deerwalk
training center

INTRODUCTION TO C PROGRAMMING

Nature of the Course: Theory + Practical
Total Hours per Day: 2 Hours
Course Duration: 3 Weeks

Course Summary

C Programming is an object-oriented programming language. This course will provide an overview of how Objective-C works and how it differs from other programming languages if you have previously programmed. All materials, code, and assignments relevant to the module should be committed to the module's SVN repository. The tutor will assign the students particular activities to help them understand specific ideas throughout a three-week lesson that will last three hours each week. Each class will consist of approximately 20% theory and 80% practice. The tutor will post all the required material for the class at least a week prior in the SVN repository and it will include the topics that will be covered in the class, practice exercise details and assignment details. There will be two examinations to determine the student's progress throughout the course.

Completion Criteria

After fulfilling all of the following criteria, the student will be deemed to have finished the Module:

- Has attended 90% of all classes held.
- Has received an average grade of 80% on all assignments
- Has received an average of 60% in assessments.
- The tutor believes the student has grasped all of the concepts and is ready to go on to the next module.

Required Textbooks

- Greg Perry and Dean Miller, “C Programming: Absolute Beginner's Guide”
- Herbert Schildt, “C: The Complete Reference”, McGraw Hill

- David Griffiths and Dawn Griffiths, “Head First C”, O’Reilly.

Prerequisites

- Fundamental understanding of programming, bits/bytes, procedures, classes, and computer architecture. It's absolutely acceptable if you only have a theoretical understanding of programming, but you should be certain about what programming is and what you intend to gain from this session.
- If you are only interested in theory and have no interest/patience in spending at least 10 hours every week throughout the duration of the course, then this course might not be for you.
- If you have absolutely no idea about programming or do not see yourself doing programming in the next six -odd months, then this class may not be for you.

Course Details

Week I

Platform Setup

- Review of C Programming
- Variables and Data Types
- Operators
- Epilogue
- Blocks and Compound Statements
- Control Flow
- Conditional Statements
- Loops
- Functions
- Modular Programming
- Variable Scope
- Static Variables
- Register Variables

Week II

Pointer & Array

- Pointers and Memory Addresses
- Physical and Virtual Memory
- Addressing and Indirection Functions with Multiple Outputs
- Arrays and Pointer Arithmetic
- Strings
    - String Utility Functions
- Searching and Sorting Algorithms
    - Linear Search
    - A Simple Method to Sort Faster
    - Sorting Binary Search
- Pointers
    - Void Pointers
    - Function Pointers

Week III

User Defined Data Type

- Structures
- Unions
- Bit Field

Data Structure

- Memory Allocation
- Linked Lists
- Binary Trees

Standard Library

- <stdio.h>
- <ctype.h>
- <stdlib.h>
- <time.h>

Introduction To Graphics

- Modes
- Initialization
- Graphics Function

Final Project On C Programming

Labs

Lab assignments will focus on the practice and mastery of contents covered in the lectures; and introduce critical and fundamental problem-solving techniques to the students.

Learning Outcomes

- Create algorithms to solve simple programming problems.
- Describe and employ strategies that are useful in debugging.
- Mobile and Web App Mockup & Prototype in Figma.
- Responsive Web Design using HTML, CSS and JS.
- Reusing Design Elements.