ARCADIA AND CAPELLA TRAINING

Course Goals

- Cover the Arcadia method and the Capella tool, introduce MBSE, and implement the method and tool through case-studies
- Explore each system definition activity, illustrating best practices and benefits from real-world experience

Our added value

This course was designed by Thales, creator of Arcadia/Capella, and is part of their internal training program. It includes many hands-on exercises to enhance learning.

Duration: 21 hours (3 days or 6 half days)

Audience: Systems Engineers, Systems Architects, Engineers

Prerequisites: Basic knowledge of Systems Engineering is helpful but not required

Course Content

1 - Overview of the Arcadia Approach

- What is model-Based Systems Engineering (MBSE)?
- Introduction to Arcadia concepts
- A first look at Arcadia through examples

Duration: 1.5h

2 - Introduction to Capella

- Arcadia/Capella pillars
- Capella's scope
- Coupling the method with the tool

Duration: 1.5h

3 - Introduction to the case-study

- Description of the case-study that will illustrate the core training content

Duration: 0.5 h

4 - Operational Analysis

- Main objectives, activities and concepts
- Operational Analysis workflows and main diagrams
- Introduction to the Capella modeling environment
- Operational Analysis of the case-study using Capella

Exercises

- Capella environment setup and project creation
- Introduction to the main views, activity explorer, semantic browser
- Definition of Operational Actors and Capabilities, Exchange Scenarios

Duration: 3.5h

5 - System Needs Analysis

- Main objectives, activities and concepts
- System Analysis workflows and main diagrams
- System Analysis of the case-study using Capella
- Automated transition, contextual diagram creation, and model validation in Capella

Exercises

- Automated transition, contextual diagram creation
- Creation of System Actors and Capabilities, Functional Chains
- Traceability towards Operational Activities and model validation
- Mode and States diagrams

Duration: 3.5h

6 - Logical Architecture

- Main objectives, activities and new concepts
- Logical Architecture workflows and main diagrams
- Logical Architecture of the case study using Capella
- Functional refinement and allocation to Logical Components

Exercises

- Automated transition from the System Analysis, definition of Logical Functions, Functional Chains and allocation to Logical Components
- Graphical simplification using Capella's diagramming features
- Exchange Categories definition

Duration: 3.5h

7 - Physical Architecture

- Main objectives, activities and new concepts
- Physical Architecture workflows and main diagrams
- Physical Architecture of the case-study using Capella
- Functional refinement, definition of Node and Behavior Physical Components
- Interface definition, allocation of Component Exchanges to Physical Paths

Exercises

- Transition from the Logical Architecture
- Deployment of Behavior Physical Components on Node Components
- Definition of Component Exchanges and Exchange Items, detailed content of Exchange Items in class diagrams
- Definition of Physical Links and Physical Paths, allocation of Component Exchanges
- Diagram filtering in Capella

Duration: 3.5h

8 - Product Breakdown Structure

- Main objectives, activities and new concepts

Duration: 0.5h

9 - Multi-viewpoint characterization and evaluation

- Architecture early evaluation, autonomous viewpoints, coupling with specialty tools
- Characterization, PVMT add-on

Duration: 1h

10 - To go further

- Based on remaining time, demonstration of a specific topic chosen by the participants in the following list: Functional analysis workflow, Requirements, System subsystem transition, REC-RPL and libraries, Modes and states configurations situations, Capella model version control, Collaborative edition of a Capella model, Capella HTML generation, M2Doc for Word document generation, Filtering add-on

Duration: 2h