FACULTY OF COMPUTER APPLICATIONS
Bachelor of Computer Application

- **Sem.** 1
- **Subject Code** : 05BC3103
- **Subject** : Programming Practices – 1
- **Course Objectives** :

1. To understand the fundamentals of C programming.
2. To code, document, test, and implement a well-structured C program.
3. To be able to write code in C programming language for simple problems.
4. To learn about the data types, operators and functions in C programming language.
5. Students will become familiar with problem solving techniques.

- **Prerequisites**: Basic Computer Fundamental knowledge.

Unit No	Topics Covered	No of lectures required
1	**Introduction to Programming** Program Definition - Program development cycle - Programming Languages – Generation of Programming Language : Low Level language – High Level Language – Features of a good programming language. **Algorithm and Flow chart:** Introduction of algorithm with sequence, decision and iterative statements, Introduction of flowchart with standard symbols.	**10**
2	**Fundamentals of C Program** **Introduction to C :** History of C - Features of C Language - Structure of a C program – execution of C Program : Compiling, Link and Run a program.	**10**

	Variables and Constants: C character set – Tokens – Constants - Keywords – identifiers and Variables - Data types and storage - Declaration of variables – Assigning values to variables – Escape sequences - Defining symbolic constants	
3	**Operators and IO Statements** **C Operators :** Arithmetic, Logical, Assignment, Relational, Increment and Decrement, Conditional, Bit wise, Special - Operator Precedence and Associatively - C Expressions – Arithmetic expressions – Evaluation of expressions – Type conversions in expressions – Type cast operator **I/O statements :** Reading a character – Writing a Character - Formatted input, formatted output	**10**
4	**Control Structures** **Branching :** Introduction – Simple if statement - if-else - else-if ladder, nested if-else – Switch case statement. **Looping Statements:** Concept of Entry Control Loop : for & while Exit control loop : do while, Nested Loop. Concept of break, continue and goto statement.	**10**
5	**Function and Preprocessor directives** **Functions** : Library functions (Mathematical and Character), Need for user-Defined functions- Elements of User-Defined Functions – Definition of Functions – Return Values and their types – Function Calls – Function Declaration- Categories of Functions – No Argument No Return Values – Arguments but No Return Values – Arguments with Return Values - No Arguments with Return Values – Nesting of Functions – Recursion **Preprocessor directive:** Introduction, Macro Substitution, File Inclusion, Compiler Control Directives	**10**

Course Outcomes :

1. Ability to develop understanding of Procedure Oriented Programming Language
2. Ability to illustrate the flowchart and design an algorithm for a given

problem
3. Ability to use conditional and iterative statements.
4. Ability to develop user defined functions for the different applications.
5. Ability to use preprocessor directives for the file inclusion and macro substitutions.

Course Outcomes – Program Outcomes Mapping Table :

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	L		M			H				
CO2		M			L			H		L
CO3	L		L			M	M		M	
CO4	M			H		L		M		M
CO5		L			M		L		H	

Text Book :

1. Programming in ANSI C, by E.Balagurusamy, Publisher – McGraw Hill, Seventh Edition.
2. Programming in C, PradipDey, Manas Ghosh, Publisher - Oxford Higher Education, Second Edition

Reference Books :

1. Let us C, by YashwantKanitkar, Publisher – BPB Publications
2. Programming with ANSI and Turbo C, by Ashok N Kamthane, Publisher – Pearson Education
3. C: The Complete Reference, by Herbert Schildt, Publisher – Tata McGraw Hill

Web References :

1. https://www.tutorialspoint.com/cprogramming/index.htm
2. https://www.cprogramming.com/tutorial/c-tutorial.html

App References :

1. Learn C Programming by Coding and Programming - Programming Hub
2. C Programming - Learn Code, Theory & Discuss by SPDroid

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

Unit #	Chapter Numbers
1	Book – 2, Ch – 1
2	Book – 1, Ch - 1, Ch – 2
3	Book – 1, Ch – 3, Ch – 4
4	Book – 1, Ch – 5, Ch – 6
5	Book – 1, Ch – 9, Ch – 14

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PRACTICALS

Unit No	List of Practicals
1	Draw Algorithm and Flow chart for the following Definitions 1. Print "Hello World". 2. Takes 2 Values from user and Perform All Arithmetic Operations. 3. Print numbers from 1 to 20. 4. Input 3 values from user and find out its Average. 5. Calculate the Square and Cube of a number. 6. Interchange the value of two numbers. 7. Find largest out of three numbers 8. Find out Fibonacci series up to given n values 9. Find out Number is Odd or Even 10. Find out sum of digits of a given number.
2	1. Write a Program to Print "Hello World". 2. Write a Program that takes 2 Values from user and Perform All Arithmetic Operation. 3. Write a program that takes 3 values for Principle Amount, Rate of Interest and No. of Years and find out Simple Interest. 4. Write a program that input value from user and find out Area of Circle. 5. Write a program that input two values from user and find out Area of Rectangle. 6. Write a program that input 3 values from user and find out its Average. 7. Write a program to Calculate the Square and Cube of a number. 8. Write a program Interchange the value of two numbers using third variable. 9. Write a program Interchange the value of two numbers without using third variable. 10. Write a program that input quantity, price, discount and display final amount.
3	1. Write a program that input 2 values from user and find out Maximum.

	2. Write a program that input 2 values from user and find out Minimum. 3. Write a program that input age from user if age>=18 then print person is eligible for vote else person is not eligible for vote. 4. Write a program that input value from user and find out number is even or odd. 5. Write a program that input 2 number from user and find out number is equal or not. 6. Write a program that Input Salary From the user if salary Greater than or equal to 5000 then hr=5% of basic salary, ta=6% of basic salary, da=4% of basic salary and pf=5% of basic salary. but if salary is less than 5000 then hra=4%,ta=5%,da=3% and pf=4%.find out gross salary. printhra,ta,da,pf and gross salary(Hint : take all variable as float. formula for gross salary=salary+hra+ta+da- pf). 7. Write a C Program to input price quantity of an item from user and display final payment according to following condition. If total purchase(price*quantity) is greater than Rs.1000 then calculate discount 15% otherwise calculate discount 10% of total rupees. 8. Write a program to input year and find whether year is leap year or not.(Hint Use % Sign) 9. Write a program to input two values from user and check whether the first number is divisible by second or not. (Hint Use % Sign) 10. Write a program to Input a character, if it is capital convert into small else convert into capital. 11. Write a program that input one character from user and find out that character is vowel or not.(aeiou is called vowel). 12. Write programs that find out character is in uppercase or lowercase. Using If…Else..If or Switch.. Case 13. Input Three Values from user and Find Maximum.

	14. Input Three Values from user and Find Minimum. 15. Input RollNumber, Marks of 5 Subjects and find out Total, Percentage, Result and Grade. 16. Input day in number and print in text(for Example input 1 then Output Monday) 17. Input Month in number and print in text(for example input 1 then output January) 18. Input number and check whether the number is positive, negative or zero.

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1. Write a program that Print 1 2 3 4 …… 10
2. Write a program that Print 2 4 6 ……. 20
3. Write a program that Print 1 3 5 7 …… N
4. Write a program that Print 100 99 98…… 90
5. Write a program that Print 200 198 196 …. 180
6. Write a program that Print 1 10 2 9 3 8 4 7 5 6 6 5 7 4 8 3 9 2 10 1
7. Write a program to print multiplication table of inputted number.
8. Write a program to print 0 1 1 2 3 5 8 13…..n
9. Print first 10 natural number with its square and cube.
10. Accept 10 numbers from user one by one and displays its total value on screen.
11. Input x and y calculate its power value
12. Write a program that input number and find out sum of digits.
13. Write a program that input number and find out reverse of that number.
14. Write a program that input number and find out number is palindrome or not.
15. Write a program that input number and find out number is Armstrong or not.
16. Write a program that input number and find out number is Prime or not.
17. Write a program to find out prime numbers up to user series.
18. Write a program to find out Armstrong numbers up to user series.
19. Write a program that input number and find out factorial of given number.
20. Write a program to display following pyramid using loop. (Upto N terms)

A.	B.	C.	D.
1 1 2 1 2 3 1 2 3 4 1 2 3 4 5	1 2 2 3 3 3 4 4 4 4 5 5 5 5 5	1 1 0 1 0 1 1 0 1 0 1 0 1 0 1	1 0 0 1 1 1 0 0 0 0 1 1 1 1 1
E.	**F.**	**G.**	**H.**
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	5 5 4 5 4 3 5 4 3 2 5 4 3 2 1	1 2 3 4 5 1 2 3 4 1 2 3 1 2 1	1 2 3 4 5 2 3 4 5 3 4 5 4 5 5

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5	1. Write a program to find out addition of two values using UDF. 2. Write a program to find out factorial of number using UDF. 3. Write a program to find out reverse of number using UDF. 4. Write a program to find out Sum of digits using UDF. 5. Write a program to find out Number is Palindrome or not using UDF. 6. Write a program to find out Number is Armstrong or not using UDF. 7. Write a program to find out Number is Prime or not 8. Write a program to find out Fibonacci series up to user input using UDF. 9. Write a program to find out area of rectangle using UDF. 10. Write a program to find out area of circle using UDF. 11. Write a program to demonstrate use of macro 12. Write a program to demonstrate use of #include directive