

Course no: BSCT-113

Title: Computer Programming and Data Structure

Sem: I

Credits: 3 (1 + 2)

Theory :-

Introduction to High Level Languages i.e. “C” language, Primary Data types, User defined data type, variable, operator, building & evaluating expression, standard library function, managing input and output, decision making, branching, looping, array, user defined function, passing the argument and returning the value, recursion, string function, structure and union, pointer, stack, push/pop operation, queue, insertion deletion operation, linked list.

Practicals:

Familiarizing with Turbo C IDE; Building an executable version of C program; Debugging a C program; Developing and executing simple programs; Creating programs using decision making statements such as if, go to & switch; Developing program using loop statements while, do & for, Using the structure control structures; Familiarizing with one and two dimensional arrays; Using string functions; Developing structures and union; Creating user defined functions; Using local, global & external variables; Using pointers; Implementing Stacks; Implementing push/pop functions; Creating queues’ Developing linked lists in C language; Insertion/Deletion in data structures.

LESSON PLAN

Year : F.Y.B.Tech.

Semester : I

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Theory

Lect. No.	Topics	Points Covered	Reference Book No.	Page No.
1	Introduction to ‘C’	High level languages, compiler, interpreter	1	
2	Character set of ‘C’ Data types in ‘C’	Character set of ‘C’, variables, identifiers, primary data type, derived data type, user defined data type	1	
3	Operators in ‘C’ Building & Evaluating expression, Standard library function, managing input & output	Eight operators in ‘C’, library functions, printf, scanf functions	1	
4	Decision making, branching and looping	Simple if, nested if, goto and switch, for while, do : while, do, nested loop	1	
5	Array	1 dimensional and 2 dimensional array	1	
6	Functions, Strings	User defined functions, passing the argument and returning the value, recursion, nested function, Strings	1	
7	Structure and unions	Simple structure, structure within structure, pointer to the structure, Union	1	
8, 9	Pointers		1	
10	Stack	Stack	2	

11	Push pop operations		2, 4	
12	Queue	Circular queue	2, 4	
13	Insertion and deletion operations		2, 4	
14-18	Linked list	Single link, double link and circular linked list	3	

Text Books :

1. Programming in ANSI C By Balguru Sami
2. Data structure using C and C++ By Tennenbum
3. Pointers in C By Yashawant Kanetkar
4. Data structure using C and C++ By Schaums Series

Reference Books :

1. Let us C By Yashawant Kanetkar
2. Data structure Management By Raghu Ramkrishna & Henry Core
3. Programming in C By Dennis Ritchae

Practical

Practical No.	Topics	Sessions Required
1	Familiarizing with turbo C IDE	1
2	Building and executable C programme	
3	Debugging a C programme	
4	Developing and executing simple C programme	1
5	Creating programme using decision making (simple if)	1
6	Decision making (if else, nested if, goto, switch)	2
7	Loop (for while, do : while and do)	3

8	Arrays (1 dimensional and 2 dimensional)	2
9	Strings	1
10	Structure	3
11	Functions	4
12	Global, external, local variables	1
13	Pointers	4
14	Stack	2
15	Push pop	1
16	Linked list	4
17	Insertion and deletion in data structure	2