



# GUJARAT UNIVERSITY

## BCA I SYLLABUS

<b>COURSE TITLE</b>	<b>Introduction to Programming Language using C</b>
<b>COURSE CODE</b>	<b>CC-102</b>
<b>COURSE CREDIT</b>	<b>3</b>
<b>Session Per Week</b>	<b>4</b>
<b>Total Teaching Hours</b>	<b>40 HOURS</b>

### LEARNING OUTCOMES

- On the completion of the course students will be able to:
1. To create their own logic and implement using C Programming.
  2. To understand how to use programming in day to day application.

### DETAIL SYLLABUS

UNIT	TOPIC / SUB TOPIC	TEACHING HOURS
1	<b>PreProgramming Techniques</b>	<b>10 hours</b>
	<ul style="list-style-type: none"> <li>• <b>Introduction to Programming Languages</b> <ul style="list-style-type: none"> <li>o Introduction to Machine level language</li> <li>o Introduction to Assembly language</li> <li>o Introduction to Higher level language</li> <li>o Limitations and Features.</li> <li>o Classification of Computer Language- Procedural Language and Non Procedural Language.</li> </ul> </li> </ul>	2 hrs
	<ul style="list-style-type: none"> <li>• <b>Tools and Techniques of Problem Analysis</b> <ul style="list-style-type: none"> <li>o Algorithm Development and FlowChart</li> <li>o Numerous Examples in Algorithm Development and FlowChart</li> </ul> </li> </ul>	2 hrs
2	<b>C Language Operators and Decision Making</b>	<b>10 hours</b>
	<ul style="list-style-type: none"> <li>• <b>Operators &amp; Expression</b> <ul style="list-style-type: none"> <li>o Types of Operators and Expression</li> <li>o Precedence &amp; Associativity</li> </ul> </li> </ul>	3 hrs
	<ul style="list-style-type: none"> <li>• <b>Console based I/O and related built-in I/O function</b> <ul style="list-style-type: none"> <li>o printf(), scanf(), getch(), getchar(), putchar()</li> <li>o Concept of Header File and #include, #define</li> </ul> </li> </ul>	3 hrs
	<ul style="list-style-type: none"> <li>• <b>Decision Making Structure</b> <ul style="list-style-type: none"> <li>o If</li> <li>o If-else</li> <li>o Nested If-else</li> <li>o Switch</li> </ul> </li> </ul>	4 hrs

3	<b>Control Structure &amp; Array</b>	<b>10 hours</b>
	<ul style="list-style-type: none"> <li>• <b>Loop Control Structure</b> <ul style="list-style-type: none"> <li>o While</li> <li>o Do-While</li> <li>o For</li> <li>o Nested loop</li> </ul> </li> </ul>	5 hrs
	<ul style="list-style-type: none"> <li>• <b>Other Statements</b> <ul style="list-style-type: none"> <li>o break, continue, goto, exit</li> </ul> </li> </ul>	1 hrs
	<ul style="list-style-type: none"> <li>• <b>Array</b> <ul style="list-style-type: none"> <li>o One, Two – Dimensional Arrays</li> <li>o Initialization and working with Array.</li> <li>o Introduction to Multidimensional Arrays.</li> </ul> </li> </ul>	4 hrs
4	<b>String &amp; Functions</b>	<b>10 hours</b>
	<ul style="list-style-type: none"> <li>• <b>Character Arrays and Strings</b> <ul style="list-style-type: none"> <li>o Initialization and working with String.</li> <li>o Comparing and String Handling functions.</li> </ul> </li> </ul>	2 hrs
	<ul style="list-style-type: none"> <li>• <b>User Defined Functions</b> <ul style="list-style-type: none"> <li>o Introduction</li> <li>o Elements of UDF</li> </ul> </li> </ul>	2 hrs
	<ul style="list-style-type: none"> <li>• <b>Categories of UDF</b> <ul style="list-style-type: none"> <li>o No argument no return value</li> <li>o Arguments but no return value</li> <li>o No argument but returns a value</li> <li>o Arguments with return value</li> </ul> </li> </ul>	3 hrs
	<ul style="list-style-type: none"> <li>o Recursion</li> <li>o Nesting Function</li> <li>o Variable Scope</li> <li>o Visibility and lifetime in function</li> <li>o Storage Classes</li> </ul>	3 hrs
<b>TEXT BOOK/S:</b>		
<b>1. Introduction to C Programming</b> <b>Publication : Oxford</b> <b>By Reema Thareja</b>		
<b>REFERENCE BOOKS:</b>		
1. Computer Fundamentals & Programming in C Publication : Oxford By Pradip Dey, Manas Ghosh		
2. Programming in ANSIC (Fifth Edition 2011) Publication : McGraw Hill By Balagurusamy		
<b>WEB RESOURCES:</b>		
1. <a href="https://www.tutorialspoint.com/cprogramming/">https://www.tutorialspoint.com/cprogramming/</a> 2. <a href="http://www.javatpoint.com/c-programming-language-tutorial">http://www.javatpoint.com/c-programming-language-tutorial</a> 3. <a href="https://www.programiz.com/c-programming">https://www.programiz.com/c-programming</a> 4. <a href="http://www.cprogramming.com/tutorial/c-tutorial.html">http://www.cprogramming.com/tutorial/c-tutorial.html</a> 5. <a href="http://www.programmingsimplified.com/c-program-examples">http://www.programmingsimplified.com/c-program-examples</a>		
<b>REQUIRED SOFTWARE/S</b>		
1. Turbo C		



# GUJARAT UNIVERSITY

## BCA I SYLLABUS

<b>COURSE TITLE</b>	<b>C Practical</b>
<b>COURSE CODE</b>	<b>CC-105</b>
<b>COURSE CREDIT</b>	<b>3</b>
<b>Session Per Week</b>	<b>3</b>
<b>Total Teaching Hours</b>	<b>40 HOURS</b>

### AIM

Students will be provided with practical knowledge of advanced C programming language which includes functions, structures, files, pointers, dynamic memory allocation & preprocessors.

### LEARNING OUTCOMES

On the completion of the course students will:

1. The objective of this subject is to get in-depth practical knowledge of C language.
2. To know the advanced concepts of C Programming Language.

### Note

The students are expected to write program in 'C' language unit wise as given below. The list in each unit is **indicative only and may or may not be asked in the examination.**

### DETAIL SYLLABUS

UNIT	TOPIC / SUB TOPIC	TEACHING HOURS
1	1 . Find the Simple Interest. Inputs are principal amount, period in year and rate of interest.	10
	2. Find the area and perimeter of square and rectangle. Input the side(s) through the keyboard.	
	3. Accept any three numbers and find their squares and cubes.	
	4. Write a program to enter the temperature in Fahrenheit and convert it to Celsius.[ $C = ((F-32)*5)/9$ ]	
	5. Write a program to store and interchange two numbers in variables a and b.	
	6. Write a program to accept an integer and display it in octal and hexadecimal formats.	
	7. Write a program to enter text with gets() and display it using printf() statement also find the length of the text.	

8. Write a program to enter two numbers and find the smallest out of them. Use conditional operator.
9. Write a program to enter a number and carry out modular division operation by 2, 3 and 4 and display the remainders.
10. Write a program to find the average temperature of five sunny days. Assume the temperature in Celsius.

1. Write a program to accept number of seconds and display its corresponding hours, minutes and seconds.
2. Write a C program to find the maximum from given three numbers (Using Nested IF).
3. Write a C program to find that the accepted no is Negative, Positive or Zero.
4. Write a program to check given year is a Leap year or not.
5. Write a C program to find minimum from given 3 numbers (Using Conditional Operator).
6. Write a C program to find the maximum from given three numbers (Without using Nested if, or Logical Operator, Or Conditional operators).
7. Take marks from the user and print grade accordingly(  $\geq 75$  marks – Distinction,  $< 75$  and  $\geq 60$  marks – First,  $< 60$  and  $\geq 50$  – Second,  $< 50$  and  $\geq 35$  – Pass,  $< 35$  – Fail) using if ... else if....else statement and also by using logical operators).
8. Take 2 numbers from the user and print the greater number (Number can be equal).
9. Write a program to check whether the blood donor is eligible or not for donating blood. The conditions laid down are as under. Use if statement.
  - a) Age should be above 18 yrs but not more than 55 yrs.
10. Write a program to calculate bill of a job work done as follows. Use if else statement.
  - a) Rate of typing 3 Rs/page
  - b) Printing of 1st copy 5Rs/pages & later every copy 3Rs/page.
 The user should enter the number of pages and print out copies he/she wants.

2

10

11. The ABC Insurance Company Ltd. Offers the following three categories of car insurance policy to car owners:

- Category A, here the basic premium is calculated as 2% of the car's value.
- Category B, here the basic premium is calculated as 3% of the car's value.
- Category C, here the basic premium is calculated as 5% of the car's value.

12. Write a program to implement calculator using switch case.

1 Write a program to find sum of N numbers.

2 Write a program to find factorial of given number.

3 Write a program to find maximum from given N inputs by user.

4 Write a program to find reverse of a given number.

5 Write a program to find sum of the digits entered by the user.

6 Write a program to generate Fibonacci series up to N numbers.

7 Write a program to find GCD and LCM of given 2 numbers.

8 Write a program to find the sum of first 100 odd nos. and even nos.

9 Write a program to check whether given number by the user is Palindrome or not.

10 Write a program to check whether the given number is Prime or not.

3

11 Write a program to print all the prime numbers ranging from 50 to 100.

12 Write a C program to find  $x_1+x_2+x_3+x_4+ \dots+x_n$ .

13 Write a C program to find  $1+1/2+1/3+1/4+ \dots+1/n$ .

14 Write a program to print following pyramid.

```
*  
* *  
* * *  
* * * *
```

15 Write a program that accepts an integer N, if the integer N = 4, then print the pyramid :

```

  1
 121
12321
1234321

```

16 Write a program that accepts an integer N, if the integer N = 4, then print the pyramid :

```

4 4 4 4
 3 3 3
   2 2
    1

```

17 Write a program to Print following:

```

  A
 B C
D E F
G H I J

```

3

18 Write a program to Print following:

```

  1
 0 1
1 0 1
0 1 0 1

```

19 Write a program to Print following:

```

  1
 0 1
0 1 0
1 0 1 0

```

20 Write a program to Print following:

```

  A
 ABA
ABCBA
ABCDCBA

```

1 Display this kind of output on screen.

```

C
CP
CPR
. .
CPROGRAMING
.
.
CPR
CP
C

```

4

2 Write a program which will take 10 numbers from user and stored it in the array. It will print all the numbers, their sum and average of it.

3 Write a program to find binary of given number.

4 Write a program to sort and array.

5 Write a program to search an element from the array.

6 Write a program to find addition of two matrices of 3\*3.

7 Write a program to find multiplication of two matrices of 3\*3.

8 Take two strings from the user and check whether the string is palindrome or not.

9 Write a program to find sum, average of two numbers passed to user defined functions called sum(int,int) and average(int,int).

10 Write a program to print factorial of a given number by recursive user defined function fact(int).

4 11 Write a program to print Fibonacci series using recursive UDF.

12 Write a program to find length of the given string (without including string.h).

13 Write a program to find length of the given string (without including string.h).

14 Write a program to convert lowercase string to uppercase string (without including string.h).

15 Write a program which will accept two strings from the user and print the message that the strings are same or not.

16 Write a program which take a lowercase string from the user and print its length and uppercase string.

17 Write a program that uses function digit(N,k) that return the value of the kth digit from the right of the number N. For eg. The function call digit (254693,2) should return 9.

18 Program to find if the given no. is prime or not. The function should accept the number as argument and return if the no. is prime or not.

**TEXT BOOK/S:**

**Introduction to C Programming**

**Publication :Oxford**

**by Reema Thareja**

**REFERENCE BOOKS:**

**1. Computer Fundamentals & Programming in C**

**Publication: Oxford**

**By Pradip Dey, Manas Ghosh**

**2. Programming in ANSI C (Fifth Edition 2011)**

**Publication: Mc Graw Hill**

**By Balaguruswami**