Year & Sem: E1S1	Course Code: CS6101	Course Name: **C Programming and Data Structures**	No. of Credits: 4	L	T&PS	P
				2	2	0

UNIT-I

Introduction to Computer Programming: Computing Environments, Computer Languages, Creating and Running Programs. Algorithms and Flow charts : Definition of Algorithms, examples, Symbols used in Flow chart, examples. Introduction to C Language - Background, C Identifiers, Data Types, Operators, Variables, Constants, Input / Output, Expressions, C Programs, Precedence and Associativity, Evaluating Expressions, Type Conversion, Statements, Bitwise Operators.

UNIT-II

Conditional statements and Loops: if-else, switch Statements, Standard Functions. Repetition: loops, while, for, do-while statements, Loop examples, break, continue and goto statements.

UNIT-III

Arrays: Array Concepts, Using Arrays in C, Array Applications, Two- Dimensional Arrays, Multidimensional Arrays, Linear and Binary Search, Selection, Bubble, Insertion Sorts. **Strings:**String concepts and string operations.

UNIT-IV

Functions: Designing Structured Programs, Functions Basics, User Defined Functions, Inter Function Communication, Standard Functions, Scope, Storage Classes-auto, Register, Static, Extern, Scope Rules, and Type Qualifiers. Recursion- Recursive Functions, Preprocessor Commands. Strings - Concepts, C Strings, String Input / Output Functions, Arrays of Strings, String Manipulation Functions.

UNIT-V

Pointers: Introduction, Pointers to Pointers, Compatibility, void Pointers, Arrays and Pointers, Pointer constants, Pointers and Strings, Pointers to Functions, Pointers to Constant Objects, Constant Pointers, Pointer Arithmetic. Call-by-reference: Pointers for Inter-Function Communication, Passing Arrays to a Function. Dynamic Memory Allocation: Memory Allocation Functions, Programming Applications, Command-line Arguments.

UNIT-VI

The Type Definition (type def), Enumerated Types .

Structure& Union: Definition and Initialization of Structures, Accessing Structures, Nested Structures, Arrays of Structures, Structures and Functions, Pointers to Structures, Self Referential Structures, definition and Initialization of Union, Accessing of Union.

Files: Input and Output: Files, Streams, Standard library Input Output Functions, Character Input Output Functions.