



SILVER OAK UNIVERSITY

College of Technology

Bachelor of Technology

Information Technology

Course Name: Fundamentals of Programming-1

Course Code: 1010043113

Semester: 1st

Prerequisite:

Basic Knowledge of Computer Systems.

Course Objectives:

1. To provide the knowledge of basic fundamentals of programming.
2. The course is designed to provide fundamental knowledge of C language.
3. Students will be able to develop logics which will help them to create programs, applications in C.
4. Also by learning the basic programming constructs they can easily switch over to any other language in future.

Teaching Scheme:

Teaching Scheme				
L	T	P	Contact Hours	Credit
3	0	2	5	4

Contents:

Unit	Topics	Teaching Hours	Weightage %
1	Introduction: Introduction, Basic block diagram and functions of various components of computer, Concepts of Hardware and software, Computer Peripherals, Compiler and interpreter, Concepts of Machine level, Assembly level and high level programming, Flowcharts and Algorithms	8	15
2	Fundamentals of C: Features of C language, structure of C Program, comments, header files, data types, constants and variables, operators, expressions, evaluation of expressions, type conversion, precedence and associativity, I/O functions	8	20
3	Control structure in C: Simple statements, Decision making statements, Looping statements, Nesting of control structures, break and continue, goto statement	8	25
4	Array & String: Concepts of array, one and two dimensional arrays, declaration and initialization of arrays, string, string storage, Built-in string functions	8	25

5	Functions and Recursion: Concepts of user defined functions, prototypes, definition of function, parameters, parameter passing, calling a function, recursive function, Macros, Pre-processing, Recursion, as a different way of solving problems. Example programs, such as Finding Factorial, Fibonacci series, Ackerman function etc	10	15
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Course Outcomes:

Sr. No.	CO Statement	Unit
CO-1	Create algorithm/flowchart for the given arithmetic or logical problems.	1
CO-2	Construct and execute C programs from algorithm/flowchart using correct syntax	2
CO-3	Apply the control structures in C for problem solving. .	3
CO-4	Demonstrate the use of array and string functions	4
CO-5	Illustrate functions and recursion.	5

Teaching & Learning Methodology:

The various methods or tools follows by the faculties to teach the above subject are:

1. Problem-Based Learning.
2. Design Thinking.
3. Live Demonstration on Projector
4. Online Quiz
5. Cooperative-based learning

List of Experiments:

Total Hours: 28

Sr. No.	Practical Name
1	Write an algorithm and create a flowchart for the following: a. Find the area of Circle b. Find the maximum number out of 3 c. Find the factorial of the given number
2	Write a Program to print a message given in the laboratory
3	Write a Program to calculate Addition, Subtraction, Multiplication and Division of given two numbers using arithmetic operator
4	Write a program to demonstrate the use of a minimum of any three different operators.
5	Write a Program of swapping two values.
6	Write a Program to convert time from given seconds to total hours, minutes and seconds.
7	Write a Program to find the ascii value of a given character
8	Write a Program to display 3 students' student name, roll number and marks of 4 subjects and also display the total marks and percentage of each student.
9	Write a program to check whether the given number is prime or not.
10	Write a C program to print the Fibonacci series.
11	Write a program to print following patterns: a. * * * * * * * * * *

	<p>*****</p> <p>b.</p> <p>1 12 123 12345</p> <p>c.</p> <p>12345 1234 123 12 1</p> <p>d.</p> <p>5 5 5 5 5 4 4 4 4 3 3 3 2 2 1</p>
12	Write a Program to store the roll number of 5 students using an array
13	Write a Program to display a table of given value by user.
14	Write a Program in addition to a 2X2 dimensional array.
15	Write a program to demonstrate different string functions.
16	Write a program that defines a function to add first n numbers
17	Write a function in the program to return 1 if number is prime otherwise return 0
18	Write a Program to find simple interest of the given number using no return type in the user
19	defined function.
20	Write a Program to display a table of given value by user using the concept of recursion.

Major Equipment (Hardware/ Software):

1. Computer System
2. Compiler for C Program
3. Projector

Books Recommended:

1. Balagurusamy, "Programming in ANCI C", Tata McGraw-Hill Publishing Company Limited
2. Gottfried, "Programming with C", Tata McGraw-Hill Publishing Company Limited
3. Brian W. Kernighan and Dennis M. Ritchie, "C Programming Language", by Prentice Hall.
4. Ashok N. Kamthane, "Computer Programming", Pearson Education

List of Open-Source Software/learning website:

1. Visual Studio Code
2. w3schools.com
3. <https://www.tutorialspoint.com/cprogramming/index.htm>
4. <https://archive.nptel.ac.in/courses/106/104/106104128/>

