



Systems Modelling Techniques with UML

a three-day course

Course features

This course provides participants with a framework and a proven set of techniques to use when specifying IT systems. It has been created using UML, the Unified Modeling Language, which has become a *de-facto* standard for systems specification. During the course, theoretical concepts are introduced and are then reinforced through practical exercises where participants can apply the skills and techniques of analysis through a series of realistic exercises. Participants thus acquire knowledge and the ability to apply UML effectively in project situations.

This programme can be combined with *Systems Development Essentials* to provide a complete course in basic systems analysis.

A comprehensive course manual, containing detailed information about the UML techniques and their application, as well as providing references for further reading, is supplied as part of the course.

ISEB qualification

This course prepares participants to sit a one-hour, open book, examination leading to the certificate in Systems Modelling Techniques offered by the Information Systems Examinations Board (ISEB). This certificate is a core certificate in the ISEB diploma in Systems Development and is also an optional certificate in the ISEB diploma in Business Analysis.

SFIA mapping

Data analysis level 5.

Course Content

Systems modelling

- The need for modelling and modelling standards
- Models of the Unified Modeling Language (UML)
- Interaction of selected UML models
- Validating and verifying models

Modelling functionality

- Modelling user requirements
- Use cases introduced
- Actors and the system boundary
- Use case diagrams
- Generalising actors and use cases
- Use case descriptions – templates of the description including pre-conditions and post-conditions
- Use case descriptions – defining the main and alternative flows
- The <<include>> and <<extend>> constructs
- Using activity diagrams to model use case descriptions
- Activity diagrams – notation
- Using activity diagrams to model processing

Static data modelling

- Analysis class modelling
- Objects and classes
- Class diagrams and object diagrams
- Representing classes – name, attributes and operations
- Defining attributes – adornments
- Abstraction and Encapsulation
- Associations – concepts
- Naming associations
- Defining multiplicities (minimum and maximum)
- Multiple associations
- Reflexive associations
- Constraints in associations
- Association classes
- Generalisation and inheritance
- Modelling generalisation
- Private, public and protected attributes
- The concept of polymorphism

Dynamic modelling

- Use case realisation
- Sequence diagrams
- Lifelines
- Focus
- Message notation
- Populating the class diagram
- Using opt, alt and loop in the sequence diagram
- Communication diagrams – an introduction
- State machines and state machine diagrams

Modelling in context

- The Unified Process
- Phases of the Unified Process
- Workflows of the Unified Process
- The relationship of models in the Unified Process
- Monitoring analysis against business objectives and system requirements
- The bridge to design, software package selection and development