

1. Introduction to Programming

- What is a program and programming language
- Steps of problem solving
 - Problem analysis
 - Algorithm
 - Flowchart (basic symbols only)
- Program development steps
 - Coding
 - Compilation
 - Execution
 - Debugging (syntax vs logical errors)

2. Overview of C Programming

- Why C language (features & importance)
- Basic structure of a C program
- Header files (stdio.h, math.h)
- Tokens in C
 - Keywords
 - Identifiers
 - Constants
 - Variables
- Data types
- Type casting
 - Implicit
 - Explicit (basic idea)

3. Operators and Expressions

- Introduction to operators and expressions
- Arithmetic, relational and logical operators
- Assignment, increment and decrement operators
- Conditional, bitwise and special operators
- Comma operator, size of operator
- Evaluation and type conversion in expressions
- Operator precedence and associativity

4. Input and Output

- Purpose of input and output
- Formatted I/O
 - `printf()`
 - `scanf()`
- Format specifiers
 - `%d`, `%f`, `%c`, `%s`
- Escape sequences (`\n`, `\t`)
- Common I/O mistakes (wrong format specifier)

5. Control Structures

- Sequential execution
- Decision making
 - if
 - if-else
 - else-if ladder
 - switch
- Looping
 - for
 - while
 - do-while
- Loop control
 - break
 - continue

6. Array and Pointer

- Introduction to arrays
- One-dimensional arrays
- Two-dimensional and multidimensional arrays
- Introduction to strings
- Basic string handling functions
- Introduction to pointers
- Pointer declaration and initialization
- Pointer arithmetic
- Relationship between arrays and pointers

7. User-Defined Functions

- Introduction to functions
- Advantages of using functions
- Function definition and function prototype
- Function parameters and return values
- Types of user-defined functions
- Recursive functions
- Call by value and call by reference
- Passing arrays and strings to functions
- Scope rules and storage classes (basic idea)

8. Structures

- Introduction to structures
- Defining and declaring structures
- Accessing structure members
- Initializing structures
- Array of structures
- Structures with arrays and pointers
- Passing structures to functions

9. File Management

- Introduction to file handling in C
- Types of files: text and binary
- File opening modes
- File operations: open and close
- File input and output operations
 - Character I/O
 - String I/O
 - Formatted I/O
- Basic file error handling