CENTRAL UNIVERSITY OF KERALA
DEPARTMENT OF COMPUTER SCIENCE
M.Sc. COMPUTER SCIENCE

OPEN ELECTIVE COURSE					
COURSE CODE	COURSE TITLE	CONTACT HRS/WEEK			CREDITS
		LEC	LAB	TUT	
CSC5071	C	2	2	1	4

Lec = Lecture, Tut = Tutorial, Lab = Practical

This is a problem solving **skill development course**.

Course Objective:
The objective of the course is to provide theoretical and practical aspects of programming using C.

By completing this course, students will obtain the following course/learning outcomes:
1. Knowledge to be gained:
   (i) fundamental concepts of design of algorithms using C
2. Skill to be gained:
   (ii) Critical analyzing and choosing appropriate data structures and algorithms to solve a specific problem using C
3. Competency to be gained:
   (iii) Design algorithms with appropriate data structure for real world problems using C

Prerequisites: Nil

Grading:

Lab implementation	– 20%
Assignment/Quiz/presentation	– 10%
Class Test	– 10%
Final Exam	– 60%

CSC5071 – C

Module 1
Introduction: Introduction to C, structure of C program, C programming, data types, storage classes, constants, keywords and operators: precedence and associativity, expressions, input/output statements, assignment statements, decision making statements, switch statement, looping statements.

Module 2
Arrays: Introduction to arrays, declaration, initialization one-dimensional array, operations on one-dimensional arrays, two dimensional arrays, operations on two-dimensional arrays, example programs on arrays.
Strings: Introduction to strings, string operations: length, compare, concatenate, copy, etc., programs on strings, programs on strings and arrays, selection sort, linear-search, binary-search.

Module 3
Functions: Introduction to functions, function prototype, function definition, function call, Built-in functions (string functions, math functions), recursion, example Programs: Computation of Sine series, Scientific calculator using built-in functions, Binary Search using recursive functions.
Pointers: Introduction to pointers, operators, pointer arithmetic, arrays and pointers, array of pointers, example programs, parameter passing: pass by value, pass by reference, example programs: Swapping of two numbers and changing the value of a variable using pass by reference.

Module 4
Structures: Introduction to structures, operations on structures, nested structures, array of structures, example Program using structures, self-referential structures, dynamic memory allocation, singly linked list, type-definition.

References

1. E Balagurusamy, Programming in ANSI C, 8/e, McGraw Hill Education, 2019.
2. Kernighan, B.W and Ritchie,D.M, The C Programming language, Second Edition, Pearson Education, 2006
3. Paul Deitel and Harvey Deitel, C How to Program, Seventh edition, Pearson Publication
4. Juneja, B. L and Anita Seth, Programming in C, CENGAGE Learning India pvt. Ltd., 2011
5. Pradip Dey, Manas Ghosh, Fundamentals of Computing and Programming in C, First Edition, Oxford University Press, 2009.