

17PCD13/23 PROGRAMMING IN C AND DATA STRUCTURES

Course objectives:

The objectives of this course is to make students to learn basic principles of Problem solving, implementing through C programming language and to design & develop programming skills. To gain knowledge of data structures and their applications.

Subject Code: **17PCD13/23**

Total no. of Hours: **63**

Number of slots/week: **05**

Name of Faculty: Ms. Monika Arya

CREDITS - 04

Class no	Module/ Ref. text	Topic to be covered (in detail)	% of portion covered		Course Outcomes Covered
			Chapter wise	Cumulative	
1	Module -1	Introduction to Computers and languages			
2		Pseudo code solution to problem			
3		Definition of Algorithms and examples			
4		C language			
5		Basic concepts in a program (Token, Variables, Keywords)			
6		Data types, Initialization and declaration of variables			
7		Printf statements and examples			

8		Scanf Statements and examples		
9	Module -1	operators and expressions		
10		operators and expressions(Contd.)		
11		Precedence and Associativity of operators		
12		Programming examples and exercise		
13		Programming examples and exercise		
14		Module 2	Two-way selection statements	
15	If, if-else statements and examples			
16	nested if-else and examples			
17	cascaded if-else and examples			
18	switch statement and examples			
19	switch statement and examples goto statements			
20	Loops(for)			

21		For loop and examples		
22		While loop and examples		
23		Do-while loop and examples		
24		Difference between all loops and exercise		
25		Break and continue statements		
26		Programming examples and exercise		
27		Programming examples and exercise		
28	Module-3	Functions (Function prototype, function calling, function definition)		
29		Functions examples and Call by Value		
30		Pointers, Initialization and Declaration of Pointers variablewqaz		
31		Functions, call by Reference, difference between call by value and call by reference		
32		Recursion		
33		Arrays, initialization and declaration of single dimensional array		
34		Arrays examples		

35	Module-3	Arrays examples			
36		Initialization and declaration of Multi- dimensional array and examples			
37		Arrays examples			
38		Passing array to functions			
39		String, initialization and declaration of string			
40		String input and output functions			
41		String input and output functions(Contd.)			
42		string manipulation functions			
43		string manipulation functions(Contd.)			
44		string manipulation functions(contd.)			
45		array of strings			
46		Programming examples and Exercises			
47		Module-4	Basic of structures, structure Data types		
48			Structures examples		

49	Module-4	Array of Structures		
50		structures and Functions		
51		Files, Definition, opening and closing file		
52		File Functions		
53		File Functions(Contd.)		
54		Programming examples and Exercises		
55	Module-5	Pointers and address, pointers and functions (call by reference) arguments		
56		pointers and arrays		
57		Pointers address arithmetic		
58		Dynamic Memory Allocation		
59		Introduction to Preprocessors, compiler control Directives, Programming examples and exercises.		
60		Introduction to Data Structures: Primitive and non-primitive data types		
61		Definition and applications of Stacks		
62		Definition and applications of Queues		

63	Module-5	Linked Lists and Trees.		
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Text Books:

1. Brian W. Kernighan and Dennis M. Ritchie: The C Programming Language, 2nd Edition, PHI, 2012.
2. Jacqueline Jones & Keith Harrow: Problem Solving with C, 1st Edition, Pearson 2011.

Reference Books:

1. Vikas Gupta: Computer Concepts and C Programming, Dreamtech Press 2013.
2. R S Bichkar, Programming with C, University Press, 2012.
3. V Rajaraman: Computer Programming in C, PHI, 2013