

SE-MBSYS-03
Practical Model Based Systems Engineering
with SysML notation and tool – 4 Days
Virtual training - Agenda

training@samares-engineering.com

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- Learn a practical MBSE approach from requirements to architecture down to execution platform
 - Approach based on ISO 15288:2015 technical processes
 - Using SysML notation for system global definition (requirements and architecture)



- Case study for practice
 - UAV for agriculture as System of Interest
 - Initial requirements from Excel
 - Exercises on case study
 - Use of Cameo Systems Modeler



- Exercises using the tool are dispersed throughout the training



- Competencies to acquire
 - C1: Learn the main concepts and diagrams of the SysML notation
 - C2: Learn a practical approach that allows you to choose the right SysML diagrams according to the development stage
 - C3: Know how to practice 6 key technical standard Systems Engineering processes with the support of the SysML notation: mission analysis, stakeholder needs and requirements definition, system requirements definition, architecture definition, design definition and system analysis
- Target public
 - Systems Engineers, Architects, Designers and Project Managers who want to deploy MBSE in their team with practical use of MBSE tool.
- Prerequisites
 - Knowledge of requirement and function concepts



Introduction:

- Overview of SysML
- Introduction to the tool
- Introduction to the Case Study
- Project structure

Business and Mission Analysis process:

- Capture Business Requirements and Measures of Effectiveness (MoE)

Stakeholder needs and requirements definition process:

- Capture stakeholder requirements
- Identify External Entities
- Identify key properties to evaluate solution viability

To be continued the next day...

System Analysis

- Evaluate the solution with regards to MoE



Recall of Day 1

Stakeholder needs and requirements definition process (continued):

- Formalize System Context
- Identify System Use Cases
- Detail Operational Scenarios
- Add Timing Constraints

System Requirements Definition Process:

- Formalize Functions
- Define Operational Modes
- System Requirements and traceability

Architecture Definition Process:

- Sub-systems Identification
- Functional Architecture Definition



Recall of Day 2

Architecture Definition Process (continued):

- Physical Architecture Definition
- Traceability between levels of Architecture
- Explore Alternate Architectures
- Select the Optimal Architecture based on criteria

System Analysis Process:

- Verification of properties, comparison of solutions
- Roll-up Pattern (Mass, Cost, ...)
- Deployment configuration, definition of instances



Recall of Day 3

Design Definition Process:

- Request For Information, Make or buy strategy
- Choose products to support the design of each logical (physical) component
- Select products

Other Tool Capabilities

- Profiles
- Traceability
- Project Usage
- Document generation
- Validation Suites
- Simulation

Conclusion

