DIGITAL LOGIC AND PROGRAMMING IN C

Semester	Subject Code	Category	Lecture Hrs		Theory Hrs		Practical		Credits
			Per week	Per Sem	Per week	Per Sem	Per week	Per Sem	
I		CORE PAPER - 1	7	105	7	105	0	0	4

COURSE OBJECTIVE

- This paper develops the basics concept used in design and analysis of digital systems and to develop the programming skills using C Language.

COURSE OUTCOME

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Learn the basic concepts of digital logic Circuits and Boolean Algebra Concept.	K1
CO2	Understand about Combinational and sequential circuits.	K2
CO3	Learn the fundamental concept of C Programming language.	K1
CO4	To implement Array, Functions and structures	K2
CO5	To create files & pointers and apply its operations in program.	K3

Knowledge Level – K1-Remember, K2- Understand, K3-Apply, K4-Analyze

MAPPING WITH PROGRAMME OUTCOME

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	S	S	M
CO2	S	S	S	M	M	S
CO3	S	S	M	S	M	M

CO4	S	S	S	M	S	S
CO5	S	S	M	S	M	S

S-Strong M-Medium L-Low

SYLLABUS

UNIT I: NUMBER SYSTEMS AND BOOLEAN ALGEBRA NUMBER SYSTEMS : 23 Hrs

Decimal - Binary - Octal - Hexadecimal - Number Base Conversions – Complements - 1's Complement - 2's complement - 9's Complement – 10's Complements - binary Codes - BCD – Excess-3 - Gray code.

BOOLEAN ALGEBRA: Definition of Boolean algebra – Theorems of Boolean algebra - Boolean Functions – Digital Logic gates and Truth Table.

SIMPLIFICATION OF BOOLEAN FUNCTIONS: The Map Method – Two Variable Map - Three Variable Map - Four Variable Map - Don't Care Conditions – Product of Sums Simplification.

UNIT-II: COMBINATIONAL AND SEQUENTIAL CIRCUITS COMBINATIONAL LOGIC: **19hrs**

Adders - Sub tractors – multiplexers - de-multiplexers – encoders – decoders.

SEQUENTIAL LOGIC: Flip flops: Basic Flip flop - Clocked RS Flip flop – D Flip flop – JK Flip flop – T Flip flop - Triggering of Flip Flops: Master Slave.

REGISTERS AND COUNTERS: Registers - 4 bit Register - Ripple Counter.

UNIT –III: C BASICS AND CONTROL CONSTRUCTS 21 Hrs

C fundamentals- Keywords - Variables – Data types - Operators- Constants- Expression – Library Functions- Decision making branching and looping – continue - break

UNIT IV: ARRAYS, FUNCTIONS AND STRUCTURES 21 Hrs

Arrays-Multi dimensional arrays- String- User defined functions- Call by Value and reference-Recursion- Storage classes- Structures and Union

UNIT – V: POINTERS AND FILES 21 Hrs

Pointers- Pointer operations and Arithmetic- File management in C : File opening and closing- I/O operations on files - Error handling during I/O operations - Random access to

files - Command line arguments

Distribution of Marks: Theory :70% and Problems:30%

TEXT BOOKS

S.No	Authors	Title	Publishers	Year of Publication
1.	Morris Mono M.	"Digital Logic and Computer Design	PHI Latest Pub. Ed.	2007
2	Balaguruswamay.E	Programming in ANSI C	TMH	2012

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year of Publication
1.	Albert Paul Malvino, Donald P Leach	Digital principles and applications	TMH	1996.

WEB RESOURCES

1. https://www.electronics-tutorials.ws/logic/logic_1.html
2. https://www.programiz.com/c-programming/
3. https://www.geeksforgeeks.org/c-language-set-1-introduction/

TEACHING METHODOLOGY

- Class room teaching
- Group discussions
- Seminars
- Chart/Assignment
- Simulation Model
- Smart Class room

SYLLABUS DESIGNERS

1. Mrs.B.ARULMOZHI , HOD, Dept of Computer Applications
2. Mrs.R.SHOBANA, Assistant Professor, Dept of Computer Applications
3. Ms. A. SIVASANKARI, HOD, Dept of Computer Science