



**Kadi Sarva Vishwavidyalaya**  
**Faculty of Engineering & Technology**  
**First Year Bachelor of Engineering (All Branches)**  
(With effect from: Academic Year 2017-18)

<b>Subject Code: CC103-N</b>	<b>Subject Title: FUNDAMENTALS OF PROGRAMMING</b>
------------------------------	---------------------------------------------------

Teaching scheme				Total Credit	Evaluation Scheme					Total
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract.	
Hrs	Hrs	Hrs	Hrs		Hrs	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**



**Kadi Sarva Vishwavidyalaya**  
**Faculty of Engineering & Technology**  
**First Year Bachelor of Engineering (All Branches)**  
(With effect from: Academic Year 2017-18)

**Detailed Syllabus**

Sr. No	Topic	Lecture Hours	Weight age(%)
1	<b>Introduction to computer:</b> 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	<b>Introduction to Programming:</b> 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	<b>Fundamentals of 'C':</b> 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	<b>Control Structures in 'C':</b> Simple statements, Decision making statements, Looping statements, Nesting of control structures, break and continue statement, goto statement	6	19
5	<b>Array &amp; String:</b> Concept of array, One and Two dimensional arrays, declaration and initialization of arrays, String, String storage, Built-in string functions	6	19
6	<b>Functions:</b> 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
	<b>Total</b>	<b>32</b>	<b>100</b>

**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.



**Kadi Sarva Vishwavidyalaya**  
**Faculty of Engineering & Technology**  
**First Year Bachelor of Engineering (All Branches)**  
(With effect from: Academic Year 2017-18)

**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
	<b><u>Practical set-1</u></b>
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.
	<b><u>Practical set-2</u></b>
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.

**Kadi Sarva Vishwavidyalaya**  
Faculty of Engineering and Technology  
**First Year Bachelor of Engineering (All Branches)**  
In Effect from Academic Year 2017-18

<b><u>Practical set-3</u></b>	
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.
<b><u>Practical set-4</u></b>	
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.
<b><u>Practical set-5</u></b>	
26	Write a program to print Different pattern using For Loop.
<b><u>Practical set-6</u></b>	
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.
<b><u>Practical set-7</u></b>	
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.

**Kadi Sarva Vishwavidyalaya**  
Faculty of Engineering and Technology  
**First Year Bachelor of Engineering (All Branches)**  
In Effect from Academic Year 2017-18

<b><u>Practical set-8</u></b>	
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).
<b><u>Practical set-9</u></b>	
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.
<b><u>Practical set-10</u></b>	
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.
<b><u>Practical set-11</u></b>	
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.