Assessment Rubrics:

- Quiz / Assignment/ Discussion / Seminar
- Midterm Exam
- Lab Assignments
- Final Exam

Mapping of COs to Assessment Rubrics:

	Internal Exam	**Quiz**	**Assignment**	**Lab Assessment**	**End Semester Examination**
CO 1	✓	✓		✓	✓
CO 2	✓		✓	✓	✓
CO 3	✓	✓		✓	✓
CO 4	✓		✓	✓	✓

2. PROGRAMMING USING C

Discipline	COMPUTER SCIENCE				
Course Code	UK1DSCCSC101				
Course Title	PROGRAMMING USING C				
Type of Course	**DSC**				
Semester	I				
Academic Level	1				
Course Details	Credit	Lecture per week	Tutorial per week	Practical per week	Total Hours/Week
	4	3 hours	-	2 hours	5 hours
Pre-requisites	Basic knowledge about computer				

Course Summary	This course introduces the learners to C Programming language, which is a starting level for getting into programming. The course starts from programming basics and gives a holistic view of the C programming, detailing all the aspects of the C language.

Detailed Syllabus:

Module	Unit	Content	Hrs (L+P)
I	**Introduction to Programming**		**15**
	1	Algorithm & Flow charts	
	2	Program Writing – Structure of the Program, Source code, Object code, Executable file, Extensions of different files, Program Compilation, Running of a program; Header file concept.	
	3	Variables and Constants, Rules for naming the Variables/Identifiers.	
	4	Basic data types of C, int, char, float, double; storage capacity – range of all the data types; Storage classes.	
II	**Basic Concepts**		**15**
	5	Basic Elements: Operators and Expressions: Assignment Operator, Arithmetic Operator and Arithmetic expression, Relational Operator and Relational expression. Logical Operators, Expression Evaluation (Precedence of Operators)	
	6	Control Structures: Decision Making- if, if else, nested if, switch-case, Looping Statements- for, while, do-while, break, continue	
	7	Simple I/O statements: Formatted and Unformatted I/O statements.	
	8	Arrays: Introduction, defining simple arrays, multi-dimensional arrays, declaration, initialization, and processing	
	9	Strings: Declaration and Initialization, string handling functions	
III	**Functions & Pointers**		**15**

	10	Functions: Library, User defined functions, declaration, definition & scope, Recursion	
	11	Pointers: The & and * Operators, pointer declaration, assignment, arithmetic pointers, call by value and call by reference	
	12	Dynamic memory allocation (Concepts only)	
IV	**Structures and Files**		**15**
	13	Declaration and definition of Structures, Array of Structures, Structures within structures.	
	14	Union: Declaration and definition of Union.	
	15	File handling: text and binary files, modes of files, file operations	
V	**Flexi Module: Not included for End Semester Examination**		**15**
	16	Header file creation, Preprocessor Directives, Command line arguments.	
	17	Advanced programs using pointers and files	

Core Textbooks

1. E. Balaguruswamy, Programming in ANSI C, McGrawhill, Sixth Edition

Reference Books

1. Ashok N. Kamthene, Programming in C, Pearson Education, Second edition
2. Yashavant Kanitkar, Let us C Authentic Guide to C programming Language, 17th edition.
3. Computer Fundamentals and Programming in C by Reema Thareja, 2nd Edition, Oxford publication

Web Resources

1. https://www.tutorialspoint.com/cprogramming/index.htm
2. https://www.programiz.com/c-programming
3. https://www.w3schools.in/c-tutorial

LAB EXERCISES

Part A (Minimum 15 Questions)

- Program to demonstrate the syntax and use of basic data types,
- Program to demonstrate the syntax and use of operators.
- Program to demonstrate the syntax and use of decision-making statements.
- Program to demonstrate the syntax and use of looping statements.

Part B (Minimum 15 Questions)

- Arrays: Program related to arrays and its operations
- Strings: Programs related to string handling functions.
- Functions- Simple Examples of declaring and using functions, call by value, call by reference, Recursive functions.
- Pointers: Simple program to demonstrate pointers, array of pointers.
- Structures and union: Simple program to declare and define a structure, array of structures.
- Files: Simple programs to demonstrate file concepts.

Course Outcomes

No.	Upon completion of the course the graduate will be able to	Cognitive Level	PSO addressed
CO-1	Illustrate the concepts and structure of a C program.	Ap	PSO-1,2,3
CO-2	Make use of control structures, arrays and strings.	Ap	PSO-1,2,3
CO-3	Develop programs using functions and pointers.	Ap	PSO-1,2,3
CO-4	Demonstrate the concepts of structures, union and files.	Ap	PSO-1,2,3

R-Remember, U-Understand, Ap-Apply, An-Analyse, E-Evaluate, C-Create

Note: 1 or 2 COs/module

Name of the Course: PROGRAMMING USING C

Credits: 3:0:1 (Lecture: Tutorial: Practical)

CO No.	CO	PO/PSO	Cognitive Level	Knowledge Category	Lecture (L)/ Tutorial (T)	Practical (P)
1	Illustrate the concepts and structure of a C program.	PO-1,2,6,7 PSO-1,2,3	Ap	F, C, P	L	P

2	Make use of control structures, arrays and strings.	PO-1,2, 6,7 PSO-1,2,3	Ap	F, C, P	L	P
3	Develop programs using functions and pointers.	PO-1,2, 6,7 PSO-1,2,3	Ap	F, C, P	L	P
4	Demonstrate the concepts of structures, union and files.	PO-1,2, 6,7 PSO-1,2,3	Ap	F, C, P	L	P

F-Factual, C- Conceptual, P-Procedural, M-Metacognitive

Mapping of COs with PSOs and POs :

	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO 6**	**PO 7**	**PO 8**	**PSO 1**	**PSO 2**	**PSO 3**	**PSO 4**
CO 1	2	1	-	-	-	2	2	-	2	2	2	-
CO 2	2	2	-	-	-	2	2	-	3	2	2	-
CO 3	2	2	-	-	-	2	2	-	3	2	2	-
CO 4	1	1	-	-	-	2	2	-	3	1	2	-

Correlation Levels:

Level	Correlation
-	Nil
1	Slightly / Low
2	Moderate / Medium
3	Substantial / High

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