

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

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