Training courses

TÜVRheinland®
Precisely Right.

TÜV Rheinland Functional Safety Training Program

Functional Safety of Machinery

As an approved course provider by TÜV Rheinland, Schmersal offers the official Functional Safety of Machinery training course and exam for the Functional Safety Engineer (TÜV Rheinland) certificate. During the course, Schmersal Functional Safety instructors will focus on ISO 13849 and IEC 62061 while going in-depth into the International regulations, basic risk assessment concepts, examples of protective equipment for machinery, safety functions, circuit designs, Performance Level (PL) and Safety Integrity Level (SIL) calculations.

Upon completion of the Course, learners will be able to:

- Identify standards regarding functional safety of machinery
- Define A, B and C standards
- Describe the basic concepts of the Machinery Directive and CE
- Explain ISO12100 risk reduction measures
- Define "Hazards" and "Risks"
- Explain the concepts of a safety function
- Demonstrate PL and SIL Calculations
- Explain Safety Categories
- Define ISO 13849 and IEC 62061

- Describe basic safety principles, well-tried safety principles and well-tried components
- Describe deterministic fault consideration, faults, and fault exclusions
- Identify the various safety devices available for machinery
- Explain the different factors of failure probabilities
- Explain the requirements regarding software
- Define random and systematic failures
- Describe verification and validation process of safety functions
- Define the terms and the contexts of PL, SIL, SIL CL, HFT and SFF

Duration:	Virtual :	8-Days (+ 3-Hr Exam)
Max Attendees:	15	
CEUs:	2.5	

In order to receive CEU, learner must be present for the entirety of the course (with a functioning camera for virtual event) and complete the course assessment (separate from the certification exam).

ACCREDITED IACET PROVIDER

tec.nicum is accredited by IACET to the ANSI/IACET 2018-1 Standard for Continuing Education and Training.

tec.nicum staff are available to support all learners and answer any questions regarding a training session Monday through Friday between the hours of 8:30am & 4:45pm EST, or during any learning event.

tec.nicum
Schmersal Group

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Who Should Attend?

Professionals with proven experience in machine and functional safety such as application engineers, system integrators, designers and safety specialists.

Participant Eligibility Requirements

Participants who wish to obtain the "FS Engineer (TÜV Rheinland)" certificate have to attend the complete training and pass the exam. In addition, the following requirements must be met:

1. A minimum of 3 years experience in the field of functional safety.
2. University degree (Bachelor's, Master's, Diploma etc.) in Engineering or other technical area.

Our next session:

Online – MAY 12 through MAY 21, Exam MAY 23

Daily sessions will be held from 8:00 am to 12:00 pm EASTERN. A functional camera is required for attendance.

Session		Training Content
Monday	5/12	Intro - "TÜV Rheinland Functional Safety Training Program" Guidelines and Standards, Risk Analysis
Tuesday	5/13	
Wednesday	5/14	Introduction to ISO 13849, Safety Devices, Safety functions of machines, Circuits, schematics, examples
Thursday	5/15	
Friday	5/16	New standards regarding the safety of machinery, ISO 13849, Validation, Examples
Monday	5/19	
Tuesday	5/20	IEC 62061, Examples
Wednesday	5/21	
Friday	5/23	Final Exam for certification (9:00 am to 12:00 pm)

Exam

Upon passing a final exam, attendees will receive the internationally recognized Functional Safety Engineer (TÜV Rheinland) certificate, confirming their knowledge and successful completion of the course.

Exam duration: 3 hours

The exam consists of 70 multiple choice questions and 12 open questions.

The standards EN ISO 13849 part 1 and 2 and EN 62061 are required for both the course and exam. Additionally, a calculator should be brought along for the quantitative assessment.