PGDCA13
C/C++ (8 weeks)

Contents	Lecture No.
Introduction to C, Programming Structure, Data Types, int, float, char, double, void variable declaration, putchar ( ), getchar ( ), printf ( ), scanf( ), formatted I/O	(1)
Size of Arithmetic, Relational, Logical Operators, Incrementing & Decrementing operators, unary operators, type conversion, control flow, if-else.	(2)
Conditional operator, while, do-while, for, switch case, goto, continue, break, exit ( )	(3)
Arrays (int array & char array), puts( ), gets( ), one and two dimensional arrays	(4)
Functions, Function Prototype & Declaration, call by value, call by reference, calling functions with arrays.	(5)
Recursion: Basic concept, design example	(6)
Basic I/O: Formatted Input/Output, unformatted Input/Output.	(7)
Program design examples: Summation of a set of numbers, generation of positive prime numbers.	(8-9)
Auto & Static variables, external variables, register variables, macros & C preprocessor, mallox ( ), calloc ( )	(10)
Pointers: Pointer expression, pointer assignments, pointer arithmetic, pointer comparison.	(11)
Pointer as function argument, function returning pointers.	(12)
Multi-dimensional array.	(13)
Pointer to an array, Array of pointers.	(14)
Pointer to a pointer, Pointer to a function.	(15)
Structures: Basics of structures, Declaring a structure, Referencing structure elements.	(16)
Array of structures, Passing structures to functions, Passing entire structure to functions.	(17)
Structure pointers, declaring a structure pointer	(18)
Using structure pointers, arrays and structures within structures.	(19)
Unions: Declaration, uses, Enumerated data-types, Typedef.	(20)
Standard library & header files: Studio.h, ctype.h, string.h, math.h, stdlin.h, stdarg.h, time.h, standard library functions, string functions, mathematical functions.	(21)
QUIZ, Introduction to OOPS	(22)
C++ IDE, concepts, introduction to input output stream, difference between a structure of C & C++. Class declaration, access specifiers, various scopes in C++.	(23)
Passing arguments, call by value, call by reference, function with default arguments.	(24)
Defining local class object, global class objects, arbitrary objects, assigning storage classes to class objects, intializing class objects, references, inline functions, this pointer.	(25)
Declaration of an array of objects, declaration of an array of pointers & objects.	(26)
Overloading member & nonmember functions.	(27)
Operator overloading (unary & Binary) & Type conversion.	(28-29)
New & Delete operator , Constructor-Destructor functions, constructors with default arguments,	(30-31)

dynamic constructors, copy constructor	
Friend functions, overloading using friend functions.	(32)
Derivation by composition ,Inheritance: Single, multilevel, multiple, hierarchical, hybrid	(33-34)
Virtual functions, Polymorphism, Input-Output-streams & manipulators in detail	(35)
File streams, File Operations, Reading & Writing to a file.	(36-37)
Overview of templates, Generic classes	(38-39)
Command line arguments, **Review**	(40)

A final test will comprise of 200 marks. Pass marks 80.