Gokul Global University, Siddhpur

FACULTY OF COMPUTER SCIENCE AND APPLICATIONS

Program :	BCA	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	I
Course title :	Fundamentals of Programming Language 'C'	**Course code :**	FCAB111101
Course type :	Theory	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Computer		
Rationale :	To introduce students the essentials of computer Programming and programming methodology using C language		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

1. Students will understand to formulate a computing problem to executable computer program using C language.
2. Students will understand about compiler based programming languages
3. Students will learn concepts of variables, literals, data types, conversions of data types, input and output data and processing of data, inbuilt functions, arrays, header files, conditional and iterative statements.

Course Outcome:

1. Read, understand and trace the execution of programs written in C language
2. Understand the fundamentals of programming language for problem solving
3. Understand basic concepts of File Management in C language

Content

Unit	Description in detail	Credit	Weightage
I	**Introduction to Programming** Concepts of Algorithm and Flowcharts, problem solving examples using algorithm and flowchart, Types of Programming languages, Characteristics of higher level language, Compiler and Interpreter **Overview of C Introduction** Importance of C, Sample C programs, Basic structure of C	1	25 %

	programs, Programming style, executing of C program **Constants, Variables and data Types** Introduction, Character Set, C tokens, Keywords and Identifiers, Constants, Variables, Data types, Declaration of Variables, Defining symbolic constants		
II	**Operators and Expression** Introduction, Arithmetic of Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Bit-wise Operators, Special Operators, Arithmetic Expressions, Evaluation of expressions, Precedence of arithmetic operators, Type conversions in expressions, Operator precedence and associativity, Mathematical functions. **Input & Output Operators** Introduction, reading a character, writing a character, formatted input, formatted output.	1	25 %
III	**Branching and Looping** Introduction Decision making with Simple IF statement, IF ELSE statement, Nesting of IF ELSE statements, The ELSE IF ladder, The switch statement, the turnery (? :) Operator, the GOTO statement. **Iterative Statement** Introduction WHILE statement, the DO statement, The FOR statement, Jumps in loops Break and continue	1	25 %
IV	**Array & String** Introduction, One-dimensional, arrays, Two-dimensional arrays, Initialization of two- dimensional arrays, Concept of Multidimensional arrays **Handling of Character strings** Introduction, Declaring and initializing string variables, Reading strings from terminal, Writing strings to screen, Arithmetic operations on characters, Putting string together, String Operations: String Copy, String Compare, String Concatenation And String Length, String Handling functions, Table of strings	1	25 %

Reference Books:

1. Programming in C, Balaguruswami – TMH
2. C: How to Program, Deitel & Deitel - PHI
3. C Programming Language, Kernigham & Ritchie - TMH

Suggested Readings:

1. Mastering Turbo C, Kelly & Bootle - BPB
2. C Language Programming – Byron Gottfried - TMH
3. Let us C, Yashwant Kanetkar - BPB Publication

Online Resources:

1. https://www.w3schools.com/
2. https://www.tutorialspoint.com/
3. https://www.programiz.com/
4. https://www.cprogramming.com/

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FACULTY OF COMPUTER SCIENCE AND APPLICATIONS

Program :	BCA	**Subject / Branch :**	NA
Year :	**2022/23**	**Semester :**	I
Course title :	Practical-Fundamentals of Programming Language 'C'	**Course code :**	FCAB111105
Course type :	Practical	**Course credit :**	04
Pre-requisite :	Basic Knowledge of Computer		
Rationale :	To introduce students the essentials of computer Programming and programming methodology using C language		

Teaching Examination Scheme:

Teaching (Hours/week)			**Examination Scheme**			
Lecture	Tutorial	Practical	Internal		External	Total
			Mid	CE		
4	0	0	15	15	70	100

Course Objective :

4. Students will understand to formulate a computing problem to executable computer program using C language.
5. Students will understand about compiler based programming languages
6. Students will learn concepts of variables, literals, data types, conversions of data types, input and output data and processing of data, inbuilt functions, arrays, header files, conditional and iterative statements.

Course Outcome:

4. Read, understand and trace the execution of programs written in C language
5. Understand the fundamentals of programming language for problem solving
6. Understand basic concepts of File Management in C language

Content

Practical:
1. Write a C program to display "Gokul University" on the screen. 2. Write a C program to find the area of circle using the formula Area=PI * r * r. 3. Write a C program to find the area of rectangle, cube and triangle.(Formula are: Rectangle=l *b*h, triangle = (I * b)* 0.5, cube = L*L*L

4. Write a C program to evaluate simple interest I = P*R*N / 100.

5.Write a C program to enter a distance into K.M and convert it in to meter, feet, inches and Centimeter

6. Write a C program to interchange two numbers.

7. Write a C program to convert Fahrenheit into centigrade

8. Write a C program for summation, subtraction, multiplication, division of two number using Arithmetic operator

9. Write a C program to find out the largest value from given three numbers using conditional Operator

10. Write a C program to find the maximum number from given three numbers.

11.Write a C program to find that the enter number is Negative, or Positive or Zero.

12.Write a C program to Checked whether entered char is capital, small, digit or any special Character

13.Write a C program to find out the max. and min. number from given 10 numbers.

14.Write a C program to find the sum of digit of accepted number.

15.Write a C program to find the sum of first 100 odd numbers. And even numbers.

16.Write a C program to display first 25 Fibonacci nos.

17.Write a C program to check the accepted number is prime number or not.

18.Write a C program to display first' 100 prime numbers.

19.Write a C program to find factorial of accepted numbers.

20.Write a C program to print accepted no and its reverse number.

21.Write a C program to convert decimal numbers into equivalent hexadecimal number.

22.Write a C program to display first 5 Armstrong number.

23.Write a C program to arrange the accepted numbers in ascending order and descending order.

24.Write a C program to find whether the accepted string is palindrome or not.

25.Write a C program to convert given line into upper case or lower case.

26.Write a C program to count no of word, character, line and space from given text.

27.Write a C program to display following output on the screen.

```
1
12
123
1234
```

28.Write a C program to display following output on the screen.

```
0
1 1
1 0 1
0 1 0 1
1 0 1 0 1
```

29.Write a C program to display following output on the screen.

```
1
22
3 3 3
4 4 4 4
```

30.Write a C program to find maximum & minimum value from the given array

Reference Books:

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Online Resources:

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