

## Subject: Problem Solving Using Computers and 'C' Programming-I

Semester – I

Subject Code: BS-11501

Lectures: 40

### Objectives:

The syllabus aims in equipping students with,

1. Problem solving abilities using computers.
2. Ability to build the necessary skill set and developing computer based solutions for real life problems.
3. Necessary knowledge base for programming.

### Unit 1: Introduction to Programming

No. of  
Lects. =6

#### Chapter 1: Introduction to Programming Tools

2

- Computer Software (System Software, Application Software)
- Computer Languages (Low Level Language, High Level Language)
- Compilers and Interpreters

#### Chapter 2: Problem Solving Using Computers

4

- Problem Solving
- Algorithms
- Pseudo code
- Flowchart
- Activity :
  - Identifying input and output for a computerized problem.
  - Write Pseudo code.
  - Draw flow chart.

BOS Members:

Prof. Manisha Bharambe (Subject Expert)

Prof. Poonam Ponde (Subject Expert)

Ms Febi Byju (Industry Expert)

Ms Sneha Shinde-Patil (Alumni)

Prof. Ashwini Kulkarni (Chairman)

Prof. Smita Borkar (Internal Faculty)

Prof. Shubhangi Jagtap (Internal Faculty)



**Unit 2: 'C' Language Fundamentals**

No. of  
Lects.=12

**Chapter 3 : Introduction to C Language**

2

- History
- Structure of C program
- Application Areas
- C Program development life cycle

**Chapter 4 : C Tokens**

10

- Keywords
- Identifiers
- Constants ( character, integer, float, string, escape sequences )
- Data types ( built-in and user defined )
- Variables
- Operators and Expressions, Operator types (arithmetic, relational, logical, assignment, bitwise, conditional, other operators), precedence and associativity rules.
- Input and Output using printf and scanf
- Activity :
  - Simple programs using printf and scanf

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**Unit 3: Input, Output and Control structures**

**No. of  
Lects.=13**

**Chapter 5 : Input and Output**

3

- Character input and output(getchar( ), putchar( ) )
- String input and output(gets( ),puts( ) )
- Formatted input and output
- Activity :
  - Simple programs of formatted input and output
  - Additional input output functions

10

**Chapter 6 : Control Structures**

- Decision making structures if, if-else, switch
- Loop Control structures while, do-while, for
- Nested structures
- break and continue
- Activity:
  - Programs on control structures.
  - Simple menu driven programs.
  - Trace the output of the programs.

**Unit 4: Functions**

**No. of  
Lects.=9**

**Chapter 7 : Functions in C**

9

- Function as a building block
- Advantages of Functions
- Standard library functions ctype.h,math.h )
- User defined functions :Declaration, definition, function call, parameter passing (by value), return keyword
- Scope of variables, storage classes
- Recursion
- Activity :
  - Programs.
  - Trace the output of the programs.

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