



# UML Training Courses from CRaG Systems

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## System Requirements Definition and System Analysis using Use Cases and UML - Training Course - 3 Days

This UML training course is aimed at system analysts and developers who want to produce a detailed outside-in model of computer system requirements using use cases and a detailed object oriented implementation-free analysis model of a computer system from the system requirements. The strict approach to writing effective use cases ensures that the results satisfy the needs of both non-technical and technical stakeholders. Industry best practice system modelling techniques are based on the Unified Modelling Language v2.3 and are taught within the context of a [model-driven development process](#). The models produced are sufficiently detailed to form the basis for the design of systems using a variety of different architectures. The advantages that using these techniques has for estimation, traceability, test development and project management is 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 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 Analysts, Requirements Gatherers, Project Managers, System Analysts, System Architects and Developers 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
<b>Introduction</b>  People - Course Structure - Object Orientation - Unified Modelling Language - Origins of Use Cases - Why Use Use Cases? - What is the Analysis Model? - A Process for Modelling  <b>Specifying Functional Requirements with Use Cases</b>  System Use Cases and Actors - Primitive Use Cases and the Basic Course - Writing Effective Use Case Descriptions - Writing Sub-flows and Alternate Flows - 'Include' and 'Extend' Relationships - Modelling Browser-Based Applications <i>System Use Case Workshop</i>  <b>Gathering Requirements</b>  Collecting Requirements Information - Mapping from the Business Model - Proof of Concept Prototypes - Requirements Documents - Estimating and Traceability - Incremental Development	<i>Gathering Requirements Workshop</i>  <b>Objects and Classes</b>  What is an Object? - Classes and Objects - Attributes - Operations and Methods - Designing Good Classes - Choosing the Right Classes <i>Object and Class Workshop</i>  <b>Object Relationships</b>  Associations and Links - Navigability and Naming - Multiplicity and Other Adornments - Association Classes and N-arys - Aggregation and Composition <i>Object Relationship Workshop</i>

## **Day 3**

### **Interaction Modelling**

Interactions, Messages, Operations and Methods -  
Sequence Diagrams - Selection and Iteration -  
Activation - Communication 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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