VECTOR

Systems Engineering Training (paid)

Agenda Vector Academy

Delivery Format:	Online/Offline
Duration:	2 days
Target Group:	This training is suitable for systems engineers, project managers, product managers, engineers, and quality assurance personnel, especially those looking to enhance skills in system design, management, and validation in complex projects.
Goal:	The training aims to equip participants with core systems engineering methods, enhancing their skills in design, quality management, and cross-disciplinary collaboration in complex projects, and enabling them to effectively apply this knowledge in real-world work.

1. Training content

- Systems Engineering and Theory - Understand the basic concepts and theoretical framework of systems engineering.
- Complexity Management - Learn how to address and manage complexity in system development.
- Driving Innovation - Master strategies and methods to promote innovation in systems engineering.
- Systematic Quality Management - Integrate quality systematically into system and product design.
- System Analysis and Modeling - Use SysML for system analysis and modeling.
- MBSE Frameworks and Methods - Gain knowledge of model-based systems engineering frameworks and applications.
- Stakeholder Management and Decision-Making - Identify key stakeholders and make systematic decisions.
- Product Line and Lifecycle Management - Master the core principles of product line and lifecycle management.
- System Architecture Analysis and Evaluation - Learn to design, analyze, and optimize system architectures.
- System Architecture Implementation - Drive the implementation of system architectures, ensuring multi-domain integration.
- System-Level Verification and Validation - Master methods for system-level verification and validation.
- Artificial Intelligence and Emergence - Explore applications of AI and emergence in systems engineering.

2. Training agenda

Day 1: Foundations, Processes, Methods	Day 2: Execution, Deployment, Lifecycle
• Introduction to systems engineering and systems theory • Understanding and mastering complexity • Driving innovation • Quality: Achievement by systematic engineering • System analysis and system modeling with SysML • Frameworks and methods for MBSE	• Stakeholder invocation and systematic decisions • Product lines, variant- and lifecycle management • Analysis and evaluation of system architectures • Driving the implementation of system architectures • Verification and validation on system level • AI, emergence and acceleration of systems engineering

Breaks: Coffee/Tea around 10:30 and 15:00; lunch break around 12:00.
Training material: in Englis

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3. **Training Overview**

- **Systems Engineering** is the foundation for successful architectures, products and solutions. You learn to think in systems, to structure complex tasks, to model systems and to develop convincing solutions. By capturing relevant viewpoints in models and applying effective methods, you will be enabled to create meaningful system architectures and useful documentation.
- Our training introduces systematic systems engineering, which can be applied effectively for real world systems. The training is based on relevant industry standards, such as INCOSE, SysML or ASPICE. Many practical examples ensure hands-on learning beyond the mere theory. You will become familiar with methods and tactics to drive innovation, master complexity and build-in quality upfront.
- You will learn how to define systems in their context, collaborate with stakeholders, assure value creation and drive the realization of the system architecture - in software, hardware, other technologies as well as focused system integration and testing. Our training emphasizes practical application, enabling you to seamlessly transfer your newfound knowledge to your everyday project work, enhancing your productivity.
- Join our **Systems Engineering Training** and unlock your potential. Enhance your technical skills, broaden your knowledge, and gain the confidence to lead and contribute to complex engineering projects.

4. What to Expect

Based on our consulting expertise we can answer the really relevant questions and provide guidance for your engineering:

- Learn how to capture the values for customers and how to build quality systematically into systems and products.
- Achieve security, safety and dependability according to standards, such as ISO 21434, ISO 26262, SPICE.
- Express the system design by semi-formal notations like SysML and apply methodologies, such as UAF, ARCADIA or SPES 2020.
- Master real-world challenges like product lines, time-to-market or target cost or spreading regulations.
- Master the complete scope of systems engineering from context definition to validation/certification, while driving the realization in software, electronics and mechanics.