Course Code	Course Title	C	H	I	E	T
17U1DMC1	**PROGRAMMING IN C**	**4**	**6**	**25**	**75**	**100**

UNIT I: Overview of C   (20 hours)

History of C – Importance of C – Basic Structure of C Programs – Programming Style – Character Set – C Tokens – Keywords and Identifiers – Constants, Variables and Data Types – Declaration of Variables – Defining Symbolic Constants – Declaring a variable as a constant – overflow and underflow of data – Operators and Expressions: Arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – Arithmetic Expressions- Evaluation of Expressions – Precedence of Arithmetic Operators – Type Conversions in Expressions – Operator Precedence and Associativity – Mathematical functions.

UNIT II: Managing I/O Operations   (15 hours)

Reading and Writing a Character – Formatted Input, Output – Decision Making & Branching: if statement - if else statement - nesting of if else statements - else if ladder – switch statement – the ?: operator – goto statement – the while statement – do statement – the for statement – jumps in loops.

UNIT III: Arrays   (15 hours)

One-Dimensional Arrays – Declaration, Initialization – Two-Dimensional Arrays – Multi-dimensional Arrays – Dynamic Arrays – Initialization. Strings: Declaration, Initialization of string variables – reading and writing strings – string handling functions.

UNIT IV: User-defined functions   (20 hours)

Need – multi-function programs – elements of user defined functions – definition – return values and their types – function calls, declaration, category – all types of arguments and return values – nesting of functions – recursion – passing arrays, strings to functions – scope visibility and life time of variables. Structures and Unions: Defining a structure – declaring a structure variable – accessing structure members – initialization – copying and comparing – operation on individual members – array of structures – arrays within structures – structures within structures – structures and functions – unions – size of structures – bit fields.

UNIT V: Pointers   (20 hours)

Accessing the address of a variable – declaring, initialization of pointer variables – accessing a variable through its pointer – chain of pointers – pointer increments and scale factors – pointers and character strings – pointers as function arguments – pointers and structures. Files: Defining, opening, closing a file – IO Operations on files – Error handling during IO operations – command line arguments.

Text Book:

1. E.Balagurusamy, Programming in ANSI C, 6th Edition, 2005, Tata McGraw Hill Publishers.

Chapters:

Unit I: 1 (Except 1.3-1.7, 1.10-1.12), 2 (Except 2.9, 2.13), 3 (Except 3.13)

Unit II: 4 – 6

Unit III: 7, 8 (Except 8.5, 8.6, 8.7, 8.9, 8.10)

Unit IV: 9 (Except 9.20), 10

Unit V: 11 (Except 11.8, 11.10, 11.12, 11.14, 11.15, 11.17), 12 (Except 12.6)

Reference Books:

1. Gottfried, Programming with C, Schaum's Outline Series, , 2006,Tata McGraw Hill.
2. Ashok N.Kamthane, Programming with ANSI and Turbo C, 2006, Pearson Education.
3. H. Schildt, C: The Complete Reference, 4th Edition, 2000, TMH Edition.
4. Kanetkar Y., Let us C, 1999, BPB Pub., New Delhi.