course Title	Digital Logic Design	
Credit Hours	**Theory**	**Lab**
	3	1
Lecture Duration	90 minutes (1.5 Hours), 2 lectures per week, 3 hours lab session per week	
Semester	2	
Pre-requisites	**Courses**	**Knowledge**
Follow Up Courses	Computer Organization and Assembly Language	

Course Learning Outcomes (CLOs)

CLO No	Course Learning Outcome	Bloom Taxonomy
CLO-1	Acquire knowledge related to the concepts, tools and techniques for the design of digital electronic circuits	C2 (Understand)
CLO-2	Demonstrate the skills to design and analyze both combinational and sequential circuits using a variety of techniques.	C2 (Understand)
CLO-3	Apply the acquired knowledge to simulate and implement small-scale digital circuits	C3 (Apply)
CLO-4	Understand the relationship between abstract logic characterizations and practical electrical implementations.	C2 (Understand)

Aims and Objectives	1. Get the theoretical and the practical knowledge of the fundamental circuitry of the computers.
Learning Outcomes:	Student will have knowledge of • Number Systems and Boolean Algebra
	• Combinational Circuits • Sequential Circuits • Registers and Memory elements • Lab experience of ICS

Syllabus	Number Systems, Logic Gates, Boolean Algebra, Combination logic circuits and designs, Simplification Methods (K-Map, Quinn Mc-Cluskey method), Flip Flops and Latches, Asynchronous and Synchronous circuits, Counters, Shift Registers, Counters, Triggered devices & its types. Binary Arithmetic and Arithmetic Circuits, Memory Elements, State Machines. Introduction Programmable Logic Devices (CPLD, FPGA) Lab Assignments using tools such as Verilog HDL/VHDL, MultiSim
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Teaching-learning Strategies	The students will be given all round knowledge of the subject oral/on white board/assignments/sudden quizzes during class rooms only.
Assignments	Assignments will be assigned throughout the course.
Textbooks	1. Digital Fundamentals by Floyd, 11/e. 2. Fundamental of Digital Logic with Verilog Design, Stephen Brown, 2/e
Reference Material/Suggested Readings	All reference Material/readings will be provided during lectures as per the class performance and their interest in the degree program overall.
Notes	Students will take their own notes during class.