

Safety

Functional Safety for Machinery Engineer Certification (TÜV Rheinland) Course Description

COURSE AGENDA

Day 1

- Understanding the Functional Safety for Machinery Engineer Certification (TÜV Rheinland)
- Defining Legal Guidelines and Standards
- Defining Risk Analysis and Processes (ISO 12100:2010)
- Defining Basic Electrical Safety Principles (IEC 60204-1)
- Identifying Safety Devices

Day 2

- Identifying Safety Functions of Machines
- Identifying Circuits, Schematics, and Examples
- Defining New Standards Regarding Safety of Machinery

Day 3

- Defining ISO 13849-1
- Defining ISO 13849-2

Day 4

- Defining IEC 62061
- Performing ISO 13849/IEC 62061 calculations

Day 5 – Exam

- Exam (4 hours)



COURSE NUMBER: SAF-TUV2T

Rockwell Automation offers this training in cooperation with TÜV Rheinland.

Course Purpose

The standards regarding functional safety and relevant laws and directives demand that people and organizations performing responsible (accountable) tasks during all life cycle phases of a machine must achieve and prove required competencies.

In this training, students will learn how current standards dictate the design and proof of functional safety for machines. The participant will learn how safety devices and components are assembled and applied to reduce hazards from machinery so the necessary safety for people and environment is achieved. Practical examples will demonstrate possibilities regarding machine protection.

In addition to the technical requirements, students will learn about organizational measures, quality assurance techniques, and documentation for lifecycle design and validation.

After completing this course, students should understand and be able to use IEC 60204-1, IEC 62061, ISO 12100, ISO 13849-1, -2, and other relevant machine functional safety standards.

Students who want Functional Safety for Machinery Engineer Certification (TÜV Rheinland) **must** meet all eligibility requirements and pass the exam scheduled on the fifth day.

Who Should Attend

Application engineers, system integrators, developers, safety specialists, and authorized experts in machinery should attend this course.

Prerequisites

- **Required:** A completed and approved eligibility form to receive certification (see details below)
- **Strongly Recommended:** *Functional Safety for Machinery Introduction* (Course No. SAF-TUV1)

Certificate Eligibility Requirements

Requirements to receive the **Functional Safety for Machinery Engineer Certificate (TÜV Rheinland)**:

- Before taking the course, an eligibility form from TÜV Rheinland must be completed and approved, proving:
 - Minimum of 3 years of experience in the field of functional safety
 - University engineering degree (Master's or Bachelor's) or global equivalent
- OR,**
- Equivalent engineer level responsibilities status certified by employer
- Attended full SAF-TUV2T course
 - Passing grade of 70% or higher on the exam

If all eligibility requirements are fulfilled, exam participants will receive individual notification of results and the Functional Safety for Machinery Engineer certificate from TÜV Rheinland.

Exam

The exam consists of two parts with 70 multiple choice and 12 open questions. Participants must bring paper copies of the standards, along with a calculator.

Technology Requirements

Rockwell Automation provides all technology, except for the standard calculator required for the exam.

www.rockwellautomation.com

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Student Materials

To enhance and facilitate students' learning experience, the following material is provided to each student as part of the course package:

- *Student Manual*, covering course material and key concepts

Standards are not provided by Rockwell Automation. Students are required to bring paper* copies of:

- IEC 60204-1
- IEC 62061
- ISO 12100: 2010
- ISO 13849 part 1 and part 2

*Electronic copies cannot be used at this time.

Standards can be purchased from the following websites:

- ANSI site: <http://webstore.ansi.org/default.aspx>
- ISO site: http://www.iso.org/iso/publications_and_e-products/all_publications.htm
- IEC site: <http://webstore.iec.ch/>
- IHS site: <http://global.ihs.com/>

Course Length

This course is 4.5 days.

Course Number

The course number is SAF-TUV2T.

To Register

To register for this or any other Rockwell Automation training course, contact your local authorized Allen-Bradley Distributor or your local Sales/Support office for a complete listing of courses, descriptions, prices, and schedules.

You can also access course information via the Web at <http://www.rockwellautomation.com/training>.

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