

PROBLEM SOLVING AND PROGRAMMING THROUGH 'C'

Credits: 4

Subject Code: BS22103

Semester: I

No. of Lecture Hours: 75

Objective: To understand major programming constructs which serve as the basis for any programming language.

Outcomes: The students would be able to

CO1: Understand the basic introduction of computer and programming language.

CO2: Identify 'C' data types, operators and data input/output functions.

CO3: Categorize 'C' control structures, arrays and string concept.

CO4: Explain 'C' function, recursion, pointers and dynamic memory allocation.

CO5: Express the concept of structures, union and file handling in 'C'

UNIT – I	15hrs
1. Flow charts and algorithms	2
2. Computer Languages	2
3. Introduction to C programming, History of 'C' Language	1
4. Program Development, Creating and running programs	1
5. Structure of C program	2
6. Data types and constants and variables	2
7. Scope of a variable	2
8. Operators and expressions	2
9. Type Casting, Assignment statements	1
UNIT – II	15hrs
1. Data input and output	2
1. Decision Making and branching	
a. if-else	2
b. switch	1
c. goto	1
2. Decision Making and looping	
a. While	1
b. do-While	1
c. for	2
d. nested loops	2
e. break, continue	1
3. More example programs	2
UNIT-III	15hrs
1. Arrays	
Single dimensional, Multi-dimensional	3
2. Functions	
Types of functions- User defined functions,	
Standard Functions	3
Calling Functions	3
Recursive Functions	3
3. Strings	3
4. String handling functions	3

UNIT-IV **15hrs**

1. Pointers

- a. Declaration, passing pointer to functions, 2
- b. Pointers and arrays. 2

2. Dynamic memory allocations. 2

3. Structures and Union

- a. Simple structures 2
- b. Array of structures 2
- c. Pointer to structures 2
- d. Union 2

4. More example programs 1

UNIT – V **15hrs**

1. File handling

- a. Various modes of operations 2
 - b. Input output Functions
 - i. Manipulating data using getchar(),
putchar(), getc(), putc() 2
 - ii. Manipulating numeric data using
getw(), putw() 2
 - iii. Write and read using fprintf()
and fscanf() 2
 - c. File Status Functions 2
 - d. Positioning Functions 2
- 2. File Programs** 2
- 3. Macros (Macro Substitution and File
Inclusion Directives)** 1