



Certified Functional safety Engineer

Learning Objectives:

- Gain comprehensive knowledge of functional safety concepts, standards (e.g., IEC 61508/61511), and lifecycle processes.
- Learn techniques to assess risks and determine appropriate SIL requirements for safety instrumented systems (SIS).
- Develop skills to design, verify, and validate SIS in accordance with industry standards.
- Understand safety lifecycle management and responsibilities across different project phases.
- Acquire expertise in functional safety testing, verification, and periodic reviews to ensure compliance.
- Learn to implement functional safety practices to meet legal and industrial standards for process safety.

Training Content:

Day 1: Introduction to Functional Safety

- Overview of functional safety and its importance.
- Key standards and guidelines: IEC 61508, IEC 61511, and ISO 13849.
- Safety lifecycle overview, phases., and Functional safety terms and definitions.

Day 2: Risk Assessment and SIL Determination

- Hazard and risk analysis techniques (e.g., HAZOP, LOPA).
- Determining SIL requirements based on risk tolerance criteria.
- Understanding probability of failure on demand (PFD).
- SIL selection tools and methodologies.

Day 3: Safety System Design and Development

- Design of safety instrumented functions (SIF).
- Selection of components: sensors, logic solvers, actuators.
- Redundancy and reliability in SIS design (e.g., voting systems).
- Practical exercise: Designing a simple safety system.

Day 4: Validation, Testing, and Maintenance

- Functional safety verification and validation processes.
- Testing strategies: factory acceptance tests (FAT), site acceptance tests (SAT).
- Proof testing and maintenance of SIS.
- Managing changes and maintaining safety integrity over time.

Day 5: Functional Safety Management and Certification

- Responsibilities in functional safety management.
- Developing safety plans and procedures.
- Audit preparation and compliance requirements.
- Final assessment: Practical and theoretical examination.