

Branch Name:	IMCA
Program Code:	CS301
Course Name:	Fundamentals of Programming-I - Practical
Course Code:	2CS3010101P
Pre-requisite Course:	Basic familiarity with computers and logical thinking.

Course Objective:

1. Understand basic terminology of computers, problem solving, programming Languages and their evolution.
2. Create specification from problem requirements by asking questions to disambiguate the requirement statement.
3. Structured programming constructs (Sequence, Selection and Repetition statement).
4. Translate an algorithm into a C computer program.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
-	-	4	2	-	-	25	25	50

Course Contents:

No.	Program Description
1	Display "hello computer" on the screen
2	Print personal details (name, address, city, state, gender, etc.)
3	Find area of a circle ($\text{Area} = \pi * r * r$)
4	Find area of rectangle, triangle, and cube [Formula are: Rectangle= $L*W$, Triangle = $(h * b)/2$, Cube = $L*L*L$]
5	Evaluate simple interest ($I = P * R * N / 100$)
6	Convert distance in KM to meter, feet, inches, and centimeter
7	Interchange two numbers
8	Convert Fahrenheit to Celsius ($C = (F - 32) / 1.8$)
9	Perform addition, subtraction, multiplication, and division of two numbers
10	Find the largest value among three numbers using conditional operator

11	Check if a number is negative, positive, or zero
12	Check whether entered character is capital, small, digit, or special character
13	Map number (1–7) to weekday (Sunday to Saturday)
14	Create Marksheet for Three Subject Display Total, Per, Grade, Result (pass/fail)
15	Find sum of digits of a number
16	Sum of first 100 odd numbers and even numbers
17	Display first 25 Fibonacci numbers
18	Check whether a number is a prime number
19	Find factorial of a number
20	Check whether a number is a palindrome
21	Convert decimal to binary
22	Convert decimal to octal
23	Convert decimal to hexadecimal
24	Display first 5 Armstrong numbers
25	Sort numbers in ascending and descending order
26	Check if a string is a palindrome
27	Convert a line to uppercase or lowercase
28	Count words, characters, lines, and spaces in given text
29	Sort a given string in ascending order
30	Print various triangle and pyramid patterns using loops

1 12 123	A B C D E F	1 0 1 1 0 1	* * * * * *	SUCH LEVEL OF TRIANGLE PARRENT USING LOOP
1 1 2 1 2 3	A AB A B C	1 1 0 1 0 1	* * * * * *	SUCH LEVEL OF TRIANGLE PARRENT USING LOOP
1 2 3 1 2 1	A B C A B A	1 0 1 1 0 1	* * * * * *	SUCH LEVEL OF TRIANGLE PARRENT USING LOOP
1 2 3 1 2 1	A B C A B A	1 0 1 1 0 1	* * * * * *	SUCH LEVEL OF TRIANGLE PARRENT USING LOOP
1 1 2 1 2 3	A A B A B C	1 1 0 1 0 1	* * * * * *	SUCH LEVEL OF PIYRAMID PARRENT USING LOOP

31	Find max and min no in an array
32	Input N numbers and find sum, avg, max, min, even, odd (using array)
33	Display two matrices and perform matrix addition
34	Display two matrices and perform matrix multiplication
35	Sort a list of numbers in an array
36	Search a number in an array

Text Books:

1. Programming in ANSI C, By E Balaguru swami, Tata McGraw-Hill Publishing Company Limited.
2. Programming with C, By Bayron Gottfried, Tata McGraw-Hill Edition

Reference Books:

1. Let Us C, By Yashavant Kanetkar, BPB Publications.
2. Working with C, By Yashavant Kanetkar, BPB Publications
3. C in Depth, By Suresh K. Srivastava, BPB Publications.
4. Programming in C, by Reena thareja Publisher – Oxford

List of Open Source Software/learning website:

1. www.w3school.com
2. www.tutorialspoint.com
3. www.geeksforgeeks.org
4. www.javatpoint.com
5. <http://www.cprogramming.com/>

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand the fundamentals of problem-solving techniques such as algorithms, flowcharts, and pseudo code, and differentiate between types of programming languages and their translators.	2 Understanding
CLO2	Describe the structure and basic elements of a C program including character sets, tokens, data types, variables, constants, and symbolic constants.	1 Remembering 2 Understanding
CLO3	Use standard input/output functions and apply various operators and expressions with correct precedence and type conversions.	2 Understanding, 3 Applying, 4 Analyze

CLO4	Develop programs using conditional statements and iterative control structures, including nested conditions and loop control mechanisms.	3 Applying 5 Evaluate	4 Analyze 6 Creating
CLO5	Implement and manipulate one-dimensional and two-dimensional arrays to perform search, sort, and matrix operations	3 Applying 5 Evaluate	4 Analyze 6 Creating
CLO6	Perform string operations using arrays and built-in string handling functions to process and manipulate text data effectively.	3 Applying 5 Evaluate	4 Analyze 6 Creating

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CLO1	H	M	L	-	M	-	L	-	-	-	-	-	H	M
CLO2	H	M	-	-	M	-	L	-	-	-	-	-	H	M
CLO3	H	H	M	L	H	-	M	-	-	-	-	-	H	H
CLO4	H	H	H	M	H	-	M	-	L	-	-	M	H	H
CLO5	H	H	H	M	H	-	M	-	-	-	-	M	H	H
CLO6	H	H	M	M	H	-	M	-	M	-	-	M	H	H