viope solutions

Introduction to C++ programming

The programming language for this course is C++.

The course begins with the basic concepts of computer programming. The C++ language fundamentals starts from the second chapter and in the last chapters the basics of object-oriented programming are introduced.

The course includes 11 theory chapters, including x pages. ***Introduction to C++ programming*** includes 23 programming exercises and 51 multiple-choice questions. Finishing this course takes about 60-120 hours.

Table of contents:

1 Countdown to the world of programming

1.1 What does “programming” mean
1.2 Defining a problem and solving it
1.3. Implementing the solution into an action plan
1.4 Unambiguity of an algorithm (enhanced instructions to Barney)

2 From travelling algorithms to the world of computing

2.1. From algorithm to source code
2.2 Your first C++ coding: calculating and printing the square of a number
2.3. Commenting in C++
2.4. Formatting the source code
2.5. What kind of programs will I learn to do?
2.6. From source code to a real application

3 Variables in C++

3.1. How does the computer memory work?
3.2. Using and naming variables
3.3 Primitive datatypes in C++
3.4 Defining variables
3.5 Initializing variables
3.6 Handling strings
3.7 More on printing: concatenated print statements and formatting

4 Programming statements, expressions and operators

4.2 C++ Programming statements
4.2 Expressions
4.3 Operators

5 Add some kick with if-statement

5.1 What is an if-statement?
5.2 Switch() - choose your path

6 C++ loop structures: a lazy programmer's dream come true

6.1 Make boring things easier, use for-statement
6.2 While-statement repeats until...
6.3 Do first, then test: do .. while

7 Functions – the gateway to larger programs

7.1 Function - a simple example
7.2 Programming customized functions

8 Numerical arrays in C++

8.1 One-dimensional arrays
8.2 Why to use arrays?
8.3 Multidimensional arrays
8.4 An example of manipulating a two-dimensional array

9 Object-oriented programming – the basics

9.1 Classes and objects
9.2 Functionality for the class - tricks for the dog
9.3 Class constructor
9.4 From class to object

10 More about objects - inheritance

10.1 Inheritance in C++
10.2 Testing the Dog class
10.3 The bliss of object-oriented programming

11 Basics of file handling

11.1 Concepts
11.2 Constant input stream cin and constant output stream cout
11.3 File objects
11.4 Reading a file - using ifstream class
11.5 Writing to a file - ofstream-class
11.6 Reading and writing - fstream-class
11.7 Reading different types of files