

SUMMER CODING CAMP@SASI

15/6/2026 to 18/07/2026

(5 Weeks) – (15 days) - (90 hrs) - (45 hrs Theory and 45 hrs Practical)

Time Table

Day	9.15 AM to 10.45 AM	10.45 AM to 11.00 AM	11.00 AM to 12.30 PM	12.30 PM to 1.30 PM	1.30 PM to 4.30 PM
Monday	Session 1	Break	Session 2	Lunch Break	Computer Lab
Tuesday	Session 1	Break	Session 2	Lunch Break	Computer Lab
Wednesday	Session 1	Break	Session 2	Lunch Break	Computer Lab

Course Title: Introduction to Computers and C Programming

Course Objectives:

Upon successful completion of this course, students will be able to:

1. Understand the basic components and functioning of a computer system.
2. Develop algorithmic thinking and problem-solving skills.
3. Understand programming fundamentals and software development concepts.
4. Write, compile, execute, and debug simple C programs.
5. Apply control structures, functions, arrays, pointers, and file handling concepts.
6. Develop simple real-world applications using C programming.

Course Instructors:

1. Prof E V Sandeep (CSE)
2. Prof M Anantha Lakshmi (CSE)
3. Prof P Nagendra Shetty (CSE)
4. Prof G Vijaya Lakshmi (CST)

Suggested Course Structure (6 Weeks)

Week-1 Day-1	Computer Fundamentals	Evolution of Computers Characteristics of Computers Applications of Computers Types of Computers	Hardware and Software Input and Output Devices	Storage Devices Computer Memory (RAM, ROM, Cache) CPU and its Components
Day-2	Operating System Basics	What is an Operating System? Functions of Operating	Introduction to Windows/Linux Environment Files and Folders	Practicals

		Systems Types of Operating Systems	Basic Command Line Operations	
Day-3	Problem Solving Techniques & Flowcharts and Pseudocode	What is a Problem? Problem Analysis Steps in Problem Solving Algorithm Design Characteristics of Good Algorithms	Symbols used in Flowcharts Designing Flowcharts Writing Pseudocode Dry Run Techniques	Practical Activities Algorithm for finding largest number Flowchart for student grading system Pseudocode for ATM transaction
Day-4	Programming Fundamentals	What is Programming? Programming Languages Generations of Programming Languages	Compiler, Interpreter, Assembler Program Development Life Cycle	Laboratory Printing messages
Day-5	Basics of C Programming	History and Features of C Structure of a C Program Header Files	Main Function Compilation and Execution Process Writing First C Program	Laboratory Arithmetic calculations Using IDEs and compilers
Day-6	Variables and Data Types	Constants and Variables Data Types	Type Modifiers Input and Output Functions Type Conversion	Practicals
Day-7	Operators and Expressions	Arithmetic Operators Relational	Assignment Operators Increment and	Laboratory Simple calculator Temperature

		Operators Logical Operators	Decrement Operators Operator Precedence	conversion Area and perimeter calculations
Day-8	Conditional Statements	if Statement if-else Statement	Nested if else-if Ladder switch Statement	Laboratory Largest of three numbers Electricity bill calculation Multiplication tables
Day-9	Iterative Statements	while Loop do-while Loop	for Loop Nested Loops	Laboratory Prime number checking Pattern generation
Day-10	Functions	Need for Functions Function Declaration Function Definition	Function Calling Types of Functions Recursion	Laboratory Factorial using functions
Day-11	Arrays	One- Dimensional Arrays Two- Dimensional Arrays	Array Operations Searching Techniques Sorting Techniques	Laboratory Fibonacci series Linear Search Bubble Sort
Day-12	Strings	Character Arrays	String Functions String Manipulation	Laboratory String operations
Day-13	Pointers	Introduction to Pointers Address Operator	Pointer Variables Pointer Arithmetic	Laboratory Pointer demonstrations
Day-14	Structures, File Handling	Defining Structures Accessing Structure	Arrays of Structures	Laboratory Student record management Employee database

		Members Files in C and File Operations		using structures
Day-15	Feedback & Assessment			

Module 1: Introduction to Computers (Days1-2)

Unit 1: Computer Fundamentals

- Evolution of Computers
- Characteristics of Computers
- Applications of Computers
- Types of Computers
- Hardware and Software
- Input and Output Devices
- Storage Devices
- Computer Memory (RAM, ROM, Cache)
- CPU and its Components

Unit 2: Operating System Basics

- What is an Operating System?
- Functions of Operating Systems
- Types of Operating Systems
- Introduction to Windows/Linux Environment
- Files and Folders
- Basic Command Line Operations

Practical Activities

- Identifying computer hardware components
- Creating folders and files
- Basic terminal/command prompt commands

Module 2: Problem Solving Fundamentals (Days 3-4)

Unit 3: Problem Solving Techniques

- What is a Problem?
- Problem Analysis
- Steps in Problem Solving
- Algorithm Design
- Characteristics of Good Algorithms

Unit 4: Flowcharts and Pseudocode

- Symbols used in Flowcharts

- Designing Flowcharts
- Writing Pseudocode
- Dry Run Techniques

Practical Activities

- Algorithm for finding largest number
- Flowchart for student grading system
- Pseudocode for ATM transaction

Module 3: Introduction to Programming and C (Days 5-6)

Unit 5: Programming Fundamentals

- What is Programming?
- Programming Languages
- Generations of Programming Languages
- Compiler, Interpreter, Assembler
- Program Development Life Cycle

Unit 6: Basics of C Programming

- History and Features of C
- Structure of a C Program
- Header Files
- Main Function
- Compilation and Execution Process
- Writing First C Program

Laboratory

- Printing messages
- Arithmetic calculations
- Using IDEs and compilers

Module 4: Data Types and Operators (Days 7-8)

Unit 7: Variables and Data Types

- Constants and Variables
- Data Types
- Type Modifiers
- Input and Output Functions
- Type Conversion

Unit 8: Operators and Expressions

- Arithmetic Operators
- Relational Operators
- Logical Operators

- Assignment Operators
- Increment and Decrement Operators
- Operator Precedence

Laboratory

- Simple calculator
 - Temperature conversion
 - Area and perimeter calculations
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Module 5: Decision Making and Loops (Days 9-10)

Unit 9: Conditional Statements

- if Statement
- if-else Statement
- Nested if
- else-if Ladder
- switch Statement

Unit 10: Iterative Statements

- while Loop
- do-while Loop
- for Loop
- Nested Loops

Laboratory

- Largest of three numbers
 - Electricity bill calculation
 - Multiplication tables
 - Prime number checking
 - Pattern generation
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Module 6: Functions and Arrays (Days 11-12)

Unit 11: Functions

- Need for Functions
- Function Declaration
- Function Definition
- Function Calling
- Types of Functions
- Recursion

Unit 12: Arrays

- One-Dimensional Arrays
- Two-Dimensional Arrays

- Array Operations
- Searching Techniques
- Sorting Techniques

Laboratory

- Factorial using functions
 - Fibonacci series
 - Linear Search
 - Bubble Sort
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Module 7: Strings and Pointers (Day 13)

Unit 13: Strings

- Character Arrays
- String Functions
- String Manipulation

Unit 14: Pointers

- Introduction to Pointers
- Address Operator
- Pointer Variables
- Pointer Arithmetic

Laboratory

- String operations
 - Pointer demonstrations
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Module 8: Structures and File Handling (Days 14-15)

Unit 15: Structures

- Defining Structures
- Accessing Structure Members
- Arrays of Structures

Unit 16: File Handling

- Files in C
- File Operations
- Reading and Writing Files
- Command Line Arguments (Introduction)

Laboratory

- Student record management
- Employee database using structures
- File-based applications