

# T152

## TÜV Rheinland Functional Safety Training Program Functional Safety Technician (TÜV Rheinland)

### Safety Instrumented Systems (SIS) Training

ABB is an accepted course provider of the worldwide acknowledged TÜV Rheinland Functional Safety Training Program.

### Course goal

The goal of this course is to learn the principles and requirements of functional safety in the context of operation and maintenance of Safety Instrumented Systems (SIS) according to IEC 61508/IEC 61511.

Course attendance is open to all interested parties. Achieving the threshold mark for the examination and meeting the prerequisites as detailed below will result in the candidate becoming a certificated TÜV Rheinland FS Technician.

### Learning objectives

Upon completion of this course, the participants will be able to:

- Describe the principles of functional safety management and the key features of IEC 61508/IEC 61511
- Describe the requirements of the safety lifecycle
- Outline the key deliverables from the operations & maintenance safety lifecycle phase, roles and responsibilities
- Explain the key factors used within the SIS engineering and design phase such as random hardware failure, architectural constraints and systematic capability
- Understand the requirements for proper inspection, operation and maintenance of installed SIS as required by the safety standards

### Participant profile

This training is aimed at those who will be involved in supporting the commissioning, inspection, testing, operation, maintenance, modification and change management of SIS for process plant applications. They are likely to be plant operators, control, instrumentation and electrical supervisors & technicians.

### Prerequisites for TÜV FS Technician Certificate

In accordance with the TÜV Rheinland Functional Safety Program, to be accredited students shall have:

- A minimum of 2 years' experience in the field of functional safety
- Certificate in a relevant engineering discipline or equivalent engineering experience and responsibilities as certified by employer or engineering institution



### Certificate

Participants, who fulfil the requirements, attend the complete training and pass the exam successfully will receive the FS Technician (TÜV Rheinland) certificate with an individual ID number. Holders of this certificate will be listed at the TÜV Rheinland website [www.tuvasi.com](http://www.tuvasi.com) "List of FS Technicians".

### Topics

- TÜV Rheinland Functional Safety Program
- Background on functional safety
- Regulations and safety standards
- IEC 61508 and IEC 61511
- Management of functional safety
- Competency management
- Safety lifecycle phases and planning
- Hazard and risk management
- Safety requirements specification
- SIS design and engineering
- Selection of components & subsystems
- Verification, validation, audit and assessment
- Continuous review and improvement
- Installation & commissioning
- Proof testing strategies and the impact of testing
- Highly managed alarms
- Operation and override procedures
- Inspection and maintenance management
- Modification, change management and impact analysis
- Practical exercises

## Course type and methods

This is an instructor led course with interactive classroom discussions and practical examples of safety system implementation.

## Course duration

The duration is 3 days consisting of 2.5 days of tuition with an examination on the third day.

## Course outline

### Day 1

- Course overview and TÜV Rheinland Functional Safety Program
- Regulations and safety standards
- The functional safety lifecycle
- Concept of hazard & risk management
- Industry good practice
- SIS design and engineering
- Requirements for operation, maintenance & decommissioning
- Worked examples
- Course knowledge review

### Day 2

- Operation & maintenance and the role of the Technician
- Planning
- Operational Activities
- Maintenance Activities
- Modification & management of change
- Decommissioning
- Partial proof testing
- Worked examples
- Course knowledge review

### Day 3

- Highly managed alarms
- Security
- Exam overview
- Examination

## ABB University

[www.abb.com/abbuniversity](http://www.abb.com/abbuniversity)

[www.functionalsafetyinsights.com](http://www.functionalsafetyinsights.com)

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