

## Introduction to UML

### Course Summary

#### Description

This course provides students with a solid background in the Unified Modeling Language. After the course, students will be able to correctly render the various UML diagrams and understand the purpose and role of each diagram in the context of systems modeling. Students will also understand how to interrelate the information depicted in the various diagrams.

#### Topics

- Introduction
- Overview of UML
- Use Cases
- The Class Diagrams
- Packages
- Collaboration Diagrams
- Statecharts
- Activity Diagrams
- Class Diagrams II
- Sequence Diagrams
- Deployment and Component Diagrams
- Putting it all Together

#### Prerequisites

There are no prerequisites for this class.

#### Duration

Two Days

## Introduction to UML

### Course Outline

#### I. Module One: Introduction

- A. The Object Oriented approach to software
- B. Designing and building OO software
- C. OO methodologies and modeling systems
- D. Development of UML as a modeling language
- E. Future of UML

#### II. Module Two: Overview of UML

- A. What UML is used for?
- B. What UML is to be used for
- C. UML Specifications and structure
- D. The basic diagrams
- E. Customizing and extending UML

#### III. Module Three: Use Cases

- A. What Use Cases Are
- B. Use Case Textual Forms
- C. Use Case Diagrams
- D. Extending, including and generalizing use cases

#### IV. Module Four: The Class Diagrams

- A. Classes and objects
- B. What a class diagram models
- C. Classes and relationships
- D. Three kinds of class diagrams: sketchy, analysis and designing
- E. Types and inheritance
- F. Composition and aggregation.

#### V. Module Five: Packages

- A. Packages as groupings
- B. The Package Diagram
- C. Using Package Diagrams with Class and Use Case Diagrams

#### VI. Module Six: Collaboration Diagrams

- A. Introducing stereotypes.
- B. Object diagrams
- C. Deriving a collaboration diagram from a class diagram and use case.
- D. Showing flow of information in a collaboration diagram.

#### VII. Module Seven: Statecharts

- A. Understanding the concept of state
- B. Basic statecharts
- C. Well formed statecharts
- D. Concurrent and sub-statecharts

#### VIII. Module Eight: Activity Diagrams

- A. Creating effective activity diagrams
- B. Concurrent activity diagrams
- C. Nesting activity diagrams
- D. Using swimlanes effectively.

#### IX. Module Nine: Class Diagrams II

- A. Adding detail to classes
- B. Adding details to relationships
- C. More on inheritance and abstraction

#### X. Module Ten: Sequence Diagrams

- A. Relating sequence diagrams to use cases
- B. Relating sequence diagrams to class diagrams
- C. Drawing effective sequence diagrams

#### XI. Module Eleven: Deployment and Component Diagrams

- A. Drawing effective deployment diagrams
- B. Drawing effective component diagrams
- C. Integrating deployment and component diagrams.

#### XII. Module Twelve: Putting it all together

- A. Recap of the diagrams
- B. Using the diagrams as a visual modeling tool.
- C. Tip, hints and best practices.