

Introduction to Computer Programming, Diploma for Software Developers – CCT204

Awarding Body:	CCT Certification and City & Guilds Diploma award
Schedule:	1 evening per week, 6.00pm – 9.00pm
Fees:	€950
Duration:	16 weeks – 48 hours
Next Commencement Dates:	August / February
Learning Mode:	Blended Learning with online support

Programme Audience

This programme is ideal for anyone with a keen interest in learning how to program. No pre-requisite qualifications are necessary, but any experience in Computing and particularly in Programming and Software Development is advantageous. This introductory programme incorporates the City & Guilds Diploma for Software Developers major award, adding a stronger introductory foundation to Software Development and Computer Programming in JAVA mainly and C++ languages. The course assumes no programming background and provides an overview of the software development process in addition to introducing important programming constructs and methodologies.

Programme Aims and Objectives

The main aim of this course is to teach newcomers the basics of programming using JAVA mainly. The main programme objectives include:

1. The course aims at improving reasoning abilities in order to solve problems commonly encountered when writing programs and help develop the skills necessary to structure any program in a logical manner.
2. Trainees will learn about such topics as programming language characteristics, integrated development environments, flowcharts, algorithms and pseudocode, variables, operators, conditional statements, looping statements, procedures, error-handling and debugging, object-oriented programming techniques, user interface design, software modeling, and Extensible Markup Language (XML) Web services. It also introduces web and desktop development.
3. The course also aims to meet the needs of candidates who work or want to work as software developers or computer games designers in the ICT sector.
4. To develop the ability of the candidates to be logical and creative in their problem solving approach.

Programme Content

Module 1: Introduction to Computer Programs

- Overview of Software Development
- Phases in the Execution of a Computer Program
- Overview of Problem-Solving Techniques
- Overview of Program Types
- Overview of Common Programming Languages and Technologies

Module 2: Introduction HTML to Scripting

This module introduces the concept of scripting, and shows how scripting can be used on the Web, to create macros, and in Windows. Students will also learn about Hypertext Markup Language (HTML) and its use on the Web.

- Using HTML
- Using Web Scripting (JavaScript)
- Using Macro Scripting (MS OFFICE)
- Using Windows Scripting(VBSCRIPT)

Module 3: Using Data and Variables

This module introduces the concepts of variables and data types, which are common to almost all programming languages. Students will learn how to implement variables to store data and how to use operators to manipulate data and variables.

- Using Variables
- Using Operators
- Using Programming Syntax

Module 4: Using Program Logic

This module introduces common programming constructs used in software development to control program flow. Students will learn how to implement conditional expressions and looping statements. They will also learn how to identify errors that can occur in computer programs as a result of incorrect program flow.

- Using Branching
- Using Loops
- Identifying Logic Errors

Module 5: Using Procedures and Functions

This module introduces the use of procedures and functions to create more modular computer programs. Students will learn about arguments and parameters and how functions return values.

- Using Procedures
- Using Functions

Module 6: Introduction to Developing a User Interface

This module explains how to design user interfaces for software applications. Students will learn best practices for user interface design and learn how user interfaces are created in Microsoft Visual Studio .NET.

- Designing a User Interface
- Building a User Interface
- Building a Web Interface
- Building a Desktop Interface
- Identify the features of a good user interface.

Module 7: Introduction to Working with Data

This module introduces the concepts of data storage and management. Students will learn about relational data, entity relationships, and primary and foreign keys. They will also learn how XML can be used to describe and structure data.

- Introduction to Managing Data
- Using the Entity Relationship Model
- Sorting Data by Using Keys
- Using XML

Module 8: Programming Approaches

This module introduces common programming methodologies and compares procedural programming to object-oriented programming. Students will learn the advantages afforded by object-oriented programming techniques. They will also learn how classes of objects can be defined.

- Using the Procedural Programming Approach
- Using the Object-Oriented Programming Approach

Module 9: Introduction to the Software Development Process

This module introduces the four phases of the software development lifecycle, and explains the use of the Unified Modeling Language (UML) to identify use cases and to simplify software design.

- Software Development Phases
- Introduction to the Unified Modeling Language
- Developing Use-Case Diagrams
- Examining Other UML Diagrams

Module 10 Introduction to Databases:

This module introduces students to basic skills of create database and managing data with SQL

- Introduction to databases
- Database conceptual design (Entity-Relationship model)
- Database Logical design (Relational model)
- Relational Database theory (Schema refinement)
- Relational Query Languages (Relational Algebra & SQL)
- Logical query languages

Assessment

CCT will utilise a variety of assessment methods to help ensure that the learning outcomes of each subject area will be achieved, for example: Written Examinations, Objective Tests, and Practical Assignments. Assessment will be continuous throughout the programme.

Career Progression Opportunities and Further Study Options

Further study in Computer Science and Programming in particular, would be a natural education and training graduate progression opportunity, particular globally recognised industry certifications such as Oracle certified awards. This programme also serves as an excellent and comprehensive introductory foundation in Programming and Software Development.