

# The Systems Modeling Language (SysML®) Using Enterprise Architect 13.x

Two Day Course Syllabus

DAY I

## Introduction to Enterprise Architect

### User Interface

- Desktop layout
- Portals
- Commonly used Windows/Ribbons
- Perspectives: Workspace Layouts, Menu, and Ribbon Configuration

### Managing Projects

- Creating and opening Projects
- Creating Root Nodes, Views and Packages
- Adding Models using the Wizard
- Organizing Models with Views and Packages

### Managing Diagrams

- Toolbox
- Creation techniques
- Menu/ribbon options, context menu, properties and toolbar
- Navigation between diagrams
- Floating diagrams
- Copy/paste across diagrams

### Creating Diagram Elements

- Creation techniques
- Editing properties
- Drag and drop

### Customizing Diagram Element Appearance

- Color, Font, Image
- Layering
- Feature Visibility
- Layout and Alignment

### Deleting Model Elements

- Diagram level deletions
- Repository level deletions

### Managing Connectors

- Creation (toolbox and Quick Linker)
- Redirection
- Line bends
- Line styles

### Managing Package Content

- Package Navigator
- Package Browser/List View (overview)

## Tool Configuration

- Defining People
- Defining general types
- Personal and global configuration options

COURSE LEADER

## Frank Truyen

is a principal consultant and trainer, with 20+ years of experience in the IT industry as a developer, architect, consultant and manager.

Strong expertise in different modeling notations such as UML®, SysML®, SoaML™, DDS™, UPDM™, ArchiMate® and BPMN™, allied with his extensive experience in using the Enterprise Architect modeling tool, allows Frank to successfully provide training and consulting services to a broad variety of customers across many industries.

## SysML 1.4 / 1.5

### Introduction

Goals  
Relationship between UML and SysML  
UML metamodel extensions  
The four pillars

### Diagrams

Frames  
Kinds

### Package diagram

Purpose  
Views and Viewpoints – Addressing stakeholder concerns

### Requirements diagram

#### *Managing Requirements in Enterprise Architect*

Creating Requirements via a diagram  
Creating Requirements using the Specification Manager  
Other features  
Importing & exporting using Microsoft Excel  
Organizing Requirements  
Exercise

#### *SysML Requirements*

Extensions  
Key relationships

### Block Definition diagram (BDD) and Internal Block diagram (IBD)

Block definition and contents  
Interface Block  
Compartments  
Block definition versus usage  
Association Blocks  
Operations and Receptions  
Properties

- Part
- Reference
- Value
- Connector
- Adjunct
- Classifier Behavior
- Other property stereotypes

BDD relationships

- Part Association
- Reference Association
- Other relationships

IBD relationships  
    Connector  
    Binding Connector

Value Type  
Directed Features  
Exercise

### *Ports*

Conjugation  
Full Port  
Proxy Port  
Port redefines

### *Flows*

Flow property  
Item Flow  
Exercise

DAY 2

## **Parametric diagram**

Constraint Block  
Exercise

## **Use Case diagram**

### *UML Use Case diagram*

Definition  
Best practices  
Creating  
Discovering Actors  
Guidelines  
Modeling scenarios  
Defining constraints  
Using behavioral diagrams to illustrate scenarios  
Tracing Requirements to Use Cases  
Exercise

### *SysML Use Case diagram*

Extensions

## **Activity diagram**

### *UML Activity diagram*

Core features  
    Exercise  
Advanced features:  
    Multicast and multi-receive object flows  
    Central Buffer Node  
    Data Store  
    Action Pin  
    Action types (atomic, call behavior, call operation, accept event, send signal, ...)  
    Activity Parameters  
    Interruptible Region  
    Expansion Region and Node

### *SysML Activity diagram*

Extensions:

- Continuous and Discrete object flows
- Control Operator
- No Buffer Object Node
- Overwrite Object Node
- Optional Activity Parameter
- Probability Edges
- Exercise

## Sequence diagram

### *UML Sequence diagram*

Core features

- Exercise

Combined Fragments

- Exercise

### *SysML Sequence diagram*

## State Machine diagram

### *UML State Machine diagram*

Core features

- Exercise

### *SysML State Machine diagram*

## Allocations (cross-cutting constructs)

Overview

Allocate Dependency

## Traceability and Navigation

Overview

The Relationships window

The Relationship Matrix

The Traceability window

Other traceability features

## Core Tool Features (as time permits)

### Documentation Generation

RTF/DOCX/PDF generator

Diagram, Package, and Element options

Linking generated documents into Microsoft Word

Model documents

Master documents

Generating HTML

Other features

## Document Artifacts

- Creating
- Linked Documents
- External document links
- Document window

## Model Searches

- Initiating
- Configuring
- Viewing results
- Custom searches
- Other features

## Managing Baselines and comparing models

- Creating baselines
- Administering baselines
- Package comparisons
- Diagram comparisons