

Semester 2**Programming Fundamentals****3 Credit Hours****Objective**

Computer programming is an art of developing computational solutions to precisely describable problems. The purpose of this course is to introduce students with basic concepts of structured programming. After completing this course, they should be able to write elegant structured programs to solve different computational problems. Programs are demonstrated using the C++ programming language. However, the concepts are taught in a language-independent fashion. Note that the basic purpose of this course is to learn programming instead of a particular programming language. The following topics will be covered in this course: Introduction to Programming Languages and Compilers; Flowcharts, Pseudo-code; Data Storage; Introduction to C++, Classes, Objects, and UML; Control Statements; Functions and Recursion; Debugging; Command Line Arguments; Preprocessor; Arrays; Pointers and Pointer-Based Strings; File Processing; Structures and Unions; Self-Referential Classes.

Prerequisites

CS100 / IT 100 – Introduction to Computing

Text Book

- Deitel & Deitel, C++ - *How to Program 5th Edition*, Pearson -- Prentice Hall (2005). ISBN: 0130384747

Reference Books

- Walter Savitch, *Problem Solving with C++: The Object of Programming*, Addison-Wesley, ISBN-10: 0321268652
- Robert Lafore, *Object-Oriented Programming in C++*, ISBN-10: 0672323087

Programming Fundamentals Lab**1 Credit Hours**Relevant to the above topics
