



**TRAINING ON  
SYSTEMS ENGINEERING  
(SE)**

# SYSTEMS ENGINEERING (SE)

## Why Choose QVISE for your SE Training?

- ✓ QVISE offers comprehensive Systems Engineering training designed to equip professionals with the skills and knowledge necessary to excel in complex project development and management.
- ✓ Our expert instructors combine in-depth industry experience with academic rigor to deliver engaging and practical training programs.
- ✓ Benefit from our hands-on approach, real-world case studies, and tailored curriculum designed to meet your specific needs.
- ✓ By choosing QVISE, you gain the competitive edge to optimize system design and processes, improve project efficiency, and drive successful outcomes.

## Pre-Requisites

- Minimum 3 years of industry experience (Preferably Maintenance Oriented)
- Management Experience of at least 2 years (Preferred)
- Bachelor's degree in electrical / Electronics / Mechanical / Mechatronics Engineering
- Integrated Logistics Support Basics
- Understanding of electronic equipment and components – for Electronics Engineers
- Knowledge of common mechanical equipment & components – for Mechanical Engineers
- Possess strong analytical skills
- Good understanding of mathematics



# SYSTEMS ENGINEERING (SE)

## TESTIMONIALS

*“For our recent project being carried out this course / training will be very beneficial.”*

*– SE Team Member (Module – 3)*

*“The course will influence my future work and the real case studies were the best part, where I could relate my past experiences and learn from the slight errors we had been making.”*

*– SE Team lead (Module – 4)*

*“The Workshops have helped greatly in understanding the flow of real activities specially the technical processes to put into some practical use”*

*– SE Team Member (Module – 4)*

# SYSTEMS ENGINEERING (SE)

## Systems Engineering Course Program Details

- ❑ QVISE offers a comprehensive SE training program designed to equip professionals with the essential skills and knowledge to master complex systems development and integration.
- ❑ This course covers the complete lifecycle of systems and products, from concept to delivery, ensuring participants gain a deep understanding of both technical processes and management practices.
- ❑ Our experienced instructors, deliver a dynamic learning experience through real-world case studies, hands-on exercises
- ❑ By choosing QVISE, you will gain the expertise needed to streamline your systems engineering processes, enhance project outcomes, and drive innovation within your organization.

## Course Module Distribution

- ✓ **Module 1:** Introduction To Systems Engineering
- ✓ **Module 2:** The System/ Product Life cycle
- ✓ **Module 3:** Technical Processes
- ✓ **Module 4:** Technical Management Processes
- ✓ **Module 5:** Technical Reviews
- ✓ **Module 6:** Practical Systems Engineering and Tailoring



# MODULE 1 INTRODUCTION TO SYSTEMS ENGINEERING (SE)

## OBJECTIVES

- ✓ Define Systems Engineering and its role in product development.
- ✓ Explain the key principles and concepts of Systems Engineering.
- ✓ Identify the core processes and activities involved in Systems Engineering.
- ✓ Understand the relationship between Systems Engineering and other engineering disciplines.
- ✓ Recognize the benefits of applying Systems Engineering principles to project success.

## Course Outline

- Defining what is a System
- Understanding types of Systems and related concepts
- Purpose of Systems Engineering and its importance
- Identifying stakeholders & users of a system
- General activities of a system
- Documentation in Systems Engineering
- Impact of systems engineering on an organization
- History of Systems Engineering & its evolution over the years
- Understanding roles & responsibilities of a Systems Engineer



# MODULE 2 THE SYSTEM / PRODUCT LIFE CYCLE

## OBJECTIVES

- ✓ Understand the different types of system/ product life cycles for military and commercial use.
- ✓ Describe the stages of the system/product life cycle and their interdependencies.
- ✓ Explain the key activities and deliverables associated with each life cycle stage.
- ✓ Understand the role of Systems Engineering in supporting the life cycle process.
- ✓ Identify potential risks and challenges at different stages of the life cycle.

## Course Outline

- An overview of the System/ Product Life cycle
- Life cycle Concepts & Approach
- Understanding the background of System/ Product Life cycles
- Exploring the different types of System/ Product Life cycles
- Planning of a System/ Product Life cycle
- The Concept Stage in a System/ Product Life cycle
- The Development Stage in a System/ Product Life cycle
- The Production Stage in a System/ Product Life cycle
- The Utilization/ Fielding Stage in a System/ Product Life cycle
- The Support Stage in a System/ Product Life cycle
- The Retirement/ Disposal Stage in a System/ Product Life cycle



# MODULE 3 SE TECHNICAL PROCESSES

## OBJECTIVES

- ✓ Explore the various technical processes involved in Systems Engineering.
- ✓ Identify the key stakeholders of technical processes.
- ✓ Understand the purpose and objectives of each technical process.
- ✓ Identify the key inputs, outputs, and activities associated with each process.
- ✓ Address common challenges and best practices for effective technical process implementation.

## Course Outline

- Overview of the Technical Processes in a System/Product Life cycle
- Technical Processes in different standards/guidebooks
- Business & Mission Analysis Process
- Requirements Analysis Process
- Stakeholder Needs & Requirements Definition Process
- System Architecture Design Process and System Analysis Process
- Implementation Process
- Integration Process
- Transition Process
- Verification Process
- Validation Process
- Operation, Maintenance & Disposal Process



# MODULE 4 SE TECHNICAL MANAGEMENT PROCESSES

## OBJECTIVES

- ✓ Explore the technical management processes involved in Systems Engineering.
- ✓ Identify the key stakeholders of technical management processes.
- ✓ Understand the purpose and objectives of each technical management process.
- ✓ Identify the key inputs, outputs, and activities associated with each process.
- ✓ Address common challenges and best practices for effective technical management.

## Course Outline

- Overview of the Technical Management Processes in a System/ Product Life cycle
- Technical Management Processes in different standards/ guidebooks
- Technical Planning Process
- Project Assessment & Control Process
- Decision Analysis Process
- Technical Assessment Process
- Requirements Management Process
- Risk Management Process
- Configuration Management Process
- Technical Data/ Information Management Process
- Interface Management Process
- Quality Assurance Process





# MODULE 5 SYSTEMS ENGINEERING TECHNICAL REVIEWS (SETR)

## OBJECTIVES

- ✓ Explain the purpose and types of technical reviews in Systems Engineering.
- ✓ Discover technical review timelines and the importance of milestones in a System/ Product life cycle.
- ✓ Understand the criteria and processes for conducting effective technical reviews.
- ✓ Develop strategies for addressing issues and recommendations identified during reviews.
- ✓ Integrate technical reviews into the overall Systems Engineering process.

## Course Outline

- Overview of Milestones and Technical Reviews in a System/ Product Life cycle
- Timeline of Technical Reviews in a System/ Product Life cycle
- Different types of Technical Reviews and their importance
- Alternative Systems Review (ASR)
- System Requirements Review (SRR)
- System Functional review (SFR)
- Preliminary Design Review (PDR)
- Critical Design Review (CDR)
- System Verification Review (SVR)/ Functional Configuration Audit (FCA)
- Technology Readiness Review (TRR)
- Production Readiness Review (PRR)
- Physical Configuration Audit (PCA)



# MODULE 6 PRACTICAL SYSTEMS ENGINEERING AND TAILORING

## OBJECTIVES

- ✓ Tailor Systems Engineering processes to project requirements and constraints.
- ✓ Analyze real-world case studies to identify successful practices and lessons learned.
- ✓ Develop strategies for overcoming common challenges in Systems Engineering projects.
- ✓ Evaluate the effectiveness of tailoring in achieving project objectives.
- ✓ Conduct test exercises to reinforce learning and develop problem-solving skills.

## Course Outline

- Considerations for Tailoring
- Systems Engineering Methodologies & Considerations
- Types of Systems to consider
- Tailoring processes for Systems Engineering
- Application of Systems Engineering in Practical Field
- Specialty Engineering Principles
- Competency of a System Engineer
- Discovering Real-World scenarios where Systems Engineering failed
- Future of Systems Engineering