Course Title	Course Structure			Pre-Requisite
	L	T	P	
Digital Design-1	3	0	2	Basic knowledge of Number system, Logic gates and Boolean algebra

Course Objective:
To develop a comprehensive understanding of designing various digital electronic circuits and their applications.

Course Outcomes:
1. Apply knowledge of Boolean algebra and minimization techniques to design various combinational circuits and combinational building blocks
2. Apply the knowledge of sequential logic circuit design for various applications
3. Understand the concept of various memories and their application in designing programming logic device.
4. Analyse and design of various A/D and D/A converters and timing circuits.
5. Understand and analysis of various logic family circuits.

S. No.	Content	Contact Hours
Unit 1	Introduction to Number Systems and Logic gates & Tristate logic, Application of Parity generator/detector and Hamming code, Boolean algebra, minimization of switching function by Karnaugh map method and Tabulation Method with don't care terms, Designing of various combinational circuits, Arithmetic Circuits, Code converters, Magnitude Comparator etc., Design of Encoders, Decoders, Multiplexer, De-multiplexer, Priority encoder and their applications,	12
Unit 2	Introduction to sequential circuits, Gated Flip Flops, Conversion of Flip Flops, Design of Synchronous and Asynchronous Counters, Up-Down Counter, Shift Registers and Ring Counter and their applications	10
Unit 3	Introduction to Semiconductor memories: ROM, PROM, EPROM, EEPROM, Static and dynamic RAM, Implementation of Logic Circuits using ROM, PLA and PLDs.	05
Unit 4	Concept of D/A & A/D conversion, Weighted Resistor type. R-2R Ladder type D/A converter. Single slope & Dual slope A/D converter, successive approximation type, Flash type ADC. Applications of switching transistors in bi-stable, monostable, astable and Schmitt trigger circuits with their applications.	10
Unit 5	Introduction to Logic families and their parameters, Analysis of TTL, ECL, I^2L &CMOS logic gates, Comparisons and application of various logic family	05

circuits,		
	Total	42

Books:-

S. No	Name of Books/Authors/Publisher
1	Modern Digital Electronics by R. P. Jain (TMH) 2003, 4th edition
2	Digital Principles and Application by Malvino & Leach (TMH). 2014, 8th edition
3	Digital Electronics and Logic Design by M. Mano (PHI) 2008, 4th edition
4	Digital circuits and Design by S. Salivahanan & S.Arivazhagan(Oxford Press), 5th edition , 2018