Technical Design Modeling (TDM)

Using Sparx Systems EA software and UML

Learning Outcomes

TDM covers the essential analytical and modelling techniques to develop UML-compliant Technical Design Model specification using Sparx Systems Enterprise Architect modeling software.

Upon completion of this program, trainees will have the competencies to:

- **Understand** what is a model, the process and benefits of modelling, universal modelling standards such as UML, the challenges in modelling and how to incorporate modeling practices into existing software development lifecycle (SDLC)
- **Analyse** information be it in document, diagram, models or verbal form to develop technical design models or specifications
- **Develop** the preliminary design models using UML Class Diagrams and based on the MVC design patterns
- **Develop** the class participation models using UML Class Diagram
- **Develop** the object interactions using UML Sequence Diagram
- **Review** the models to ensure correctness and completeness
- **Map** design models to implementation code and database
- **Manage** models such as model baseline, traceability, transformations and code definition generations.

Curriculum Structure

The consultative-centric training curriculum incorporates various learning and teaching methodologies such as:

- **Lecture** led by trainer on key concepts of Software Architecture modeling
- **Demo** of the modeling tool by trainer on how to develop the UML and other related models
- **Hands-on Workshops** for trainees to have in-depth practice to apply what they have learnt
- **Presentation** of workshop solutions by trainees for feedback
- **Reflection** on how to apply lessons learnt into a real-life project

Duration – 2 Days

- **Full-time ILT** (Instructor-Led-Training) lessons will run back-to-back daily from 9.30am to 5.30pm inclusive of 1-hour lunch break and two 15-minute breaks.
- **Part-time ILT** (Instructor-Led-Training) lessons will run once per week on Saturday from 9.30am to 5.30pm inclusive of 1-hour lunch break and two 15-minute breaks.

Suggested Topics

1. Introduction
    - Model, Modeling Process, Modeling Standards
    - Brief on generic Case study
    - Import Requirements Analysis Models

2. Preliminary Design Modeling (PDM) with UML Class Diagram
    - Introduction to PDM
    - Model-View-Control (MVC) Design patterns
    - Apply techniques to identify classes based on the MVC design patterns for each use case
    - Develop the preliminary design models

    Workshop 1: Analyse, identify & develop PDM

3. Detail Design Modeling (DDM)
    - Introduction to DDM
    - Apply techniques to detail classes with member functions, signatures and relationships using UML Class Diagram & Sequence Diagram

    Workshop 2: Analyse, identify, model, review and detail DDM

4. Round-trip Engineering
    - Introduction to round-trip engineering: Forward and reverse engineering
    - Map design to Code; Map DRM to ERD & DDL

    Workshop 3: Round-Trip Engineering using EA

5. Design Model Management
    - Model Baseline
    - Model Traceability & Impact Analysis
    - Review Technical Design Models using Matrix Specification and Traceability

    Workshop 4: Design Model Management using EA

Pre-requisites

Attendees are assumed to have

- Attended the 1-day EA4SAM workshop;
- Attended the 2-day RAM workshop; and
- Some knowledge in object-oriented design and programming.

Venue Options

Public training:

- 80Twenty venue.
- Trainees will be from various organizations in the same class.

Exclusive training:

- 80Twenty or customer or customer-preferred venue.
- Class exclusive to only your own company's trainees.

Course Requirement

You will need to bring the following to the training:

- Your own Microsoft Windows 7 or later notebook installed with Enterprise Architect Corporate Edition

(Download 30-day evaluation license from http://www.sparxsystems.com/bin/easetup.msi);

- The EA4SAM course material; and
- The RAM course material.