

Course Outline

Introduction

- Trainer and Participant Introductions
- Introduction to modeling
- Introduction to SysML
- Introduction to MagicDraw/Cameo
- A Case Study Definition

Structural System Decomposition

- Package Diagram Notation
- Decomposing System into Packages
- Modeling Package Dependencies
- Practical Assignment: Modeling Package Structure

Analyzing User Needs

- Use Case Diagram Notation
- Identifying Actors
- Identifying Use Cases
- Use Case Relationships
- Practical Assignment: Modeling Use Cases

Defining System Requirements

- From Use Cases to System Requirements
- Requirements Diagram Notation
- Specifying Requirements
- Defining Requirements Structure
- Verifying Requirements with Test Cases
- Requirements Relationships
- Practical Assignment: Modeling Requirements

Defining Structural Blocks (Black Box View)

- Block Definition Diagram Notation
- Structural Blocks
- Modeling Block Properties
- Defining Relationships between Blocks
- Defining System Data Dictionary
- Practical Assignment: Modeling Black Box View of a System

Modeling Block Structure (White Box View)

- Internal Block Diagram
- Visualizing Block Parts
- Linking Parts with Connectors
- Defining Ports
- Defining Item Flows and Interface Blocks
- Practical Assignment: Modeling White Box View of a System

Modeling System Constraints

- Defining Constraint Blocks
- Binding Constraint Properties with Value Properties
- Executing Parametrics
- Practical Assignment: Modeling Parametrics

Designing State-Based System Behavior

- State Machine Diagram Notation
- Identifying States
- Defining State Transition Events
- Specifying Signals
- Specifying Effects
- Executing State Machines
- Practical Assignment: Modeling Statemachines

Designing Control and Data Flows

- Activity Diagram
- Defining Activities

- Specifying Parameters
- Defining Actions
- Modeling Control Flows
- Modeling Data Flows
- Executing Activities
- Practical Assignment: Modeling Activities

Designing Communications

- Sequence Diagram Notation
- Modeling Lifelines
- Modeling Messages
- Decomposing Interactions Using References
- Applying Interaction Fragments
- Defining Timing Constraints
- Practical Assignment: Modeling Interactions

Modeling Cross-Cutting Constructs

- Logical and Physical Architectures
- Allocation relationship
- Allocations Display Options
- Identifying Types of Allocations
- Allocation Matrix
- Practical Assignment: Building Allocation Matrix

Wrap up

- Summarizing Training
- Discussing Remaining Questions