

The Systems Modeling Language (SysML®) Using Enterprise Architect 13.x / 14.x

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

Introduction to Enterprise Architect

DAY 1

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
- Model patterns
- Project Browser Features

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 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

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

Association Blocks
Classification hierarchies and generalization
Block behavior: Operations, Signals, and Receptions

- Directed Features

Properties

- Part
- Reference
- Value
- Connector
- Adjunct
- Classifier Behavior
- Bound Reference
- End Path Multiplicity
- Other property stereotypes

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

Parametric diagram

Constraint Block

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:

- 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:

- 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

Measures of Effectiveness (SysML Extension)

- MOE trade studies
- Objective Function

Q & A