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C PROGRAMMING LAB(R13116)

Pre-requisite Course: Students should have basic understanding of Computers.

Course Description and Objectives:

1. Understand the basic concept of C Programming, and its different modules that includes conditional and looping expressions, Arrays, Strings, Functions, Pointers, Structures and File programming.
2. Acquire knowledge about the basic concept of writing a program.
3. Role of constants, variables, identifiers, operators, type conversion and other building blocks of C Language.
4. Use of conditional expressions and looping statements to solve problems associated with conditions and repetitions.
Role of Functions involving the idea of modularity.

Course Outcomes:

Upon completion of the course, the student will be able to achieve the following outcomes.

CO	Course Outcomes	POs
1	Apply and practice logical ability to solve the problems	4
2	Understand C programming development environment, compiling, debugging, and linking and executing a program using the development environment	5
3	Analyzing the complexity of problems, Modularize the problems into small modules and then convert them into programs	3
4	Understand and apply the in-built functions and customized functions for solving the problems	3
5	Understand and apply the pointers, memory allocation techniques and use of files for dealing with variety of problems	4
6	Identification of various computer components, Installation of software. Document and present the algorithms, flowcharts and programs in form of user-manuals	3

SYLLABUS:

Exercise - 1 Basics
 a) What is an OS Command, Familiarization of Editors - vi, Emacs b) Using commands like mkdir, ls, cp, mv, cat, pwd, and man c) C Program to Perform Adding, Subtraction, Multiplication and Division of two numbers From Command line

Exercise - 2 Basic Math a) Write a C Program to Simulate 3 Laws at Motion b) Write a C Program to convert Celsius to Fahrenheit and vice versa
Exercise - 3 Control Flow - I a)Write a C Program to Find Whether the Given Year is a Leap Year or not. b)Write a C Program to Add Digits & Multiplication of a number
Exercise – 4 Control Flow - II a)Write a C Program to Find Whether the Given Number is i) Prime Number ii) Armstrong Number b) Write a C program to print Floyd Triangle c) Write a C Program to print Pascal Triangle
Exercise – 5 Functions a) Write a C Program demonstrating of parameter passing in Functions and returning values. b) Write a C Program illustrating Fibonacci, Factorial with Recursion without Recursion
Exercise – 6 Control Flow – III a) Write a C Program to make a simple Calculator to Add, Subtract, Multiply or Divide Using switch…case I Year - I Semester L T P C 0 0 3 2 COMPUTER PROGRAMMING LAB b) Write a C Program to convert decimal to binary and hex (using switch call function the function)
Exercise – 7 Functions Continued Write a C Program to compute the values of sin x and cos x and e^x values using Series expansion. (use factorial function)
Exercise – 8 Arrays Demonstration of arrays a) Search-Linear. b) Sorting-Bubble, Selection. c) Operations on Matrix.
Exercises - 9 Structures a)Write a C Program to Store Information of a Movie Using Structure b)Write a C Program to Store Information Using Structures with Dynamically Memory Allocation c) Write a C Program to Add Two Complex Numbers by Passing Structure to a Function
Exercise - 10 Arrays and Pointers a)Write a C Program to Access Elements of an Array Using Pointer b) Write a C Program to find the sum of numbers with arrays and pointers.
Exercise – 11 Dynamic Memory Allocations a) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using malloc () function. b) Write a C program to find sum of n elements entered by user. To perform this program, allocate memory dynamically using calloc () function. Understand the difference between the above two programs
Exercise – 12 Strings a) Implementation of string manipulation operations with library function. i) copy ii) concatenate iii) length iv) compare b) Implementation of string manipulation operations without library function. i) copy ii) concatenate iii) length iv) compare
Exercise -13 Files a)Write a C programming code to open a file and to print it contents on screen. b)Write a C program to copy files
Exercise - 14 Files Continued a) Write a C program merges two files and stores their contents in another file. b) Write a C program to delete a file.
Exercise - 15 a) System Assembling, Disassembling and identification of Parts / Peripherals. b) Operating System Installation-Install Operating Systems like Windows, Linux along with necessary Device Drivers.
Exercise - 16 a) MS-Office / Open Office i) Word - Formatting, Page Borders, Reviewing, Equations, symbols. ii) Spread Sheet - organize data, usage of formula, graphs, charts. iii) Powerpoint - features of power point, guidelines for preparing an effective presentation. b) Network Configuration & Software Installation-Configuring TCP/IP, Proxy, and firewall settings. Installing application software, system software & tools.

Note:

a) All the Programs must be executed in the Linux Environment. (Mandatory)

b) The Lab record must be a print of the LATEX (.tex) Format.