



# Functional Safety Basics Workshop

## Functional Safety for Process Industry according to IEC 61511

### COURSE OBJECTIVE

This workshop imparts basic principles and information of Functional Safety regarding protection equipment. Details and terms of the standards IEC 61508 and IEC 61511 will be explained in a clear and intelligible context.

### COURSE CONTENT

- Risk Analysis
  - How much safety is needed?
  - Risk graph acc. to IEC 61508-5 / IEC 61511
  - Management of Functional Safety
  - Definition of life-cycle phases
  - Documentation
  - Validation (assessment) of Functional Safety
  - Modifications
  - Competencies
  - Suppliers
- International Standard IEC 61511
  - Application Area
  - Proven in use
  - Normative requirements to SW-development
  - Validation
  - Verification
  - Safety-related parameter
  - Hardware Fault Tolerance
  - Safe failure fraction (SFF)
  - Probability of failure on demand (PFD<sub>AV</sub>)
  - Coherence of PFD<sub>AV</sub> and Proof Test Interval (PTI)
  - Structural requirement of subsystems
  - Validation of safety-related parameter

### RECOMMENDED PARTICIPANT

- **Role:** Engineers, technicians and managers, for sales, marketing, quality, project, products, design, implementation, commissioning, operation and maintenance
- **Industry:** Process industry (oil & gas, oil refinery, chemicals, chemical Storage, LNG, FPSO, power plants)
- **Pre-requisite:** nil

### COURSE DETAILS

Duration	One full-day
Location	Singapore
Certification	Certificate of Attendance, upon 100% attendance

### TRAINING PROVIDER

TÜV Rheinland is a well-recognized certification body for the Functional Safety Products, Functional Safety Applications and Functional Safety Management System. In addition, TÜV Rheinland Functional Safety Training Program is the only vocational training for Functional Safety that is acknowledged worldwide.

### REGISTRATION

Contact us or check our [training schedule](#).

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