

Course Code	Category	L	T	P	C	I.M	E.M	Exam
B20CS1102	ES	3	--	--	3	30	70	3 Hrs.
COMPUTER FUNDAMENTALS AND DIGITAL LOGIC								
(For CSE)								
Course Objectives:								
1.	To learn the computer fundamentals and internet of things concepts.							
2.	To provide insights of various number systems, Boolean functions and logic gates.							
3.	To introduce different minimization techniques.							
4.	To design the various combinational and sequential circuits.							
Course Outcomes: At the end of the course the students will be able to								
S.No	Outcome							KL
1.	Familiar with computer fundamentals and internet of things concepts.							K1
2.	Differentiate binary, decimal, octal and hexadecimal number system.							K2
3.	Implement the Boolean functions using logic gates and Simplification Boolean expression using K-Map.							K3
4.	Implement various combinational circuits.							K3
5.	Implement various Sequential circuits.							K3
SYLLABUS								
UNIT-I (10 Hrs)	Computer Fundamentals: Basics of Introduction to Computer: History, Generations, Classifications of Computers, The Computer System Hardware: CPU, Memory, Input and Output Devices: Input Output Unit, Input Devices and Output devices, IO-Ports							
UNIT-II (10 Hrs)	Number Theory and BooleanAlgebra: Binary Systems and Boolean Algebra Digital Systems. Binary Numbers. Number Base Conversions. Octal and Hexadecimal Numbers. Complements. Signed Binary Numbers. Binary Logic, Basic Definitions of Boolean algebra. Axiomatic Definition of Boolean Algebra. Basic Theorems and Properties of Boolean Algebra, Boolean Functions.							
UNIT-III (10 Hrs)	Logic Gates and Gate-Level Minimization Canonical and Standard Forms. Logic Gates. The Map Method. Four-Variable Map. Five-Variable Map. Product of Sums Simplification. Don/t-Care Conditions.							
UNIT-IV (10 Hrs)	Combinational Logic Design: Design Procedure, Binary Adder-Subtractor. Decimal Adder. Binary Comparator. Decoders. Encoders. Multiplexers.							
UNIT-V (10 Hrs)	Sequential Logic design Sequential Circuits:Latches. Flip-Flops.Truth Tables. RS, JK, T and D Flip Flops, Truth and Excitation Tables, Conversion of Flip Flops. Analysis of Sequential Circuits. State Reduction and Assignment. Designs Procedure.							
Text Books:								
1.	Computer Fundamentals by Anitagoel Pearson education 2017							
2.	Internet of things Architecture and Design Principles Rajkamal public. Mcgraw-hill education							
3.	Digital design 5th edition by Morris Mano							

Reference Books:

1.	Switching and Finite Automata Theory by Zvi. Kohavi, Tata McGraw Hill.
2.	Switching and Logic Design, C.V.S. Rao, Pearson Education
3.	Digital Principles and Design – Donald D.Givone, Tata McGraw Hill, Edition.
4.	Fundamentals of Digital Logic & Micro Computer Design , 5TH Edition, M. Rafiquzzaman John Wiley