Kadi Sarva Vishwavidyalaya

Faculty of Engineering & Technology

First Year Bachelor of Engineering (All Branches)

(With effect from: Academic Year 2017-18)

Subject Code: CC103-N	Subject Title: FUNDAMENTAL OF PROGRAMMING

Teaching scheme				Total Credit	Evaluation Scheme					
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract.	Total
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	Marks
02	00	04	06	04	03	70	30	20	30	150

Course Objective:

- Each faculty of engineering & technology is profoundly computational. Simulations, data analysis & processing are a significance part of most of the engineering streams.
- This course is intended to develop problem solving skills in to students with basics of C programming.
- Student is expected to learn problem solving using algorithm & flowchart techniques and implementation of problem using 'C' programming.
- This course aims to make the students aware about basic programming terminology such as data types, variables, operators, conditional statements, looping structures, handling group of data, methods and much more.
- This course shall also put a foundation stone for the computerized problems solving simulation tools such AutoCAD, MATLAB, Pro-E and many others.

Outline Of the Course:

Sr. No	Title of the Unit	Minimum Hour
1	Introduction to computer	2
2	Introduction to Programming	2
3	Fundamentals of 'C'	5
4	Control Structures in 'C'	6
5	Array & String	6
6	Functions	5
7	Structure and Union, Pointers, File Management	6

Total hours (Theory): 32
Total hours (Lab): 64
Total hours: 96

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Detailed Syllabus

Sr. No	Topic	Lecture Hours	Weight age(%)
1	**Introduction to computer:** Introduction, Basic block diagram and functions of various components of computer, Concept of Hardware and Software, Types of software, Compiler and Interpreter.	2	06
2	**Introduction to Programming:** Basic Difference between Procedure Oriented Language and Object Oriented Language, Concepts of Machine level, Assembly level and High level programming, Flow charts and Algorithms	2	06
3	**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.	5	16
4	**Control Structures in 'C':** Simple statements, Decision making statements, Looping statements, Nesting of control structures, break and continue statement, goto statement	6	19
5	**Array & String:** Concept of array, One and Two dimensional arrays, declaration and initialization of arrays, String, String storage, Built-in string functions	6	19
6	**Functions:** Concept of user defined functions, prototype, definition of function, parameters, parameter passing, calling a function, recursive function, Macros, Preprocessing	5	16
7	Fundamentals of Structures and Unions. Introduction to Pointers. Primitive Operations using File Management in C.	6	18
	Total	32	100

Instructional Method and Pedagogy:
- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lectures will be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lecture and laboratory which carries 10 marks in overall evaluation.
- One internal exam will be conducted as a part of internal theory evaluation.
- Assignments based on the course content will be given to the students for each unit and will

  be evaluated at regular interval evaluation.
- Surprise tests/Quizzes/Seminar/tutorial will be conducted having a share of five marks in the overall internal evaluation.
- The course includes a laboratory, where students have an opportunity to build an appreciation for the concepts being taught in lectures.
- Experiments shall be performed in the laboratory related to course contents.

Learning Outcome

At the end of this course, the student would be able

- • To understand the methods of problem solving
- • To have fundamental knowledge on flowcharts and algorithms
- • To formulate the problem and express the same using flowcharts and algorithms
- • To understand the basic terminology used in computer programming using C
- • To study, analyze and understand logical structure of a computer program, and different construct to develop a program in 'C' language
- • To write, compile and debug programs in C language
- • To design programs involving decision structures, loops and functions

TEXT BOOKS:

1. Programming in ANSI C, Forth Edition, E Balagurusamy, TMH
2. Programming in C, Ashok Kamthane, Pearson
3. Let us C ,Y.P. Kanetkar, Infinity Science Press

REFERENCE BOOKS:

1. C: The Complete Reference, Herbert Schildt, McGrawHill
2. Computer fundamentals and Programming in C, Pradip dey and Manas Ghosh, Oxford
3. Programming With C, by Byron Gottfried, Schaum's Outline Series, McGraw-Hill

List of experiments (Not limited to following. Subject teacher may modify the same)**:**

Sr.	Name of Experiment
	Practical set-1
1	Write a program to print your address.
2	Write a program to perform average of five variables.
3	Write a program to print area of circle, rectangle and square.
4	Write a program to convert years into minutes.
5	Write a program to perform all the arithmetic operations together in a single program.
	Practical set-2
6	Write a program to print a character entered by user.
7	Write a program to convert small letter case to upper letter case.
8	Write a program to swap the values of two variables using third variable.
9	Write a program to swap the values of two variables without using third variable.
10	Write a program to find maximum and minimum numbers from two numbers by using Conditional operator.
11	Write a program to demonstrate bitwise operator.

	Practical set-3
12	Write a program to check whether the entered number is odd or even by using if else statement.
13	Write a program to check whether entered character is alphabet, digit or special symbol.
14	Write a program to find whether entered year is leap year or not.
15	Write a program to check how many days are there in entered month by using switch case.
16	Write a program to check whether entered character is vowel or consonant by using switch statement.
17	Write a program to get maximum number among three.
18	Write a program to calculate grade of given marks.
19	Write a program to print first 10 integers by using go to statement.
20	Write a program to print addition of first n numbers by using go to statement.
	Practical set-4
21	Write a program to find reverse of given numbers. (Example 132-231)
22	Write a program to check whether entered number is Armstrong or not.
23	Write a program to check whether entered number is palindrome or not.
24	Write a program to print factorial of a given number.
25	Write a program to check whether entered number is prime or not.
	Practical set-5
26	Write a program to print Different pattern using For Loop.
	Practical set-6
27	Write a program to print 1 to 5 numbers using array.
28	Write a program to print 1 to 5 reverse numbers using array.
29	Write a program to find sum and average of five numbers.
30	Write a program to find maximum and minimum number from given array.
31	Write a program to find number of positive, negative and zero from given array.
32	Write a program to find number of odd and even from given array.
33	Write a program to sort given n number using array.
34	Write a program to read matrix, display original and transpose of matrix.
	Practical set-7
35	Write a program to copy one string to another string.
36	Write a program to concatenate two strings.
37	Write a program to find length of given string.
38	Write a program to find length of given string without using string function.
39	Write a program to copy one string to another string without using string function.
40	Write a program to compare two strings.
41	Write a program to reverse a given string.
42	Write a program to find given string is palindrome or not.
43	Write a program to convert a given string into upper case string.

		Practical set-8
44		Write a user defined function (UDF) to print whether entered number is odd or even.
45		Write a program to add first n numbers using user defined function (UDF).
46		Write a program to find out average of first n numbers using user defined function (UDF).
		Practical set-9
47		Write a program to declare structure student having member's grade, name and roll number and access them in various ways.
48		Write a program using structure to get name, roll number, and marks of a student's of a class and find out who got highest marks. Use concept of structure within structure.
49		Write a program to create an employee structure having member's name, salary, Get data in employee structure through one function and display data using another function. Use concept of struct and function.
		Practical set-10
50		Write a program to declare and use pointer variables.
51		Write a program to swap two values with help of call by value and call by reference.
52		Write a program to find length of string using pointer and without using string functions.
		Practical set-11
53		Write a program to write the characters into file from standard input and then read the characters.
54		Write a program to write the integers into file from standard input and then read the integers.
55		Write a program that creates the structure of student and Scan the data of n students and store.
56		Write a program that copies the contents of one file into another.
57		Write a program that appends the content of file at the end of the other.