COURSE TITLE	**BASIC OF APPLICATION PROGRAMMING**
COURSE CODE	**05CA0103**
COURSE CREDITS	**4**

Objective:

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 behavior of fragments of programming language code

Course Outcomes: After completion of this course, student will be able to:

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.

Pre-requisite of course:NA

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	4	50	30	20	0	50

Contents : Unit	Topics	Contact Hours
1	**Introduction to C Programming & Data types & variables** 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, 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

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Contents : Unit	Topics	Contact Hours
2	**Operators, Control Statement & Function & File Handling & Structure Union** 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: 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
Total Hours		**30**

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Unit 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 (p) 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

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
2	**Unit 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
Total Hours		**60**

Textbook :

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

References:

1 The C Programming Language, The C Programming Language, Brian W. Kernighan & Dennis M. Ritchie, Prentice Hall, 1988

2 Head First C, Head First C, David Griffiths, Dawn Griffiths, O'Reilly Media, 2012

Suggested Theory Distribution:

The suggested theory distribution as per Bloom’s taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery

Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
20.00	30.00	25.00	15.00	10.00	0.00

Instructional Method:

1. Board Work
2. PPT
3. Demo

Supplementary Resources:

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
4. https://nptel.ac.in/courses/106105085
5. https://nptel.ac.in/courses/106104128
6. https://www.open-std.org/jtc1/sc22/wg14/
7. https://learn.microsoft.com/en-us/windows-hardware/drivers/
8. https://www.w3schools.in/c-tutorial
9. https://www.learn-c.org/
10. https://www.open-std.org/jtc1/sc22/wg14/
11. https://www.javatpoint.com/c-programming-language
12. https://www.codechef.com/learn/c-programming
13. https://www.edx.org/course/intro-to-c-programming

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