Faculty of Computer Application
B.Sc. (IT) (Cloud & Application Development)

- **Semester– I**
- **Subject Code: 05CA0103**
- **Subject Name: Basic of Application Programming**
- **Objectives:**

1. On completion of this module, candidate should be able to know about techniques for solving problems.
2. basic computational concepts and elementary data structures.
3. candidate will be able to hand-execute simple programs.
4. showing how input data is processed, output data is produced, and how the values of internal variables change.
5. explain at various levels the behaviour of fragments of programming language code.

- **Prerequisites : NA**

Unit No	Topic Covered	No of Lectures Required
1	**Introduction to C Programming** Introduction to Computer and Program along with Instructions, Types of Programming Language, Flowchart Interpreted and Compiled Language, POP introduction and explanation. Why we use this POP, Features of C and its Basic Structure. **Data types & variables** What is Data type, Types of Datatype, Declaration of Data type, Constants & variables, Concept of an Integer and Variable, Rules for naming Variables and assigning values to variables.	15

2	**Operators & Control Statement** What is operator, Explain 7 Types of Operator, Simple if, if. Else, Nested if, Else…if leader, switch, while loop, do While, For loop, Go to, Break, Continue, Declaration of array, types of Array, How to accessing Array **Function & File Handling & Structure Union** Function: What is function, types of function, how to call function, how to create a user define function, String function. File Handling: What is file? File Operation, File In out Stream, File Output Stream, and Structure & Union: What is Structure? How to create a Structure? What is Difference between Structure and Union, what is Union? How to create a Union.	**15**

Course Outcomes:

1. To Make students aware about c programming concepts.
2. To learn about the concept of datatypes and structure in c programming.
3. To develop the operator and control statement of c programming.
4. To develop the understanding of array and file handling.
5. Helpful for to develop logistic skills.

Course Outcomes – Program Outcomes Mapping Table:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3
CO1	H		H		M	L			H		L
CO2	M	H		L		H			M	M	
CO3	M	L			L		H		H	M	
CO4	H		H	L			M			L	L
CO5	M	L			H			M			L

Text Books:

1. C Programming: A Modern Approach, K,N King, W.W. Norton & Company, 2008

Reference Books:

1. The C Programming Language (2nd Edition) written by Brian W. Kernighan, Dennis M. Ritchie, Prentice Hall, 1988
2. Head First C written by David Griffiths, Dawn Griffiths, O'Reilly Media, 2012

Web reference:

1. https://www.geeksforgeeks.org/c-programming-language/

2. https://www.javatpoint.com/c-programming-language-tutorial
3. https://www.w3schools.com/c/index.php

App reference:

1. Udemy: C Programming For Beginners - Master the C Language.
2. Coursera: C for Everyone: Programming Fundamentals

Syllabus Coverage from text /reference book & web/app reference:

Unit #	Chapter Numbers
1	Chapter-1,3,4&5
2	Chapter-6,8&9

PRACTICALS:

Unit No	List of Practicals	No of Hours Required
1	• Write a c program of arithmetic operators. • Create a c program of Booleans algebra different formulas in c. • Write a program to demonstrate the Calculation of the area of rectangle using c. • Write a program to demonstrate the Calculation of the simple interest of rectangle using c. • Create a c program to Calculate the square of given number in c. • Making a c program to Calculate the compound interest of the rectangle using c. • Write a program to demonstrate the usage of different data types (int, float, char, double) by declaring variables of each type and assigning values to them. • Create a program that performs arithmetic operations (addition, subtraction, multiplication, division) using variables of different data types and displays the results. • Create a program that calculates the sum and average of three numbers using variables and displays the results. • Write a program to calculate the area of a rectangle using length and width variables. • Define a constant for the value of pi (π) and use it in a program to calculate the area of a circle. • Create a program that calculates simple interest based on user input for principal amount, rate, and time, using constants for interest formula variables.	30

2	• Create a c program Show the concept of if statement. • Write a c program Show the concept of logical operator with if statement. • Demonstrate the c program concept of using ternary operators and unary operator. • Write a c program Calculate of square root of a given number using sqrt method. • Demonstrate the c program given number is positive or negative using the if statement. • Create c program Show the given number is even or odd using the if statement. • Write a c program the concept of switch statement. • Write a c program Show the given number is table using for loop statement. • Create a c program Print specific number pattern using a while loop statement. • Write a program to create a text file and write data into it. • Develop a program that reads data from an existing text file and displays it on the console. • Make a program that copies the contents of one text file to another. • Create a program that defines a structure for storing student details (name, roll number, marks) and demonstrates how to use it. • Write a program that uses a union to represent the storage of a number as integer, float, and character, and display its values. • Develop a program that uses structures to store information about employees (name, employee ID, salary) and performs operations like adding new employees, updating salary, and displaying employee details. • Write a program that uses functions to find the maximum and minimum elements in an array. • Create a program that defines a user-defined function to calculate the area of a circle and displays the result. • Implement a program that defines and calls a function to calculate the factorial of a number.	**30**