Details of course :-

Course Title	Course Structure			Prerequisite
	L	T	P	
Programming Fundamentals	3	0	2	Basic Maths

Course Objective:

- To understand the basic principles of programming languages.
- To provide design & development basic programming skills.
- To introduce problem solving methods and program development.

Course Outcome (CO):

1. Ability to develop algorithmic solutions for use on computers. Approach the programming task using procedural and Object Oriented Programming techniques
2. Ability to perform console input and output, utilize basic operators, and perform sequential Processing, utilize the basic control
3. Ability to use decision structures, loops, storage class and functions
4. Ability to process data in arrays, pointers and data files
5. Ability to Develop effective programs in C and C++.

S.No.		Course Hours
Unit 1	Introduction: Concepts of algorithm, flow chart, Basics of Computer Languages, Compilers, Interpreter, Programming Environments and Debugging: types of errors and debugging techniques. Program design techniques: Structured, modular, Bottom-up, top-down, procedural, OOP Programming features: Data types, Expressions and Operators-Arithmetic, unary, logical, bitwise, relational, assignment, comma operators. Data conversions. Input/Output statements.	9
Unit 2	Control statements: While, do-while, for statements, nested loops, if else, switch, break, Continue, and goto statements, Iterations. Concept of subprograms. Functions: Storage class -Scope and extent of variables, Argument types-actual, formal, dummy. Function definition, declaration, prototype. Recursion.	8
Unit 3	Pre-processor directives: headers and library functions, macros. Array: Array representation, Operations on array elements, using arrays, multidimensional arrays. Strings, operations on strings. Structures & Unions: Declaration and usage of structures and Unions.	8
Unit 4	Pointers: Pointer and address arithmetic, pointer operations and declarations, pointer and arrays, pointer to structure. Call by value, call by reference. Dynamic memory allocation.	9

	Sorting and searching algorithms: selection sort, bubble sort, insertion sort, and linear and binary search.	
Unit 5	File Handling: Declaration of files, types of files File pointer. File input/ output and usage, File operation Introduction to Object Oriented Programming: OOPS concepts, OOP languages- C++, Python etc.	8
	Total	42

Books:-

S.no	Name of books/Authors/Publisher
1.	C Programming Language (Ed 2) by Brian W. Kernighan and Dennis M. Ritchie, Prentice Hall
2.	C Programming for Beginners - The C Guru , 2016
3.	Kanetkar, Y (2016): Let us C, 15th ed .BPB Publications.
4	Modern C by Jens Gustedt - ICube , 2015
5	C Programming :: The Ultimate Way to Learn The Fundamentals of The C Language by Harry. H. Chaudhary.
6	Mastering C, Venugopal K R, Sudeep R Prasad, Edition 1,McGraw Hill Education.
7	Programming in ANSI C , Sixth Edition, McGraw Hill Education (India) Private Limited E Balagurusamy
8	Conceptive C by Harry McGeough - Smashwords , 2011