Fundamentals of Programming

Code	Credit Hours
CS- 114	2-1

Course Description

The objective of this course is to equip students with fundamental programming skills. Emphasis will be placed on thinking 'algorithmically', i.e., students will learn general programming concepts and apply them to solve basic problems in engineering and mathematics. We will be using the C programming language.

Text Book:

1. C Programming: A Modern Approach (2nd Ed.) by K. N. King

Reference Book:

1. C: How to Program (8th Ed.) by P. J. Deitel and H. M. Deitel

Prerequisites

None

ASSESSMENT SYSTEM FOR THEORY

Quizzes	10%
Assignments	5%
Project	15%
Mid Terms	30%
ESE	45%

ASSESSMENT SYSTEM FOR LAB

Quizzes	10%-15%

Assignments	5% - 10%
Lab Work and Report	70-80%
Lab ESE/Viva	20-30%

Teaching Plan

Week No	Topics	Learning Outcomes
1	Introduction	Course Outline, objectives, teaching plan, assessment ▪ method, concepts review ▪ Algorithms, flow charts, pseudo code ▪ Brief review of Von-Neumann architecture ▪ Programming languages ▪ Introduction to C
2-6	Fundamentals of C And Expressions	▪ Elements of a simple program ▪ Variables and assignments ▪ Input and output functions ▪ Basic syntax ▪ Arithmetic operators ▪ Assignment operators ▪ Increment and decrement operators
7-8	Selection Statements And Types	▪ Logical Expressions ▪ if/switch statements ▪ while statement ▪ for statement ▪ Basic types ▪ Arrays
9	**MID TERM EXAM**	
10-13	Functions And Strings	▪ Defining and calling functions ▪ Arguments ▪ Termination ▪ Recursion ▪ Sorting ▪ String literals ▪ String variables ▪ C string library ▪ Arrays of strings

14-17	Arrays & Pointers	▪ Arrays ▪ Pointers/References ▪ Static & Dynamic memory allocation ▪ File I/O operations
18		**End Semester Exams**

Practical:

Experiment No	Description
1	Introduction to C
2	Variables
3	Variables Cont'd
4	Decision Making using Condition Statements
5	Decision Making using if-else and Switch Statements Cont'd
6	while Loop
7	do-while Loop and for Loop
8	while Loop, do-while Loop, and for Loop Cont'd
9	Arrays and Sorting
10	2D Arrays
11	Functions
12	Open Ended Lab
13-15	Complex Engineering Problem (CEP)
16	Final Project Submission and Presentation