

The Systems Modeling Language (SysML®) Using Enterprise Architect 14.x or 15.x

Two Day Course Syllabus (includes many example diagrams and exercises)

Introduction to Enterprise Architect

DAY 1

User Interface

- Desktop layout

 - Overview, Start Page, Visual Style, Portals

- Ribbons

- Perspectives, Workspace Layouts, and ribbon configuration

Managing Projects

- Creating and opening Projects

- Creating Root Nodes and Packages

- Browser features

- Organizing models

Managing Diagrams

- Toolbox

- Creation techniques

- Options in ribbons, context menu, properties dialog and window

- Navigation between diagrams

- Floating diagrams

- Copy/paste across diagrams

- Inline Specification Manager

Managing Elements

- Creation techniques

- Editing properties

- Drag and drop

- Diagram only elements

Customizing Diagram Element Appearance

- Background color, font, image

- Layering

- Feature visibility

- Sizing and alignment

Deleting Model Elements

- Diagram level deletions

- Repository level deletions

Managing Connectors

- Creation (toolbox and Quick Linker)

- Redirection

- Line bends and styles

Managing Packages

- Package Navigation

- Identifying and selecting favorite Packages

- Package Browser/List View (overview)

Tool Configuration

- 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™, 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

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

SysML Requirements

- Extensions
- Key relationships

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

- Block definition and contents
- Compartments
- Block definition versus usage
- Interface Block
- Creating an IBD
 - Automatic Property creation
- Classification hierarchies and generalization
- Block behavior: Operations, Signals, and Receptions
 - Directed Features
- Properties
 - Part
 - Reference
 - Value
 - Connector
- Redefining/Subsetting properties
- BDD relationships
 - Part Association
 - Reference Association
 - Other relationships
- IBD relationships
 - Connector
 - Binding Connector

Typing Connectors with Associations
Value Types

Ports

Definition and usage
Full Port
Proxy Port
Conjugation
Redefines

Flows

Flow property
Item Flow

DAY 2

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

SysML Use Case diagram

Extensions

Activity diagram

UML Activity diagram

Core features
Advanced features:
Data Store
Action Pin
Action types (atomic, call behavior, call operation, accept event, send signal, ...)
Activity Parameters
Interruptible Region

SysML Activity diagram

Extensions:
Probability Edges
Control Operator
Optional Parameter
Continuous and Discrete rate of flow
No Buffer Object Node
Overwrite Object Node
Mapping Activity behavior to a Block
Mapping Signal Event Actions to Receptions

Sequence diagram

UML Sequence diagram

Core features
Combined Fragments

SysML Sequence diagram

State Machine diagram

UML State Machine diagram

Core features

SysML State Machine diagram

Allocations (cross-cutting constructs)

Overview
Allocate Dependency
Allocations report

Q & A