



SAMARES
ENGINEERING

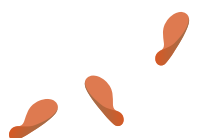
CATALOGUE

TRAININGS
2024

Version : 1.1

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PRESENTATION



Samares Engineering offers consulting activities / design office - APE code 7112 B, and positions itself as an expert in the dissemination of best practices in systems engineering.

His areas of expertise are the model-driven approach, in particular to describe the architecture of the system, but also the management and traceability of requirements, functional simulation, the link between architecture and other professions including software and dependability.

It was **77 trainees** that were trained in 2022 and **226 trainees** trained in 2023. With a satisfaction rate of **9.0/10**

Samares Engineering thanks you for your loyalty and trust.

THEY TRUST US



Raphaël Faudou

President, Systems Engineering and Modeling Consultant



PRESENTATION

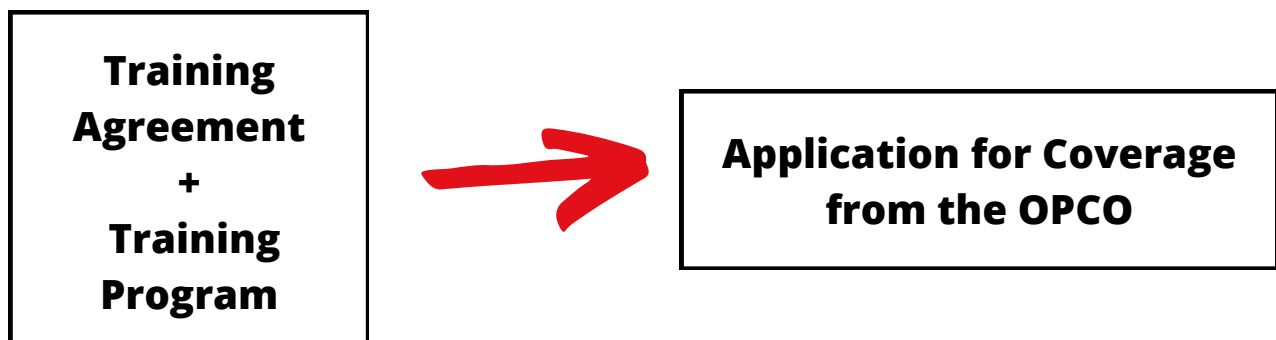
FINANCING



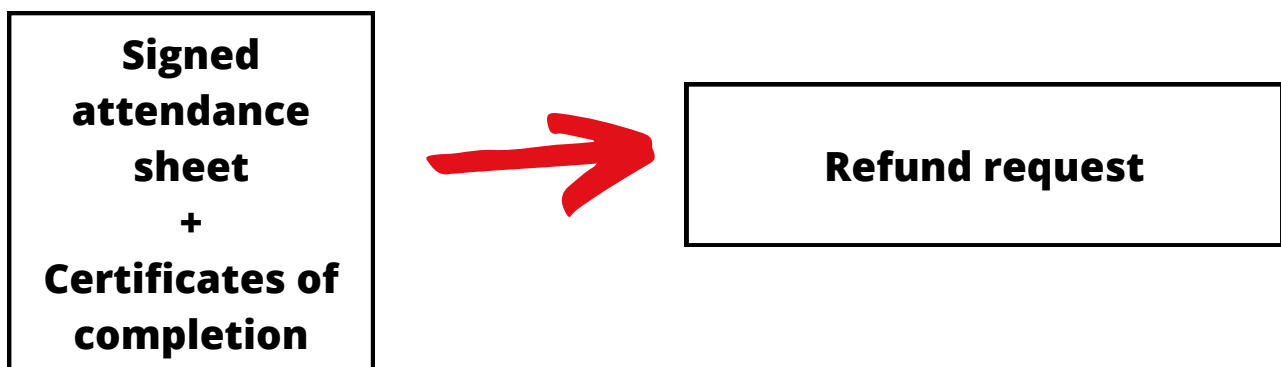
Since May 2021, Samares Engineering is a Qualiopi certified organization for its training actions. This certification certifies that Samares Engineering meets the quality requirements required for vocational training and that its training offers can be financed by competence operators (OPCO).

For this, a request for financial support must be made by the employer of the employee wishing to participate in the training, with their OPCO, at least one month before the start of the training. It will be necessary to attach to this request the program recalling the process, a training agreement and the invoice. These documents are provided by Samares Engineering upon registration for the training.

Before training



After training



PRESENTATION

MODES

In-person training: 2 avenue Escadrille Normandie Niemen, Ethics Biotope 31700 Blagnac

Distance training: The email containing the Microsoft Teams link (or Zoom or Skype) to connect to the training is sent at least 7 days before the training date

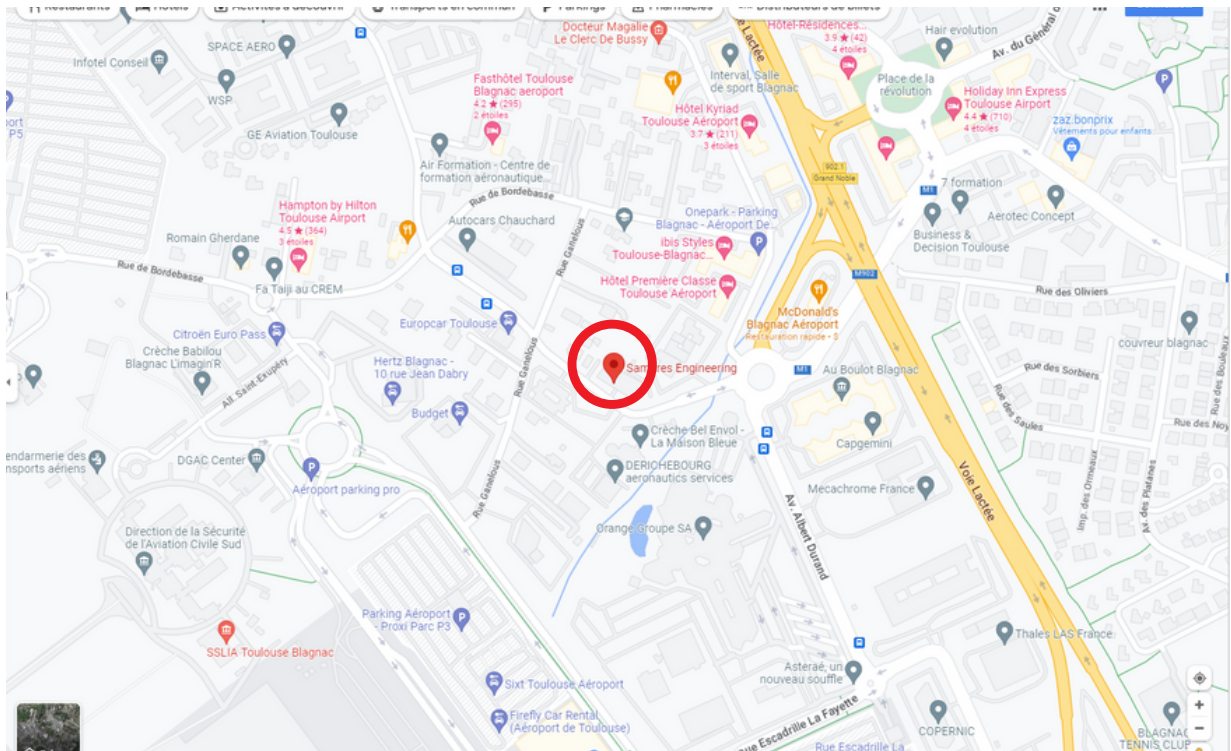
2 FORMATS

- **INTER:** dates set by Samares Engineering and session open to participants from several companies
- **INTRA:** a single company, dates to be defined with the company

OUR LOCATION

How to get to Samares Engineering?

**2 avenue Escadrille
Normandie Niemen, Ethics
Biotope
31700 Blagnac**



OUR TRAINERS



Ida has been working as a systems engineer since 2018.

Her areas of expertise: the SysML language modeled with the Cameo Systems Modeler / MagicDraw / Magic Cyber Systems Engineer tool, using various methods, as well as the use of Capella/Arcadia.

In addition to giving training, she provides support and coaching for clients in various fields: automotive, space, maritime and energy.

ida-electra.dahl@samares-engineering.com



Mourad is an MBSE engineer. He has participated in several projects in systems engineering, on methodological aspects, modeling and also training. He is very familiar with Cameo Systems Modeler/MagicDraw/Magic Cyber Systems Engineer and the link to the 3D platform experience.

mourad.chibane@samares-engineering.com



Sébastien has 20 years of experience in embedded systems engineering. He has contributed to several projects that have implemented the ARCADIA method and the CAPELLA modeling tool. He is a member of AFIS/INCOSE and an active contributor to various working groups (TC-MBSE, Product Line). He is a Capella expert and provides training and consulting services in IS, MBSE and product line management.

sebastien.dube@samares-engineering.com



Raphaël teaches and supports the deployment of MBSE in the industry and has developed a solid expertise on the use of Cameo Systems Modeler and Cameo Simulation Toolkit.

He is very active on the MBSE topic through committees, articles in conferences and LinkedIn posts.

raphael.faudou@samares-engineering.com



OUR TRAINERS



Kevin is a systems engineer and MBSE. Passionate about this field, he has experiences on the SysML language implemented under different tools and the ARCADIA methodology with the Capella tool. In addition to giving Capella training, he does support both on modeling with Capella and on modeling aspects in SysML.

kevin.ganeasan@samares-engineering.com



Chris is a Complex Systems Engineer, Junior Consulting and Modeling Engineer, and a trainer. His MBSE skills combine a solid academic background with practical experience on the methodological and modeling aspects in reverse engineering context with the Capella/Arcadia tool.

chris.koyesse@samares-engineering.com



Nagarjun, a systems engineer and ASEP certified, holds a master's degree in systems engineering. His expertise includes SysML and Arcadia, using tools like Cameo Systems Modeler (Catia Magic) and Capella. Beyond participation in various projects, he has actively worked with methodologies and maintains a strong interest in learning new technologies in order to strengthen his skills in the field of systems engineering.

nagarjun.anchemurali@samares-engineering.com



PRACTICAL INFORMATION



How to register

You can send us an email at **training@samares-engineering.com** or go to our training management portal (in French only):

samares-engineering.catalogueformpro.com

Training dates for the INTER Company dates are published bi-annually. See our training management portal or follow us on LinkedIn to know the next dates for the different trainings.

The trainer can animate in French or in English according to your needs.

We ask that you send your request at least 2 weeks before the date scheduled for the start of the training.

Adaptation and Accessibility



All the rooms hosting our training courses are accessible to people with reduced mobility. If you have specific educational accommodation needs, please let us know when you submit your registration request.



Sanitary measures

In-person trainings take place in compliance with current recommended barrier gestures and a health protocols put in place for the protection of everyone and updated:

- Depending on how the sanitary situation develops.
- Depending on the evolution of restrictions and sanitary measures.

A change in the registration conditions is possible.

Postponement and cancellation



Samares Engineering reserves the right to cancel a training or to postpone it to later dates due to insufficient numbers. If necessary, participants will be informed at least 7 days before the date initially scheduled for the training.



OUR TRAININGS



FUNDAMENTALS OF SYSTEM ENGINEERING

In 2023 :

12 trainees

Satisfaction score : 9.5/10

Last update :

February 2024

Version : 1.1

SE-SEF-01

TRAINERS



Ida Dahl

ida-electra.dahl@samares-engineering.com



Mourad Chibane

mourad.chibane@samares-engineering.com



Raphaël Faudou

raphael.faudou@samares-engineering.com

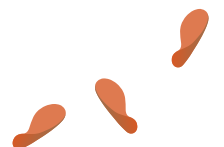


Sébastien Dubé

sebastien.dube@samares-engineering.com



training@samares-engineering.com



DESCRIPTION

Learn how to:

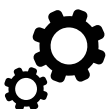
- Know the interest of the discipline of Systems Engineering (IS)
- Know how to use the key concepts of Systems Engineering
- Be able to list and differentiate standard technical processes (ISO 15288:2015 – SE HandBook V4)
- Know how to use a requirements engineering and planning approach for the development of a complex system

OBJECTIVES



At the end of the training, the trainee will be able to:

- Describe the interest of the discipline of Systems Engineering
- Use key Systems Engineering concepts
- Know how to list and differentiate standard technical processes (ISO 15288:2015 – SE HandBook V4)
- Use a requirements engineering and planning approach for complex system development



REQUIREMENTS

None



TARGET PUBLIC

This training targets in particular :
All public

CHARACTERISTICS OF THE TRAINING

DURATION



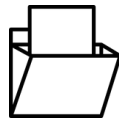
1 days (7h) ; an be split into 2 half days of 3,5 hours



TRAINING MÉTHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each participant must have a way to connect to the internet in order to access the training management portal.

PRICING



Price excl. VAT (VAT at 20%) :

- INTER COMPANIES (multiple companies, fixed dates) session: 820 € per trainee (reduced to 650 € for any additional participant of the same company)
- INTRA COMPANY (one company) session: 2 120 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAMME**INTRODUCTION****QUICK OVERVIEW OF
STANDARD SYSTEMS
ENGINEERING
PROCESS****WHY SYSTEMS
ENGINEERING ?**

- Failure Examples
- Motivations

**FOCUS ON
REQUIREMENT
ENGINEERING**

- Why?
- How?

**CONCEPTS AND
DEFINITIONS**

- System and Product, System element
- Lifecycle, Stakeholders, Sol
- PBS, WBS
- Stakeholder and System Requirements
- Architecture and Design

**VERIFICATION AND
VALIDATION****SYSTEMS
ENGINEERING
MANAGEMENT**

- Planning
- Risks and reviews



INTRODUCTION TO SYSML AND CATIA MAGIC

SE-CSM-02

In 2022 & 2023:
106 Trainees
Satisfaction score : 9.0/10

Last update:
February 2024

Version : 1.1

TRAINERS



Ida Dahl

ida-electra.dahl@samares-engineering.com



Nagarjun Anche Murali

nargarjun.anchemurali@samares-engineering.com



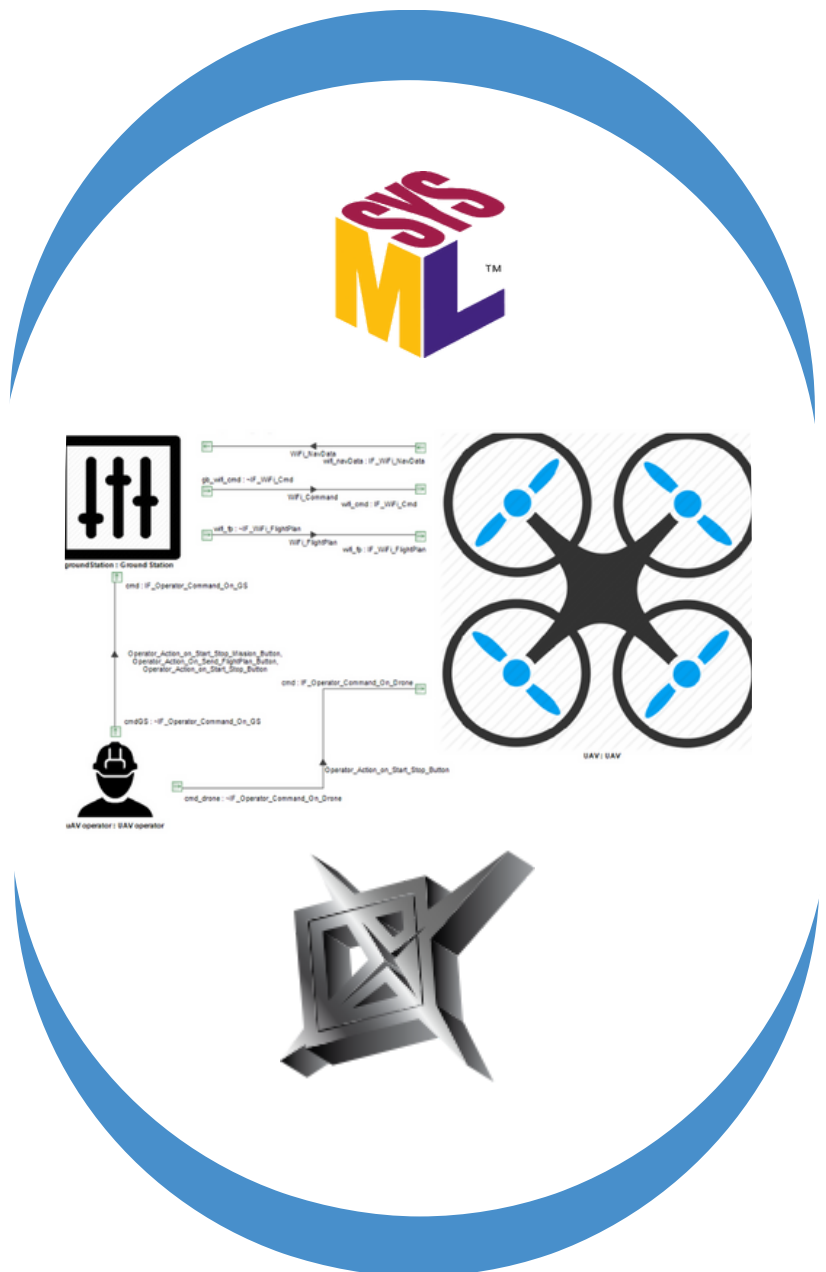
Mourad Chibane

mourad.chibane@samares-engineering.com



Raphaël Faudou :

raphael.faudou@samares-engineering.com



training@samares-engineering.com





DESCRIPTION

- Learn the basics of SysML notation
 - Know the different schemes and their interest
 - Understand the concepts of definition and use
 - Based on the SysML 1.6 specification – main concepts used
- Learn how to edit SysML elements and diagrams with Cameo Systems Modeler (CSM) or Magic Cyber-Systems Engineer (MCSE)
 - Create/Update/Delete/Copy & Paste...
 - Based on CSM/MCSE 2021x Refresh 2
- Learn how to work collaboratively with TeamWork Cloud (TWC) or Magic Collaboration Studio (MCS)
 - Lock/commit/update/create a branch...
 - Based on TWC/MCS 2021x Refresh 2

OBJECTIVES



At the end of the training, the trainee will be able to:

- Recognize key SysML concepts and diagrams and indicate how they can support system model development
- Create a system model using Cameo Systems Modeler or Magic Cyber-Systems Engineer with creation, update, and deletion of SysML elements and diagrams
- TeamWork Cloud or Magic Collaboration Studio for collaborative work (get locks, make commits, update, create a branch)



PREREQUISITES

None; basic knowledge of requirements engineering and the ISO:15288 technical processes is recommended



TARGET PUBLIC

This training targets in particular : System Engineers, Architects, Designers



TRAINING CHARACTERISTICS

DURATION



1 days (7 hours) ; can be split into
2 half days of 3.5 hours



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each participant must have a way to connect to the internet in order to access the training management portal. Installation of the tool is not required.



PRICING



Price excl. VAT (VAT at 20%) :

- INTER COMPANIES (multiple companies, fixed dates) session: 820 € per trainee (reduced to 650 € for any additional participant of the same company)
- INTRA COMPANY (one company) session: 2 120 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises

PROGRAMME**INTRODUCTION**

- Participants round table
- Recall of goals and rules

WORKING ON A PROJECT COLLABORATIVELY WITH TWC

- Lock elements and diagrams, update and commit, create tags
- Quiz

OVERVIEW OF SYSML

- Presentation of the various diagrams
- Main principles of the notation
- Quiz

BASIC DEFINITION OF A SYSTEM -CSM + TWC

- Problem space and solution space
- Logics in the use of SysML diagrams
- Relationships between diagrams

INTRODUCTION TO THE CSM TOOL

- Creation of a project
- Edition of elements and diagrams
- Quiz

PERSPECTIVES (ADVANCED CSM COURSES)

CHARACTERISTICS OF E-LEARNING TRAINING

DURATION



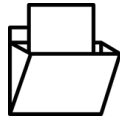
About 4 hours



TRAINING METHODS

- Theoretical and interactive layout
- Questionnaires to verify the acquisition of essential concepts
- Certificate of completion of training

MATÉRIALS



Each participant must have a way to connect to the internet in order to access the training management portal. Installation of the tool is not required.

 **CAMEO**
SYSTEMS MODELER™

PRINCING



Price excl.VAT (VAT at 20%):
Price per user, from 250€, decreasing according to the number of users



PROGRAM E-LEARNING**MODULE 1 :
INTRODUCTION TO
SYSML & CSM**

- MBSE Overview
- Presentation and Overview of SysML
- Introduction to CSM

**MODULE 3 : GOING
FUTHER WITH CSM**

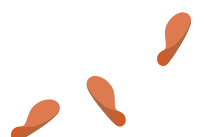
- Supporting SysML diagrams
- Navigation using diagrams

**MODULE 2 : SYSML
DIAGRAMS WITH CSM**

- Package Diagram
- Requierement Diagram
- UseCase Diagram
- Block Definition Diagram
- Internal Block Diagram
- Activity Diagram
- Sequence Diagram
- State Machine Diagram
- Parametric Diagram

**MODULE 4 :
INTRODUCTION TO
TWC**

- What is Teamwork Cloud ?
- Working with TWC



SYSMML DISCOVERY

In 2023 :

1 trainees

Satisfaction score : 9.2/10

Last update :

February 2024

Version 1.1

SE-MBSYS-01

TRAINERS



Ida Dahl

ida-electra.dahl@samares-engineering.com



Nagarjun Anche Murali

nargarjun.anchemurali@samares-engineering.com



Raphaël Faudou

raphael.faudou@samares-engineering.com



training@samares-engineering.com



DESCRIPTION



Learn SysML notation and presentation of the use and interest of each diagram in the development cycle. Convenient with a tool or on the board.



CASE STUDY

- UAV for agriculture as a system of interest
- Initial requirements provided in an Excel table
- Case Study Exercises

OBJECTIVES



At the end of the training, the trainee will be able to:

- Use the main concepts and diagrams of SysML notation
- Apply a hands-on approach to choosing SysML diagrams to use in the development lifecycle



PREREQUISITES

None ; Knowledge of the concepts of requirement and desirable function



TARGET PUBLIC

This training targets in particular : System Engineers, Architects, Designers, Project Managers who want to discover SysML and its practical use



CHARACTERISTICS OF THE TRAINING

DURATION



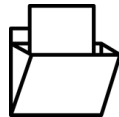
2 days (14hours)



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each participant must bring their laptop with Microsoft Visio to make the SysML diagrams.

Possibility to install the Dassault Système Cameo Systems Modeler V19SP4 tool with a license provided by the trainer only for training.

PRICING



Price excl. VAT (VAT at 20%) :

– INTER COMPANIES (multiple companies, fixed dates) session: 1 650 € per trainee (reduced to 1 200 € for any additional participant of the same company)

– INTRA COMPANY (one company) session: 3 700 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAM**INTRODUCTION**

- What is a model?
- The MBSE
- Objectives and origins of SysML
- SysML and its diagrams

**DYNAMIC
MODELING**

- Activity diagram
- State diagram
- Model animation
- Case Study #3

**REQUIREMENTS
MODELING**

- Use case diagram
- Sequence diagram
- Requirements diagram
- Case Study #1

**CROSS-FUNCTIONAL
MODELLING**

- Parametric diagram
- Allocation and traceability
- Feedback on requirements
- Case Study #4

**STRUCTURAL
MODELLING**

- Block definition diagram
- Internal block diagram
- Package diagram
- Case Study #2

CONCLUSION

- Benefits of MBSE
- Market tools



MBSE IN PRACTICE USING SYSML AND CATIA MAGIC

In 2022 & 2023 :

17 Trainees

Satisfaction score : 9.2/10

Last update :
February 2024

Version : 1.1

SE-MBSYS-02

TRAINERS



Ida Dahl

ida-electra.dahl@samares-
engineering.com



Nagarjun Anche Murali

nargarjun.anchemurali@sam
ares-engineering.com



Mourad Chibane

mourad.chibane@samares-
engineering.com



Raphaël Faudou

raphael.faudou@samares-
engineering.com



training@samares-engineering.com



DESCRIPTION



Learn a hands-on MBSE approach from gathering stakeholder needs to defining the physical architecture:

- Based on 5 of the technical processes of ISO 15288:2015
- Using SysML notation for overall system definition (requirements and architecture)



CASE STUDY

- UAV for agriculture as a system of interest
- Initial Excel requirements
- Case Study Exercises
- Using the Cameo Systems Modeler / Magic Cyber Systems Engineer modeling tool

OBJECTIVES



At the end of the training, the trainee will be able to:

Use the main concepts and diagrams of the SysML concept

- Apply a hands-on approach to choosing SysML diagrams to use in the development lifecycle



PREREQUISITES

None; Knowledge of the concepts of requirement and function recommended.



TARGET PUBLIC

This training targets in particular : System Engineers, Architects, Designers, Project Managers who want to deploy MBSE in their team



CHARACTERISTICS OF THE TRAINING

DURATION



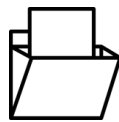
4 days (28hours) : can be split into 8 half days of 3.5 hours



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each participant must bring their laptop with the "Cameo Systems Modeler" or "Magic Cyber Systems Engineer" tool version 2021.x installed. If there is any problem with the installation or any doubt about the version, do not hesitate to contact us.

PRICING



Price excl. VAT (VAT at 20%) :

- INTER COMPANIES (multiple companies, fixed dates) session: 2 550 € per trainee (reduced to 2 020 € for any additional participant of the same company)
- INTRA COMPANY (one company) session: 6 250 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAMME

INTRODUCTION

- Overview of SysML
- Recall of the ISO 15288 standard
- Introduction to the Case Study
- Introduction to the tool
- Suggested project structure
- Introduction to the approach

STAKEHOLDER NEEDS AND REQUIREMENTS DEFINITION PROCESS

- Capture stakeholder requirements
- Identify external entities
- Identify key properties to evaluate solution viability through simulation
- Define system context
- Detail Operational scenarios

SYSTEM REQUIREMENTS DEFINITION PROCESS

- Formalize functions
- Define Operational Modes
- system Requirements and traceability

DESIGN DEFINITION PROCESS

- Detailing the design of each component

ARCHITECTURE DEFINITION PROCESS

- Sub-systems identification
- Functional Architecture Definition and early simulation
- Physical Architecture Definition
- Architecture Traceability

SYSTEM ANALYSIS PROCESS

- Verification of properties, comparison of solutions through simulation

SYSTEM ANALYSIS PROCESS

- Verification of properties, comparison of solutions through simulation

SYSTEM ANALYSIS PROCESS

- Language extensions (profile)
- Project Usage
- Teamwork Cloud
- Document generation
- Validation Suites

CONCLUSION

ADVANCED USE OF CATIA MAGIC

In 2023 :

11 trainees

Satisfaction score : 9.7/10

Last update :

February 2024

Version : 1.1

SE-CSM-03

TRAINERS



Ida Dahl

ida-electra.dahl@samares-engineering.com



Mourad Chibane

mourad.chibane@samares-engineering.com



Raphaël Faudou :

raphael.faudou@samares-engineering.com



training@samares-engineering.com



DESCRIPTION



- Learn how to use the advanced aspects of TWC/MCS, including administration and how to split your projects efficiently.
- Learn how to exploit "opaque behavior" and metachains to improve your generic tables and map relationships.
- Learn how CSM/MCSE can be customized and can support an extension to SysML for a Domain Specific Language.

OBJECTIVES



At the end of the training, the trainee will be able to:

- Create TWC/MCS projects and assign them to categories, define user roles and permissions, manage users and groups, establish and modify dependencies between projects (project usage), define and execute policies for separating projects based on project type, and create branches and merge branches with the trunk
- Create captions, metachains, "opaque behavior" and "structured expressions", and use them in generic tables, "relationship maps" and captions
- Define what a "Domain Specific Language" (DSL) is, describe how the different parts of a plugin work together to support a DSL, identify what can be added to a template using a plugin, and which part(s) of a plugin is needed to make the change, and create model validation rules using structured expressions and scripting.



PREREQUISITES

Have at least three months of experience with Cameo Systems Modeler / Magic Cyber Systems Engineer and SysML, and have previously used TeamWork Cloud / Magic Collaboration Studio



TARGET PUBLIC

This training is aimed more specifically at:

System engineers, architects, designers and project managers who want to use CSM in their team and who have already been using CSM/MCSE for at least 3 months



CHARACTERISTICS OF THE TRAINING

DURATION



2.5 days : This training is divided into three modules, which can be given independently.

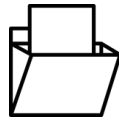
This presentation is based on the combination of the three modules



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each participant must bring their laptop with CSM or MCSE installed



PRICING



Price excl. VAT (VAT at 20%) :

– INTRA COMPANY (one company) session: 5 830 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAM**MODULE 1 : ADVANCED USE OF TWC****PREREQUISITES**

Have completed our "CAMEO & SysML Basics" training OR have already practiced using TeamWork Cloud or Magic Collaboration Studio

DURATION

0.5 days : 3.5 hours

OBJECTIVES

At the end of the training, the trainee will be able to:

- Create TeamWork Cloud / Magic Collaboration Studio projects and assign them to categories
- Set user roles and permissions, manage users and groups
- Establish and modify dependencies between projects (project usage)
- Define and execute policies for separating projects based on project type
- Create branches and merge branches with the trunk using TWC/MCS best practices

PROGRAM**MANAGING RESOURCES**

- Creating categories
- Adding projects to TWC

MANAGING USERS

- Define user roles and permissions
- Add and manage users and groups

MANAGE PROJECTS & PROJECT DEPENDENCIES

- Project separation strategies
- Establish project usages
- Remove / update project usages
- Branch and merge management



MODULE 2: ADVANCED EXPRESSIONS AND METACHAINS



PREREQUISITES

Have at least three months of experience with Cameo Systems Modeler / Magic Cyber Systems Engineer and SysML

DURATION

1 days : 7 hours



OBJECTIVES



At the end of the training, the trainee will be able to:

- Create captions
- Create metachains
- Create opaque behavior – Create structured expressions using metachains, opaque behaviors, and scripts
- Use metachains and structured expressions to create custom columns in generic tables, to customize the "map relationship" and to create advanced captions

PROGRAM

MODEL EXPLOITATION

- Legend creation
- Generic table creation
- Relation map creation

STRUCTURED EXPRESSIONS

- Specific operands (Exclude, ...)
- Using metachains
- Using scripts (Groovy)
- Create and use opaque behaviors
- Enrich generic tables
- Enrich Relation Maps
- Use in Smart Package queries

METACHAINS

- Create metachains
 - from simple to complex
- Enrich tables and relation maps with metachains



MODULE 3: DSL AND VALIDATION RULES



PREREQUISITES

Have completed Module 2 – Advanced expressions and metachains of this training

DURATION

1 days : 7 hours



OBJECTIVES



At the end of the training, the trainee will be able to:

- Define what a Domain Specific Language (DSL) is
- Describe how the different parts of a plugin work together (profile, customizations, diagram customizations, validation rules, templates, ...) to support a DSL
- Identify what can be added to a template using a plugin, and which part(s) of a plugin is needed to make the change.
- Create model validation rules using structured expressions and scripts

PROGRAM

DOMAIN-SPECIFIC LANGUAGE

- Introduction & overview
- How CSM/MCSE can support DSL

PLUGINS

- What is a plugin?
- How a plugin can support a DSL
- The different parts of a plugin
- Code vs profiling vs customization

PROFILE DEFINITION

- Introduction & Profile Diagram
- Create new stereotypes
- Define attributes
- Customizations
- Derived properties

VALIDATION RULES

- Creation of validation rules
 - Using Structured Expressions
 - Using scripting languages



INTRODUCTION TO SIMULATION USING CATIA MAGIC

SE-CSM-04

Last update :
February 2024

Version : 1.1

TRAINERS



Ida Dahl

ida-electra.dahl@samares-
engineering.com



Nagarjun Anche Murali

nargarjun.anchemurali@sam
ares-engineering.com



Mourad Chibane

mourad.chibane@samares-
engineering.com



Raphaël Faudou

raphael.faudou@samares-
engineering.com



training@samares-engineering.com



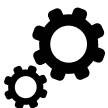
DESCRIPTION

Learn about the capabilities of Cameo Simulation Toolkit to simulate different SysML diagrams and learn how to simulate simple diagrams.

**OBJECTIVES**

At the end of the training, the trainee will be able to:

- List the different diagrams that can be simulated.
- Run the simulation and progress it step by step on simple diagrams

**PREREQUISITES**

Already a good experience in the use of CSM: At least 3 months

**TARGET PUBLIC**

This training targets in particular :
System Engineers/Architects



CHARACTERISTICS OF THE TRAINING

DURATION



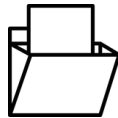
1 days : 7 hours



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each participant must have a way to connect to the internet in order to access the training management portal. The simulation tool "Catia Magic Analyst" or the plugin "Simulation" must be installed to be able to do the practical exercises

PRICING



Price excl. VAT (VAT at 20%) :

- INTER COMPANIES (multiple companies, fixed dates) session: 950 € per trainee (reduced to 750 € for any additional participant of the same company)
- INTRA COMPANY (one company) session: 2 330 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises

PROGRAM**INTRODUCTION ON
CATIA MAGIC MODEL
ANALYST / CAMEO
SIMULATION TOOLKIT**

- List of diagrams that can be simulated
- How simulation works (interpretation)
- The various simulation engines
- Detail of the simulation panel
- Quizz

ACTIVITY SIMULATION

- Simulation of a sequence
- Simulation of fork and merge
- Simulation of decisions
- Simulation of input data/object flows
- Practice

**STATE MACHINE
SIMULATION**

- Simulation of signal-based transitions
- Simulation of time-based transitions
- Practice

**EVALUATION OF
PARAMETRICS**

- Evaluation through the panel
- Use of default values
- Relation with requirements
- Practice



ADVANCED SIMULATION USING CATIA MAGIC

SE-CSM-05

Last update :
February 2024

Version : 1.1

TRAINERS



Ida Dahl

ida-electra.dahl@samares-
engineering.com



Mourad Chibane

mourad.chibane@samares-
engineering.com



Raphaël Faudou

raphael.faudou@samares-
engineering.com



training@samares-engineering.com



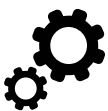
DESCRIPTION

Learn how to use simulation on complex diagrams and learn how to build several simulation configurations to support several scenarios.

OBJECTIVES

At the end of the training, the trainee will be able to:

- know to simulate a state machine diagram.
- know how to simulate an activity diagram.
- know how to simulate an IBD diagram
- know how to build different simulation configurations to support different operational scenarios.

**PREREQUISITES**

- Good experience in using CSM: At least 3 months
- Have completed the training "Introduction to Simulation with Cameo Systems Modeler" (SE-CSM-04)

**PUBLIC VISÉ**

This training targets in particular :
System Engineers/Architects



CHARACTERISTICS OF THE TRAINING

DURATION

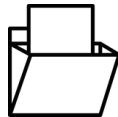


2 days : (14hours)



TRAINING METHODS

MATERIALS



Each participant must have a way to connect to the internet in order to access the training management portal.

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

PRICING



Price excl. VAT (VAT at 20%) :

– INTRA COMPANY (one company) session : 5 000 € for up to 8 participants of the same company

- Additional travel costs for events on your premises

PROGRAM**ADVANCED
SIMULATION OF
ACTIVITY DIAGRAMS**

- Call of activities from master activity
- Evaluation in the context of a block
- Dynamic guard conditions
- Time monitoring

**ADVANCED
CONFIGURATIONS**

- Use of instances for dedicated values

**ADVANCED
SIMULATION OF STATE
MACHINE**

- Use of composite states
- Use of choices
- Call of activities
- Use of empty transitions

**CUSTOM WIDGETS FOR
SIMULATION**

- States
- Forms

**ADVANCED
SIMULATION OF
INTERNAL BLOCK
DIAGRAMS**

- Simulation of data flows on connectors
- Combining with activities and states

**INTRODUCTION ON CO-
SIMULATION WITH FMI**

MODELING A SYSTEM OF SYSTEMS WITH UAF

In 2023 :

25 trainees

Satisfaction score : 8.8/10

Last update :

February 2024

Version : 1.1

SE-SOS-UAF

TRAINER



Ida Dahl

ida-electra.dahl@samares-engineering.com



Raphaël Faudou

raphael.faudou@samares-engineering.com



training@samares-engineering.com



DESCRIPTION

Understand the interest and principles of the UAF framework - Learn to read and create UAF diagrams

**OBJECTIVES**

At the end of the training, the trainee will be able to:

- Explain the different UAF domains and points of view
- Use the Cameo/Catia Magic tool to create the most appropriate UAF diagrams.

**PREREQUISITES**

Even basic knowledge of the NAF architecture framework.
First experience with a modeling tool desirable but not essential.

**TARGET PUBLIC**

This training targets in particular :
Enterprise architects, systems engineers



CHARACTERISTICS OF THE TRAINING

DURATION



1day (7hours) ; an be split into 3.5 hours



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each participant must have a way to connect to the internet in order to access the training management portal.

PRICING



Price excl. VAT (VAT at 20%) :

- INTER COMPANIES (multiple companies, fixed dates) session: 950€ per trainee (reduced to 750€ for any additional participant of the same company)
- INTRA COMPANY (one company) session: 2 330€ for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAM

INTRODUCTION

- Presentation of the participants
- Reminders: system of systems concept and NAF architecture framework

CREATING THE MAIN UAF VIEWS

- Domains: strategic, operational, service and resource domains
- Model types: Taxonomy, structure, connectivity, processes, states, scenarios, traceability

UAF ARCHITECTURE FRAMEWORK OVERVIEW

- Presentation of the Main Areas
- First practical exercises with Cameo Enterprise Architecture

COMPLEMENTS ON OTHER AREAS

- Personnel, projects, requirements....

CASE STUDY

CONCLUSION

SHARING AND EVALUATIONS





INTRODUCTION AND ISSUES OF THE MBSE APPROACH WITH CAPELLA

SE-MBARC-01

Last update :
February 2024

Version : 1.1

TRAINERS



Ida Dahl

ida-electra.dahl@samares-
engineering.com



Sébastien Dubé

sebastien.dube@samares-
engineering.com



Raphaël Faudou

raphael.faudou@samares-
engineering.com



training@samares-engineering.com





DESCRIPTION



Learn why and how MBSE approach can support efficient Systems Engineering
Provides overview of ARCADIA method and Capella tool illustrated
Provides introduction to MBSE benefits for digital continuity and interaction with other domains/disciplines



CASE STUDY

- Agricultural Aerial Drone as a System of Interest
- Implementation of the different architecture levels of the ARCADIA method
- Implementation of the various model elements and diagrams proposed by the CAPELLA tool

OBJECTIVES



At the end of the training the participants will be able to:

- Understand benefits of MBSE approach and consistency with Systems Engineering processes
- Describe the ARCADIA method with the main concepts and diagrams to use during the system definition down to the physical layer
- Describe the principles and interest of the ARCADIA method
- Describe the value of an MBSE modeling tool such as Capella compared to using the MS Office suite
- List potential changes in company engineering processes and practices induced by the use of an MBSE approach with CAPELLA



REQUIREMENTS

None; basic knowledge of requirements engineering and the ISO:15288 technical processes is recommended



TARGET PUBLIC

This training targets in particular :
Project/Program Managers interested by MBSE and want to understand added value of MBSE approach



CHARACTERISTICS OF THE TRAINING

DURATION



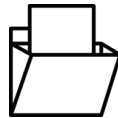
half a day (3,5h)



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires/Quizzes to check the acquisition of essential notions
- End of training certificate

MATERIALS



Each trainee is required to bring their own computer with internet access

PRICING



Price excl. VAT (VAT at 20%) :

– INTRA COMPANY (one company) session: 1 400 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAM**INTRODUCTION**

- The fundamentals of Systems Engineering
- Overview of ISO 15288:2015

MBSE FUNDAMENTALS

- MBSE principles
- ARCADIA method and mapping to Systems Engineering processes
- Introduction of Case Study

ILLUSTRATED MBSE APPROACHES

- Classical “Top-Down” Approach
- Performances (MOE-MOP-KPP-TPM)
- Meet in the Middle Approach
- “Multi-Levels” and sharing responsibilities within teams
- Synthesis

ADDITIONAL TOPICS

- Coordination between disciplines engineering and MBSE (digital continuity)
- Model-Based Product Line Engineering
- PLM coupling
- Textual Requirements and MBSE consistency
- MBSE and Configuration Management



MBSE IN PRATICE USING ARCADIA AND CAPELLA

In 2022 & 2023:
112 Trainees
Satisfaction score : 9.6/10

Last update :
February 2024

Version : 1.1

SE-MBARC-02

TRAINERS



Ida Dahl

ida-electra.dahl@samares-engineering.com



Nagarjun Anche Murali

nargarjun.anchemurali@samares-engineering.com



Chris Koyesse

chris.koyesse@samares-engineering.com



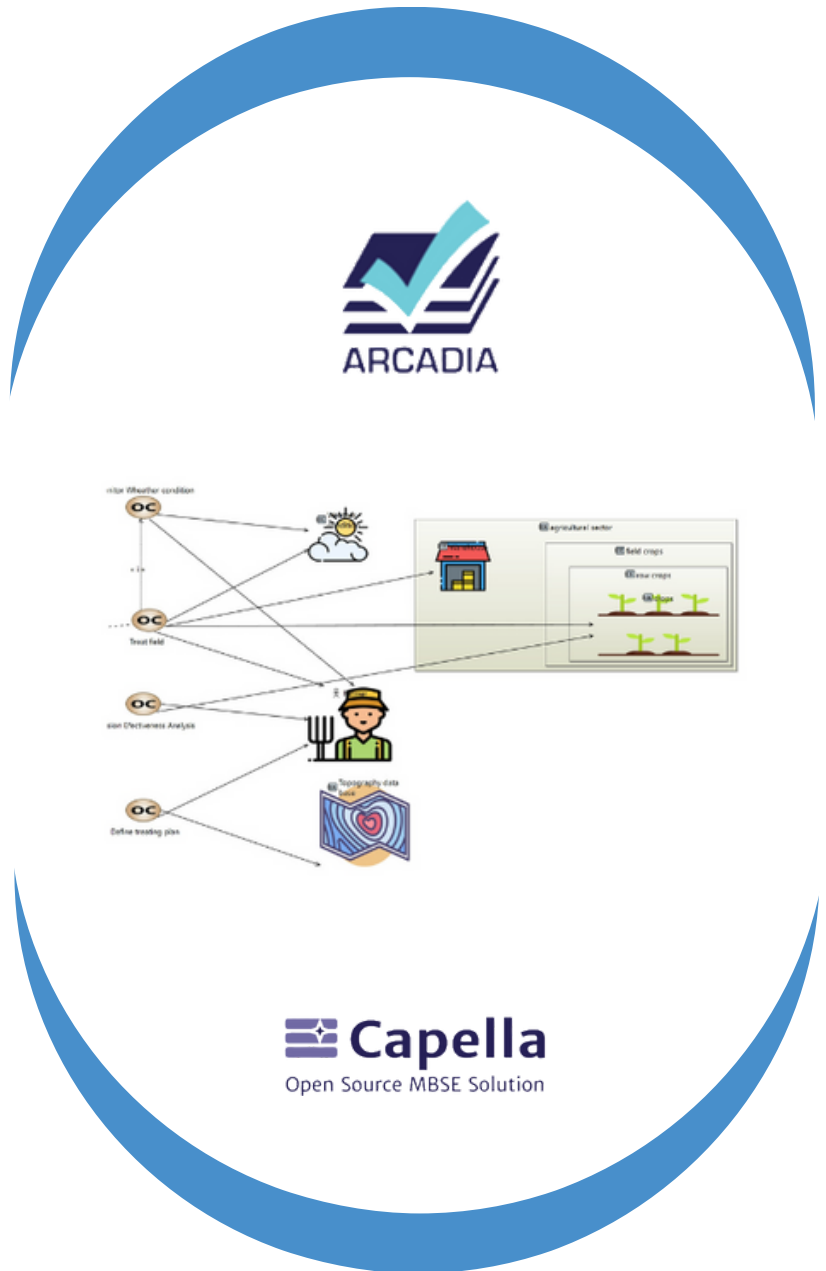
Kevin Ganeasan

kevin.ganeasan@samares-engineering.com



Sébastien Dubé

sebastien.dube@samares-engineering.com



training@samares-engineering.com





DESCRIPTION



Learn by practicing a model based approach, from requirements to the detailed definition of the system architecture

- Positioning with regards to the technical processes of ISO 15288:2015
- Use and implementation of the ARCADIA method



CASE STUDY

- Agricultural Aerial Drone as a System of Interest
- Implementation of the different architecture levels of the ARCADIA method
- Implementation of the various model elements and diagrams proposed by the CAPELLA tool
- Use of the CAPELLA tool for practice

OBJECTIVES



At the end of the training the participants will be able to:

- Use the ARCADIA method in compliance with standard Systems Engineering processes (ISO15288:2015)
- Describe the ARCADIA method with the main concepts and diagrams to use during the system definition down to the physical layer
- Apply the ARCADIA method with the Capella tool and a selection of its extensions (plugins)



REQUIREMENTS

None; basic knowledge of requirements engineering and the ISO:15288 technical processes is recommended



TARGET PUBLIC

This training targets in particular :
System Engineers, Architects,
Designers and Project Managers
who want to deploy MBSE in their
team



CHARACTERISTICS OF THE TRAINING

DURATION



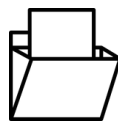
4 days (28 hours); can be split into 8 half days of 3,5 hours



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each trainee is required to bring their own computer with Capella 5.2.0 installed. Some additional extensions will need to be installed (complete required configuration will be communicated before the training)

Note: Each trainee will need write-rights on the folder where the Capella tool will be installed.

PRICING



Price excl. VAT (VAT at 20%) :

- INTER COMPANIES (multiple companies, fixed dates) session: 2 550 € per trainee (reduced to 2 020 € for any additional participant of the same company)
- INTRA COMPANY (one company) session: 6 250 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAMME**INTRODUCTION**

- The fundamentals of Systems Engineering
- Introduction to Model-Based Systems Engineering
- ARCADIA Overview
- Introduction to Capella
- Hands on Capella tool
- Case Study presentation

LOGICAL ARCHITECTURE

- Relations between LA/PA layers and standard processes
- Glossary of Terms
- LA models and diagrams in CAPELLA
- Practical work: Logical Architecture
- LA Best practices

OPERATIONAL ANALYSIS

- Glossary of Terms
- Relation between OA layer and standard processes
- OA models and diagrams in CAPELLA
 - OA Best practices
- Practical work: Operational Analysis

PHYSICAL ARCHITECTURE

- Glossary of Terms
- PA models and diagrams in Capella
- Practical work: Physical Architecture
- PA Best practices
- EPBS in Capella
- Replicable Elements and Libraries

SYSTEMS ANALYSIS

- System Analysis Overview
- Black Box Analysis
- Practical work: Mission & Capabilities
- White Box Analysis
- Practical work: Functional Architecture and Scenarios
- Transverse Modelling in Capella

ADVANCED FEATURES AND VIEWPOINTS

- Viewpoint management
- Property Values Management Tool
- System To Subsystem Transition
- xHTML documentation generation
- Requirements Viewpoint
- Publication for Capella (P4C)
- M2Doc introduction
- More extensions and conclusion





PRACTICAL MBSE WITH ARCADIA /CAPELLA FOR SPACE

SE-MBARC-02s

Last update :
February 2024

Version : 1.1

TRAINERS



Ida Dahl

ida-electra.dahl@samares-
engineering.com



Sébastien Dubé

sebastien.dube@samares-
engineering.com



training@samares-engineering.com





DESCRIPTION



Learn by practicing a model based approach, from requirements to the detailed definition of the system architecture

- Positioning with regards to the technical processes of ISO 15288:2015 and ECSS space industry standards
- Use and implementation of the ARCADIA method in context of Space



CASE STUDY

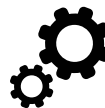
- Agricultural Aerial Drone as a System of Interest
- Implementation of the different architecture levels of the ARCADIA method
- Implementation of the various model elements and diagrams proposed by the CAPELLA tool
- Use of the CAPELLA tool for practice

OBJECTIVES



At the end of the training the participants will be able to:

- Use the ARCADIA method in compliance with standard Systems Engineering processes (ISO15288:2015 and ECSS-E10)
- Describe the ARCADIA method with the main concepts and diagrams to use during the system definition down to the physical layer
- Apply the ARCADIA method with the Capella tool and a selection of its extensions (plugins)



REQUIREMENTS

None; basic knowledge of requirements engineering and the ISO:15288 technical processes is recommended



TARGET PUBLIC

This training targets in particular :
System Engineers, Architects,
Designers and Project Managers
who want to deploy MBSE in their
team



CHARACTERISTICS OF THE TRAINING

DURATION



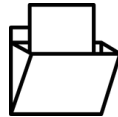
4 days (28 hours); can be split into 8 half days of 3,5 hours



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each trainee is required to bring their own computer with Capella 6.1.0 installed. Some additional extensions will need to be installed (complete required configuration will be communicated before the training)

Note: Each trainee will need write-rights on the folder where the Capella tool is installed.

PRICING



Price excl. VAT (VAT at 20%) :

– INTRA COMPANY (one company) session: 6 650 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAMME

INTRODUCTION

- The fundamentals of Systems Engineering
- Introduction to Model-Based Systems Engineering
- Overview of ECSS standards
- ARCADIA Overview
- Introduction to Capella
- Hands on Capella tool
- Case Study presentation

LOGICAL ARCHITECTURE

- Relation between LA/PA layers and standard processes
- Glossary of Terms
- Space disciplines & logical architecture modeling
- LA models and diagrams in CAPELLA
- Practical work: Logical Architecture
- LA Best practices

OPERATIONAL ANALYSIS

- Glossary of Terms
- Relation between OA layer and standard processes
- OA models and diagrams in CAPELLA
 - OA Best practices
- Practical work: Operational Analysis

PHYSICAL ARCHITECTURE

- Glossary of Terms
- PA models and diagrams in CAPELLA
- Practical work: Physical Architecture
- PA Best practices
- EPBS in Capella
- Replicable Elements and Libraries

SYSTEMS ANALYSIS

- System Analysis Overview
- Black Box Analysis
- Practical work: Mission & Capabilities
- White Box Analysis
- Practical work: Functional Architecture and Scenarios
- Transverse Modelling in Capella

ADVANCED FEATURES AND VIEWPOINTS

- Viewpoint management
- Property Values Management Tool
- System To Subsystem Transition
- xHTML documentation generation
- Requirements Viewpoint
- M2Doc introduction
- Cybersecurity (DARC) Viewpoint
- More extensions and conclusion





PRACTICAL MBSE WITH ARCADIA METHOD AND CAPELLA - MODEL REVIEWERS

SE-MBARC-03

Last update :
February 2024

Version : 1.1

TRAINERS



Ida Dahl

ida-electra.dahl@samares-
engineering.com



Nagarjun Anche Murali

nargarjun.anchemurali@sam
ares-engineering.com



Chris Koyesse

chris.koyesse@samares-
engineering.com



Kevin Ganeasan

kevin.ganeasan@samares-
engineering.com



Sébastien Dubé

sebastien.dube@samares-
engineering.com



training@samares-engineering.com





DESCRIPTION



Learn how to understand MBSE concepts developed with ARCADIA & Capella tool

Learn how to review efficiently a Capella model, navigate in the model and define explicit review comments inside the model



CASE STUDY

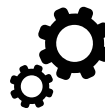
- Agricultural Aerial Drone as a System of Interest
- Review of the different architecture levels of the ARCADIA method
- Review of the various model elements and diagrams proposed by the CAPELLA tool
- Use of the CAPELLA tool for practice

OBJECTIVES



At the end of the training the participants will be able to:

- Understand the ARCADIA method in compliance with standard Systems Engineering processes (ISO15288:2015)
- Review models defined according to the ARCADIA method with the main concepts and diagrams to use during the system definition down to the physical layer
- Review and place comments in a predefined model



REQUIREMENTS

None; basic knowledge of requirements engineering and the ISO:15288 technical processes is recommended



TARGET PUBLIC

This training targets in particular :
System Engineers, Domain specialists and Project Managers who want to review MBSE model and check consistency with their engineering artifacts



CHARACTERISTICS OF THE TRAINING

DURATION



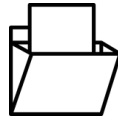
2 days (14 hours); can be split into 4 half days of 3,5 hours



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

MATERIALS



Each trainee is required to bring their own computer with Capella 6.1.0 installed. Some additional extensions will need to be installed (complete required configuration will be communicated before the training)

Note: Each trainee will need write-rights on the folder where the Capella tool is installed.

PRICING



Price excl. VAT (VAT at 20%) :

– INTRA COMPANY (one company) session: 3 490 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAMME**INTRODUCTION**

- The fundamentals of Systems Engineering
- Overview of ISO 15288:2015 with focus on reviews
- ARCADIA method
- Case Study presentation

**LOGICAL
ARCHITECTURE**

- Glossary of Terms
- Relation between LA layer and engineering reviews
- LA models and diagrams in CAPELLA
- Practical work: review of Logical Architecture on UAV Agri case study

**OPERATIONAL
ANALYSIS**

- Glossary of Terms
- Relation between OA layer and engineering reviews
- OA models and diagrams in CAPELLA
- Practical work: review of Operational Analysis on UAV Agri case study

**PHYSICAL
ARCHITECTURE**

- Glossary of Terms
- Relation between PA layer and engineering reviews
- PA models and diagrams in CAPELLA
- Practical work: review of Physical Architecture on UAV Agri case study

SYSTEMS ANALYSIS

- Glossary of Terms
- Relation between SA layer and engineering reviews
- SA models and diagrams in CAPELLA
- Practical Work : review of System Analysis on UAV Agri case study



INTRODUCTION TO PRODUCT LINE MANAGEMENT WITH PURE::VARIANTS

In 2023 :

19 trainees

Satisfaction score : 8.9/10

Last update :

February 2024

Version : 1.1

SE-PLE-01

TRAINERS



Ida Dahl

ida-electra.dahl@samares-engineering.com



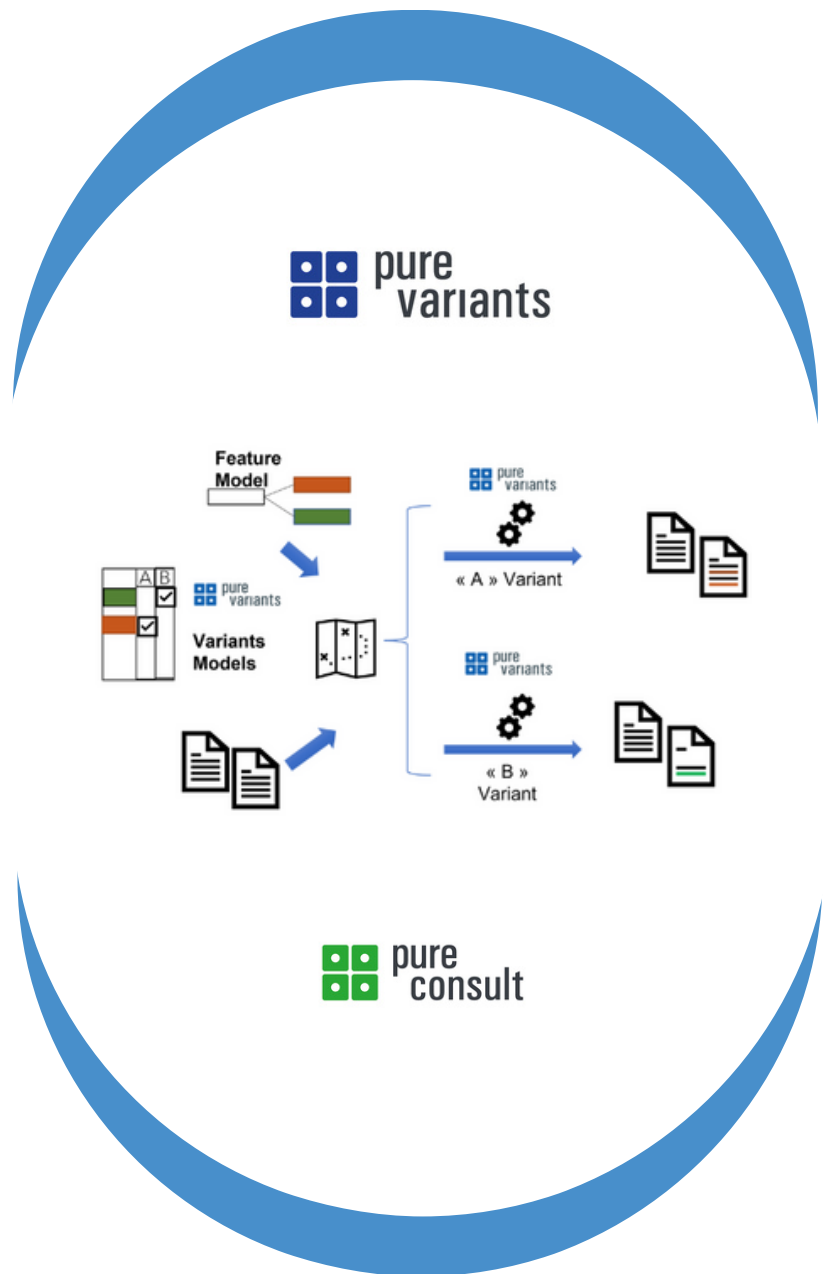
Mourad Chibane

mourad.chibane@samares-engineering.com



Sébastien Dubé

sebastien.dube@samares-engineering.com



training@samares-engineering.com



DESCRIPTION

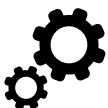
Learn the basic concepts of the product line in practice with pure::variants, the tool of pure::systems. This training is an introduction to all topics around the product line, i.e. issues, vocabulary, standards, processes, all implemented with pure::variants and the connector to MS office.

OBJECTIVES



At the end of the training, the trainee will be able to:

- Define product line concepts applied with the pure::variants tool
- Analyze and understand product line modeling best practices
- Be able to implement a product line definition process with pure::variants and understand the string used on an example of a simple connector (office)



PREREQUISITES

Knowledge of the use of third-party tools used during this training according to the connectors addressed



TARGET PUBLIC

This training targets in particular :
Project managers, systems engineers and software development engineers want to start setting up product lines using the pure::variants tool



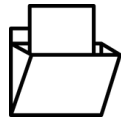
CHARACTERISTICS OF THE TRAINING

DURATION



1 day (7h) ; can be split into 2 half days of 3.5 hours

MATERIALS



Each participant must bring his laptop and must have previously installed and have licenses for:

- Pure::variants 6.0
- Microsoft Office Suite: Word and Excel



TRAINING METHODS

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

PRICING



Price excl. VAT (VAT at 20%) :

- INTER COMPANIES (multiple companies, fixed dates) session: 800€ per trainee (reduced to 650€ for any additional participant of the same company)
- INTRA COMPANY (one company) session: 2 000€ for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises

PROGRAM**INTRODUCTION****CONCEPTS PLE**

- Reference standards
- Standard vocabulary

**CONCEPTS
PURE::VARIANTS**

- Pure specific vocabulary::variants and mapping to standards
- Feature Model
- Variants Description Model
- Family Model

ADVANCED FEATURES

- Product Line of Product Line
- Concepts of structuring and logic of construction of the model (eg rules of good practice)
- Model Server Implementation

**OFFICE CONNECTOR
EXAMPLE**

PRODUCT LINE MANAGEMENT WITH PURE::VARIANTS

In 2023 :

19 trainees

Satisfaction score : 8.9/10

Last update :

February 2024

Version : 1.1

SE-PLE-02

TRAINER



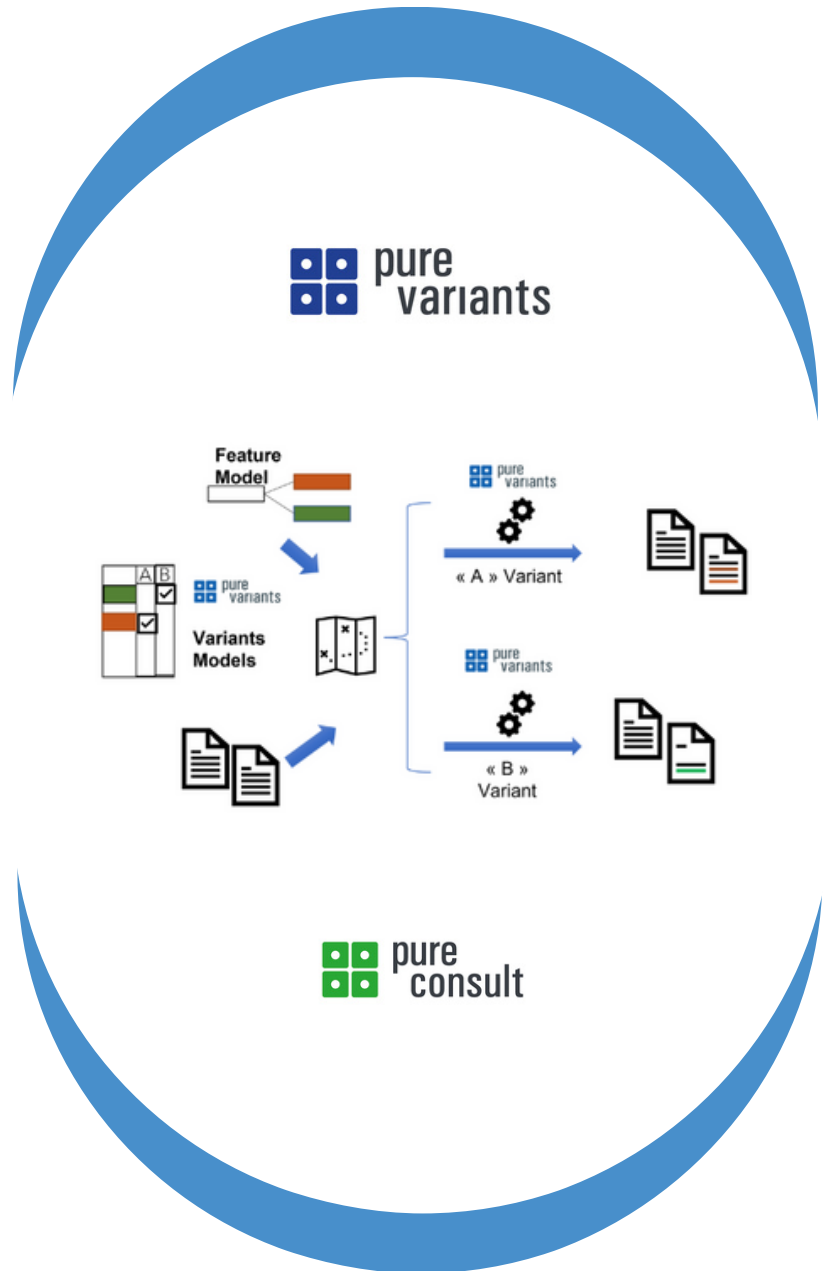
Ida Dahl

ida-electra.dahl@samares-engineering.com



Sébastien Dubé

sebastien.dube@samares-engineering.com



training@samares-engineering.com



DESCRIPTION

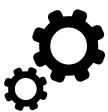
This training allows you to go further with pure::variants, by implementing several pure::variants connectors. This will allow you to have a holistic approach to your product lines.

OBJECTIVES



At the end of the training, the trainee will be able to:

- Be able to implement an end-to-end process (from defining variability to instantiating variants) with the pure::variants tool
- Be able to implement the complete process with the systems engineering tools used (MBSE, requirements, software development, IVV)



PREREQUISITES

Having already practiced pure::variants or have completed our Introduction to Product Line Management with pure::variants (SE-PLE-01)
Knowledge of selected software for connectors



TARGET PUBLIC

This training targets in particular :
Users of pure::variants; Project managers; Systems Engineers; Software Development Engineers



CHARACTERISTICS OF THE TRAINING

DURATION

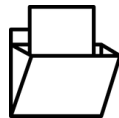


1 day (7hours) ; an be split into 3.5 hours



TRAINING METHODS

MATERIALS



Each participant must bring their laptop and must have previously installed and have licenses for:

Pure::variants 6.0 or 5.0

Connectors: JAZZ DOORS NG, JAZZ ETM, Rhapsody, Capella 5.2.0, Sources codes, Model Server

- Microsoft Office Suite: Word and Excel

- Theoretical presentation (slides), discussion, practical exercises with the tool
- Questionnaires to check the acquisition of essential notions
- End-of-training evaluation based on practical exercises
- End of training certificate

PRICING



Price excl. VAT (VAT at 20%) :

– INTRA COMPANY (one company) session: 2 330 € for up to 8 participants of the same company

- Additional cost for events on our premises (room reservation and lunch): €90 / day for each participant.
- Additional travel costs for events on your premises



PROGRAM

INTRODUCTION

**CONNECTEURS
PURE::VARIANTS**

- Requirements
 - IBM DOORS NG connector
 - IBM DOORS Classic connector
- Architecture
 - Rhapsody connector
 - CAPELLA connector
- Software Development
 - Code Sources connector
- Tests
 - IBM ETM connector
 - Credit for trials

**MODULAR TRAINING ACCORDING
TO THE USE OF YOUR
CONNECTORS**

For any need of information:

- Email: training@samares-engineering.com
- Tel: 06 10 53 50 44
- Website: www.samares-engineering.com/en
- Address: 2 av. escadrille Normandie Niemen, Ethics
Biotope 31700 Blagnac, France

