

	Technical Training - I	L	T	P	C
Version No. 1.0		0	0	4	2

Course Objectives

The objective of this course is to:

1. Provide an overview of computers and problem solving methods using 'C' language
2. Serve as a foundation for the study of programming languages.
3. Learn to develop program using 'C' language.
4. To develop the software using the concept of 'C' Language.
5. OOPs concepts using C++

Course Outcomes

At the end of this course students will be able:

1. The student would learn the basic concepts of Computer and acquire various problem solving techniques such as algorithms and flowchart.
2. To understand the basic terminology used in programming and able to write, compile and debug programs in 'C' programming language and to develop program logics using decision structures and loop structures.
3. To develop program logics using the concept of arrays and arrays of characters.
4. To understand the modular techniques such as functions and difference between call by value and call by reference methods.

Course Content

Unit I: Introduction to Computers and Algorithms

Parts of a computer – Overview of operating systems, assembler, compilers, interpreters and programming languages. Algorithms for exchanging the values of two variables, counting, summation of a set of numbers, factorial computation, sine function computation, generation of the Fibonacci sequence, reversing the digits of an integer, flowchart.

Unit II: Constructs of C

Lexical elements – Operators - data types – I/O statements – format specifications – control statements – decision making and Loop control structure: while loop, for loop, do-while loop, nested loop, break, continue, case control structure, go to, exit statement

Unit III: Arrays

Array handling in C – declaration – single dimensional arrays, two – dimensional arrays, multi-dimensional arrays, sorting and searching on single and two dimensional arrays. Array order reversal, string handling function, manipulation on strings.

Unit IV: Functions

Prototype – declaration - arguments (formal and actual) – return types – types of functions
difference between built-in and user-defined functions.

Unit V: Structures

Declarations - nested structures- array of structures - structure to functions - unions- difference between structure and union.

Unit VI OOPs concept using C++

Defining Classes in C, Member Functions, Object, Constructor, Object, Encapsulation and abstraction, Inheritance, types of inheritance, polymorphism, static,

Relationship between the Course Outcomes (COs) and Program Outcomes (POs)

Mapping between Cos and Pos		
Sl. No.	Course Outcomes (COs)	Mapped Program Outcomes
1	The student would learn the basic concepts of Computer and acquire various problem solving techniques such as algorithms and flowchart.	PO1, PO2
2	To understand the basic terminology used in programming and able to write, compile and debug programs in 'C' programming language and to develop program logics using decision structures and loop structures.	PO1
3	To develop program logics using the concept of arrays and arrays of characters.	PO3
4	To understand the modular techniques such as functions and difference between call by value and call by reference methods.	PO2
5	Implement and develop small projects using the concept Structures in C programming language.	PO3, PO9
6	Algorithms and Advanced Programming development in different field.	PSO1, PSO3

Text Books:

1. Alexis Leon and Mathews Leon (2001), Introduction to Information Technology, Tata McGraw-Hill.
2. R.G. Dromey (2001), How to Solve it by Computer, Prentice Hall of India.
3. Al Kelley and Ira Pohl (1998), A Book on C Programming in C, 4th Edition, Pearson Education.

Reference Books

1. E. Balagurusamy 7th Edition, Programming ANSI C, McGraw-Hill
2. Brian W. Kernighan and Dennis M. Ritchie, The C programming Language, Prentice-Hall in 1988
3. Byron Gottfried, Programming with C, Schaum's Outline

Course Code	Course Name	Program Outcome→	
		PO1	PO2
		Engineering Knowledge	Problem analysis
		PO3	Design/development of solutions
		PO4	Conduct investigations of complex problems
		PO5	Modern tool usage
		PO6	The engineer and society
		PO7	Environment and sustainability
		PO8	Ethics
		PO9	Individual or team work
		PO10	Communication
		PO11	Project management and finance
		PO12	Life-long Learning
		PSO1	Ability to design real world applications using high performance computing systems, computer networks and mobile computing systems
		PSO2	Ability to apply contemporary technologies and tools associated with IOT, Big Data, grid and cloud computing
		PSO3	Ability to integrate the concepts of theoretical computer science, data structure, algorithms and programming in to projects
		PSO4	Ability to develop intelligent software systems by integrating the knowledge of system sciences and intelligent systems.

CSE101	Computer Programming and Problem Solving	3	2	2						1				2		3	
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1=addressed to small extent

2= addressed significantly

3=major part of course

Theory

Lab



Course Outcomes Assessment

The theory part of this course strongly contributes towards the program outcomes **Problem Analysis (PO2)**, **Design/development of solutions (PO3)**.

The course addresses significantly towards Program outcome **Engineering Knowledge (PO1)** and **Ability to integrate the concepts of theoretical computer science, data structure, algorithms and programming in to projects (PSO3)**

Two evaluation methods will be used for the evaluation of course and program outcomes of this course.

The outcomes will be measured based on student performance on specific questions that will be part of the **semester end examination (SEE)**. Question number 9 will test the ability of the student for **Problem Analysis (PO2)** and **Design/development of solutions (PO3)**. The outcome based question is put in question serial number 9. That question is compulsory so all students will be expected to attempt it.

Direct Measurement Report

CSE312 Outcome (1,2,3) and PSO(1) Report Form

1. Measure– percent of students scoring at least 70% marks for the question 9 in the SEE examination.

Rubric - none

Target – 70% of students

2. Besides that various assignments and all CAT-1 / CAT-2 questions will also be mapped to one of the outcomes associated with the course. The attainment level of the outcomes associated with the course may also be calculated with the performance of the students in respective assignments and all CAT-1 / CAT-2 questions.

Indirect Measurement

In end term survey, the questions are asked from the students about the attainment of course outcomes associated with a particular course.