



# UML Training Courses from CRaG Systems

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## Business Analysis, Requirements Definition and System Analysis using UML - Training Course - 5 Days

This UML training course is aimed at business and system analysts and developers who want to create a model of the business, including business processes, and from it produce a detailed system requirements specification with use cases and a technology-free system analysis model. The industry best practice modelling techniques used are based on the Unified Modelling Language v2.3 and are taught within the context of a [model-driven software development process](#) in a way that satisfies the needs of both technical and non-technical stakeholders. The models produced may form the basis for the design of systems using a variety of different architectures and are traceable from the business process through to each primitive system function. Resulting improvements to estimation, test development and project management are also discussed. Each technique is taught to the level required for competence on a real project. Understanding is tested and improved with exercises based on a real-world project example and [using a suitable case tool](#).

### Delegates will learn:

- The basics and the necessary detail of the Unified Modelling Language
- The basics and the necessary detail of Object Orientation
- How to model a business process at multiple levels of abstraction using a hierarchy of UML activity diagrams (flow charts)
- How to structure a business process model using activity diagrams, business use case diagrams and packages for multi-user access and change management
- How to model business concepts and facts using classes and their relationships on class diagrams
- How to model business worker roles together with line and operational relationships using classes, packages and their relationships
- How to integrate business modelling techniques into a conventional approach to project documentation
- How to map a business model into a system requirements model using actors, use cases and classes such that each element is traceable from one model to the other
- How to create a first cut overview of functional requirements with actors and use cases on a use case diagram
- How to write an effective use case description in a way that satisfies both non-technical and technical stakeholders
- How to specify the flow of events as a basic flow and alternate flows
- How to restructure the use case diagram to handle complex relationships between use cases without bloating the use case model
- How to integrate the use case model with non-functional requirements, data requirements, business rules and screen prototyping
- How a use case driven approach to requirements gathering improves estimation, project planning, test development and traceability
- How to create a detailed model of system data using classes and their relationships
- How to recognise complex data constructs and to use the appropriate syntax to model them
- How to map the functionality of the system requirements onto the object model using sequence diagrams
- How to structure the modelling in the form of a use case implementation
- How to model the dynamics of system data and functionality using statecharts
- How to model at a consistent level of abstraction
- How the modelling performed during system analysis fits into an incremental model-driven development process

**Suitable for:**

Business Consultants, Business Analysts, Business Process Engineers, Requirements Gatherers, System Analysts, System Architects and System Designers with at least 2 years experience. This course is not suitable for those seeking certification as a step towards a qualification. See [UML Certification](#) for a detailed discussion.

**Course Logistics:**

Course attendance is limited to 12 students. Courses start at 9.30am on the first day, 9.00am on subsequent days and finish at 5.00pm each day. Students use a computer for the exercises. For a discussion on case tool use please see [Case Tool Use on Courses](#). Printed course manuals for each student with copies of all presentations, exercises and solutions are provided.

**On-Site (In-House) Courses:**

The client is expected to provide an appropriate venue, refreshments, SVGA/XGA projector and screen, whiteboard or flipchart and at least one computer per two students loaded with a UML case tool. For a full discussion of on-site course issues please see [On-Site Course Logistics](#).

**Scheduled Public Courses:**

This course is available as scheduled public training at our London Training Centre. Students bring their own laptops for use on the course. Please see the [Public UML Training Courses in London](#) page for details.

**Pricing:**

On-site (in-house) course pricing is available from the [On-Site Course Price Calculator](#) page. Public course pricing is available on the [Public UML Training Courses in London](#) page. For consultancy pricing please see the [On-Site UML Consultancy Price Calculator](#).

**Training Course Outline**

Day 1	Day 2
<p><b>Introduction</b></p> <p>Logistics - People - Course Structure - Object Orientation - Unified Modeling Language - Business Process Modelling - Use Cases and System Analysis - An Incremental Process for Modelling</p> <p><b>Modelling Process Flow</b></p> <p>Writing a Textual Description - Activity Diagrams - Activities and Control Flows - Conditions - Selection and Iteration - Swimlanes - Hierarchy and Concurrency - Modelling Primitive Process Steps <i>Modelling Process Flow Workshop</i></p> <p><b>Modelling Process Structure</b></p> <p>Modelling Hi-level and Group Processes - Modelling Process Structure with Packages - Business Use Cases and Business Actors - Business Use Case Diagrams - The Business Modelling Process</p>	<p><i>Modelling Process Structure Workshop</i></p> <p><b>Modelling Business Structure</b></p> <p>The Conceptual Data Model - Business Entities - Relationships - Business Workers - Responsibilities - Organisation Structure <i>Modelling Business Structure Workshop</i></p> <p><b>Mapping into System Requirements</b></p> <p>Business versus System Use Cases - Mapping Actors - Mapping Activities and Swimlanes - Mapping Business Workers - Mapping the Conceptual Data Model <i>Mapping into System Requirements Workshop</i></p>

## Day 3

### Specifying Functional Requirements with Use Cases

System Use Cases and Actors - Primitive Use Cases and the Basic Flow - Writing Effective Use Case Descriptions - Writing Sub-flows and Alternate Flows - 'Include' and 'Extend' Relationships - Modelling Browser-Based Applications  
*System Use Case Workshop*

### Requirements Gathering

Collecting Requirements Information - Mapping from the Business Model - Proof of Concept Prototypes - Requirements Documents - Estimating and Traceability - Incremental Development - Gaining Agreement  
*Requirements Gathering Workshop*

## Day 4

### Objects and Classes

What is an Object? - Classes and Objects - Attributes - Operations and Methods - Designing Good Classes - Choosing the Right Classes  
*Object and Class Workshop*

### Object Relationships

Associations and Links - Navigability and Naming - Multiplicity and Other Adornments - Association Classes and N-arys - Aggregation and Composition  
*Object Relationship Workshop*

## Day 5

### Interaction Modelling

Interactions, Messages, Operations and Methods - Sequence Diagrams - Selection and Iteration - Activation - Collaboration Diagrams  
*Interaction Modelling Workshop*

### State Modelling

The Meaning of the State Model - States and Transitions - Events and Conditions - Actions and Activities - Consistency with Other Diagrams  
*State Modelling Workshop*

### System Analysis

Creating the Initial Object Model - Reverse Engineering a Data Model - The Analysis Cycle - Iterative Modelling - Prototyping as an Analysis Technique - Completing the Model  
*System Analysis Workshop*

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