

## CORE PAPER – XIV - THEORY: PROGRAMMING IN C LANGUAGE

Semester	Subject Code	Category	Lecture		Theory		Practical	Credits
VI	21CMA6D	Core paper – XIV	Hrs/week	Hrs/Sem	Hrs/week	Hrs/Sem	-	3
			5	75	5	75		

### COURSE OBJECTIVES:

The students will be able to

- Learn about C Constants, Variables, Statements, Arrays, functions and various concepts of C Language.
- Develop programming skill in the Computer Language C.

### COURSE OUTCOMES:

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

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Learn about C constants and Variables	K1
CO2	Explain about various operators in C Language, formatted input and output	K2
CO3	Learn about decision making statements and understand the reason why different constructs are available for iteration	K3
CO4	Develop C programs for arrays and user defined functions	K3
CO5	Understand structure, Unions and Pointers and to develop programs based on it.	K3

*Knowledge Level: K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze.*

### MAPPING OF PROGRAM OUTCOMES:

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	S	M	M	M	M
CO2	S	S	M	S	M	M
CO3	S	S	M	S	S	S
CO4	S	M	S	S	S	S
CO5	S	M	M	S	S	S

S- Strong; M-Medium; L-Low

## **UNIT – I : C CONSTANTS AND VARIABLES**

**15 Hours**

C Constants, variables, Data-type, Declaration of variables, assigning values to variables.

(Chapter 2: Sections 2.5 to 2.8, 2.10)

## **UNIT – II : OPERATORS**

**15 Hours**

Arithmetic, Relational, Logical, Assignment, Increment and decrement, Conditional, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic operators, Formatted input and output.

(Chapter 3: Sections 3.1 to 3.7, 3.10 to 3.12

Chapter 4: Sections 4.4 & 4.5)

## **UNIT – III: DECISION MAKING AND BRANCHING**

**15 Hours**

Decision making with **if**, simple **if**, **if else**, Nesting of **if – else**, **else – if** ladder, **switch** statement, the **? : Operator**, go to statement. Decision making and looping: **while**, **do**, **for** statement, Jumps in loops.

(Chapter 5: Section 5.1 to 5.9

Chapter 6: Section 6.1 to 6.5)

## **UNIT – IV: ARRAYS AND USER-DEFINED FUNCTION**

**15 Hours**

one– dimensional array, two – dimensional array, Initializing two – dimensional array, Multi – dimensional arrays. User – Defined Function: Need for User-defined function, Multi-function program, the form of C-Function, Return Value and their types.

(Chapter 7: Sections 7.1 to 7.6

Chapter 9: Sections 9.1 to 9.6)

## **UNIT – V: STRUCTURES, UNIONS AND POINTERS**

**15 Hours**

Structure definition, Declaring Structure Variables, Accessing Structure Members, Structure initialization, Comparison of structure variables, Arrays of structures, Arrays within structures, structure within structures, Unions

**POINTERS:** Understanding Pointers, Accessing the address of a variable, Declaring and initializing of pointers, accessing a variable through its pointer, Pointer expression.

(Chapter 10: Sections 10.1 to 10.10, 10.12

Chapter 11: Sections 11.1 to 11.6, 11.8)

**DISTRIBUTION OF MARKS: THEORY 80% AND PROBLEMS: 20%****TEXT BOOK**

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	E.Balagurusamy	Programming in ANSI C	Tata McGraw Hill Education	2010

**REFERENCE BOOKS**

S.N O	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	V. Rajaraman	Computer Programming in C	PHI learning Private	2019
2.	Herbert Schildt	Teach yourself C	McGraw-Hill Education	1997
3.	Mullish Cooper	The spirit of C	Jaico Publishers	1998
4.	Yashavant Kanetkar	Let us C	BPB Publications	2016
5.	Dr.P.Rizwan Ahmed	Programming in C	Margham Publications	2016

**WEB RESOURCES**

1. <https://nptel.ac.in/courses/106/104/106104128/>
2. <https://nptel.ac.in/courses/106/105/106105171/>
3. <https://beginnersbook.com/2015/02/simple-c-programs/>

**TEACHING METHODOLOGY**

1. Class room Teaching
2. Assignments
3. Seminars
4. Discussions
5. PPT Presentations

**SYLLABUS DESIGNER**

Mrs. G. VinuPriya, Head and Assistant Professor of Mathematics.