Object Technology has been in development for over forty years. It is now embedded in such diverse areas as requirements engineering, software architecture, analysis, design, programming, testing, deployment and maintenance. The most widely used modern programming languages C++, Java and VB.Net all embrace an object oriented approach. This module examines the application of the object oriented paradigm to programming. Candidates should have practical experience of at least one object oriented programming language.

Aims
• To develop an understanding of the principles underpinning object oriented programming
• To apply object-based approaches

Objectives
• Explain the motivation for and development of object oriented programming languages
• Produce a set of use cases given a problem statement
• Produce class diagrams, object interaction diagrams and object state transition diagrams for a given problem
• Describe the essential features of an object oriented programming language
• Produce and/or debug code fragments that illustrate principles of object oriented software development
• Describe the principles for testing object oriented software and derive sets of test data given a specification

Prior Knowledge Expected
Candidates are expected to be familiar with the material covered in the Certificate syllabuses, particularly Software Development. Candidates should have practical experience of at least one object oriented programming language.

Content
Foundations
Genealogy of object oriented languages: structured programming, procedural programming, abstract data types, encapsulation, typed and untyped languages, coupling and cohesion.

Concepts


Design

Object Oriented Programming

Practice
Iterative and incremental development styles.
Design of class hierarchies, refactoring.
Implementation of designs in an object oriented programming language.
Testing object oriented code. Class testing, constructing class tests from OCL or state transition diagrams, test driver construction.
Testing interactions and class hierarchies.

Primary Texts

Other Texts