

**SIDDAGANGA INSTITUTE OF TECHNOLOGY, TUMKUR-572103**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**Foundations of Computer Programming**

**Common to all Branches**

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Contact Hours/ Week	: 4 + 2 (Lecture + Tutorial)	Credits :	5
Total Lecture Hours	: 52	CIE Marks :	50
Total Tutorial Hours	: 26	SEE Marks :	50
Sub. Code	: FCP		

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**UNIT – I**

**Introduction to the C Language**

System Development, Background, C Programs, Identifiers, Types (excluding complex and imaginary), Variables, Constants, Input/Output, Programming Examples.

**Structure of a C Program** - Expressions, Precedence and Associativity, Side Effects, Evaluating Expressions, Type Conversions, Statements, Sample Programs.

Section : 1.5,2.1 – 2.8,3.1 – 3.7

**9+5T hrs**

**UNIT – II**

**Functions**

Designing Structured Programs, Functions in C, User Defined Functions, Standard Functions (excluding complex number functions), Scope, Programming Example - Incremental Development.

**Selection-Making Decisions**

Logical Data & Operators, Two-way Selection, Multiway Selection, Incremental Development - Part II.

Section : 4.1, 4.2, 4.3, 4.5, 4.6, 4.7, 5.1, 5.2, 5.3, 5.5

**11+5T hrs**

**UNIT – III**

**Repetition**

Concept of a loop, Pre-test and Post-test loops, Initialization and Updating, Event and Counter controlled loop, Loops in C, Loop Examples, Other statements related to looping, Looping Applications, Recursion (except Tower of Hanoi)

**Pointers**

Introduction, Inter Function Communication, Pointer for Inter Function Communication, Pointers to pointers

Section : 6.1 – 6.9, 9.1, 4.4, 9.2, 9.3

**11+5T hrs**

**UNIT – IV**

**Arrays**

Arrays - Concepts, Using Arrays in C, Arrays and Pointers, Pointer Arithmetic and Arrays, Passing Arrays to a Function, Array Applications, Sorting, Searching, Two Dimensional Arrays, Programming Example - Calculating Average

Section : 8.1, 8.2, 10.1, 10.2, 10.3, 8.4, 8.5, 8.6, 8.7, 8.9

**10+6T hrs**

## UNIT – V

### Strings

String Concepts, C Strings, String I/O functions, Array of Strings, String Manipulation functions – strlen, strcpy, strcmp, strcat, strchr, strstr.

### Structures in C

Declaration, Initialization, Accessing Structures, Operations on structures, Array of structures, Structure and Functions.

### Bitwise Operators

Logical Bitwise Operators, Shift Operators, Masks - turning bits Off/On

Section : 11.1 – 11.5, 12.3, 14.2-14.4

11+5T hrs

### Self Learning Component:

Software Engineering and Tips and Common Programming errors section of all the specified chapters from the textbook.

### TEXT BOOKS:

1	Behrouz A. Forouzan , Richard F. Gilberg	Computer Science: A Structured Programming Approach Using C - Cengage Learning; 3rd edition
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### REFERENCE BOOKS:

1	Kerningham and Dennis Ritchie	The C programming language (ANSI C version), 2nd Edition, PHI India
2	Jeri R Hanly, Elliot B Koffman	Problem solving and program design in C Person Addison Wesley 2006
3	Ajay Mittal	Programming in C A practical Approach PHI Publication
4	Yashwant Kanetkar	Let us C, , 6th Edition , BPB publication