

TÜV Rheinland FUNCTIONAL SAFETY ENGINEER - SAFETY INSTRUMENTED SYSTEMS

Course Code SFSE

Duration 4 days

Max Class Size 8

Prerequisite At least 3 years experience in the field of functional safety. Bachelor degree or equivalent as certified by the employer.

Pass score is 75%. Successful participants will receive certificate from TÜV Rheinland

The course is designed to provide participants with elementary and necessary knowledge about functional safety, based on the international standards IEC 61508 and IEC 61511.

Who should attend this course?

For instrument engineers, application engineers, site engineers, project managers, operation engineers, maintenance engineers and all those who are involved in the design, realization, maintenance and operation of safety systems.

Day 1

Introduction to Functional Safety
International safety standards IEC 61508 and 61511
- The 5 main pillars of the standards
HAZOP - SIF - SIL
- Hazard and risk assessment, Determine SIF and SIL, SIL verification

Day 2

Safety Engineering
- DTS and ETS states, redundancy, safety architectures, reliability modeling, sensor validation, overrides-bypasses-inhibits, process safety time and system response time, Logic Solver architectures
Functional Safety Management
Failures and hardware fault tolerance
- Random hardware failures and their modes
- Failure mode effect analysis, Safe Failure Fraction (SFF), Hardware Fault Tolerance (HFT)

Day 3

Common cause influences and various errors
- The beta factor and systematic and human failures
Safety calculations
- Safety parameters, formulas, proof testing
Session for questions (afternoon session-optional)

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Day 4

Examination

