TÜV Rheinland Functional Safety Training Programme

Online Training:

Process Hazard & Risk Analysis

TÜVRheinland®
Risktec

Controlling risks within major hazard enterprises requires a robust process safety management (PSM) system, and key to its success is the experienced application of process hazard and risk analysis (PH&RA) techniques.

This PH&RA course is part of the TÜV Rheinland Functional Safety Training Programme. Participants who successfully pass the examination will receive an FS Engineer (TÜV Rheinland) certificate.

This course covers the fundamentals of PSM, demonstrating how to apply the theory in practical situations, using simple and more complex examples to illustrate key points. The course is considered essential for anyone who is involved in PH&RA.

Risktec Solutions, part of the TÜV Rheinland Group, is a leading authority on providing advice and technical support to clients operating in the major accident hazard sectors, including oil and gas, chemicals and nuclear sectors. Risktec's consultants have unparalleled technical knowledge and practical experience in identifying and providing process safety and risk management solutions in all the major hazard industries.

At the end of the course you will be able to:

- Apply the most popular and internationally adopted methods and tools for identifying and managing the risks associated with process-related hazards
- Actively participate in and give effective support during the whole process hazard and risk analysis approach
- Identify hazards and analyse risk, including applying the IEC 61882 HAZOP standard
- Relate the requirements of Functional Safety according to IEC 61508 / IEC 61511 to process hazards and risk analysis
- Actively participate in LOPA & SIL Classification Workshops

Who should attend?

- Process engineers, safety engineers and managers, instrument engineers and operations personnel, plant and operations managers
- Anyone accountable for the assessment and management of risks and hazards in the process industries
- Persons involved in management, engineering, operations and safety of process operations
- Persons with HAZOP study experience and a basic knowledge of loss prevention and safe working practice.

2021 course dates

May 17th - 21st	July 19th - 23rd	September 20th - 24th	November 22nd - 26th
British Summer Time (UTC + 1:00)	Gulf Standard Time (UTC + 4:00)	British Summer Time (UTC + 1:00)	Greenwich Mean Time (UTC + 0:00)

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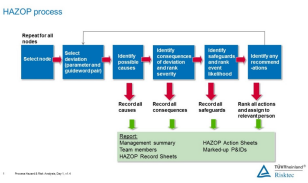
Programme Information

The course covers the common risk assessment and treatment techniques deployed in process safety (technical safety) risk management. Each technique is reviewed and illustrated using relevant examples and exercises to reinforce the key principles.

Introduction

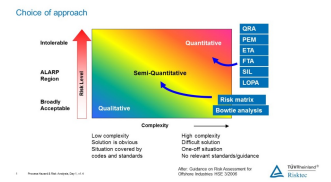
- TR Functional Safety Programme
- Process Safety Management
- Process safety accidents
- Risk management process

Risk identification



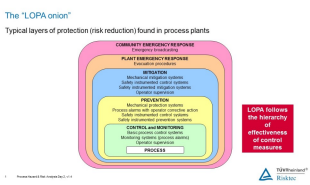
- What if?
- HAZID study
- HAZOP study
- FMEA

Risk analysis



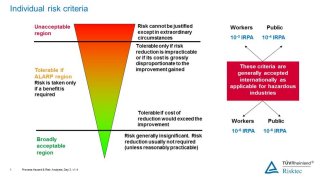
- Risk matrix
- Bowtie analysis
- Fault & Event Tree Analysis
- Physical Effects Modelling

Risk analysis



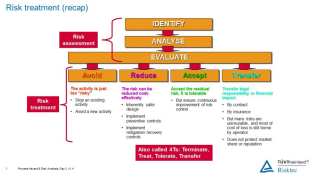
- Quantitative Risk Assessment
- Layer of Protection Analysis
- SIL assessment
- Human factors in design

Risk evaluation



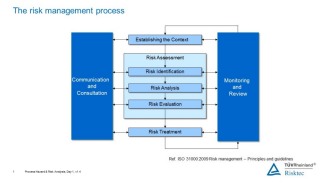
- Legislative regimes
- Risk criteria
- ALARP assessment
- Cost-benefit analysis

Risk treatment



- Risk control hierarchy
- Inherently safer design
- Process safety during facility lifecycle

Risk managing



- Communication
- Consultation
- Monitoring
- Review

Putting it all together

- Selecting the right technique
- Planning PH&RA studies
- Facilitating workshop studies
- Reporting PH&RA studies

The course comprises slides, several videos and, most importantly activities designed to enhance the knowledge and practical skills of participants. It provides a hands-on learning experience, with emphasis on the activities. Many of the slides provide backup content for reference purposes. Participants will have access to the course materials via Risktec's e-learning platform.

Successful completion of the exam, by attaining a pass score of 75% or higher, registers the candidate as an FS Engineer (TÜV Rheinland), subject to satisfying the eligibility requirements.

The Risktec trainers are accredited by TÜV Rheinland and are active practitioners in the process sectors. They have extensive training experience and utilise accelerated learning techniques. The Risktec trainers draw heavily on their practical experience when delivering this training course and provide examples of the use of process hazard and risk analysis techniques as applied in the real world.

This training will not be industry-specific, however the exercises and worked examples will be based on major hazards associated with oil and gas, petrochemical & chemical industries.

Programme Information

Course Delivery

Risktec trainers are accredited by TÜV Rheinland. Live taught sessions will be delivered via MS Teams virtual meeting software.

The course is delivered over five consecutive days, 9am - 12pm and 2pm - 5pm each day. Participants will be required to carry out some activities between each session.

Examination

The examination will be completed online during the afternoon on the last day of the course. The total exam time will be 3 hours and 30 minutes.

Participants will be required to provide photo identification and have their computer's camera on at all times for invigilation purposes.

Part 1: 50-question multiple-choice test.

Part 2: Three essay-style questions.

The online exam answers and scripts will be marked by Risktec consultants.

Eligibility Requirements

The following requirements must be met for candidates to attain the FS Engineer (TÜV Rheinland) certificate:

- a minimum of 3 years' experience in the field of functional safety, and
- university degree (Master's or Bachelor's degree in Engineering) or equivalent engineer level responsibilities status as certified by employer, and
- attendance at the course, and
- successful completion of the examination.

On meeting these requirements, candidates will be issued with the FS Engineer (TÜV Rheinland) certificate in electronic form by email from TÜV Rheinland.

The certificate is valid for 5 years. After that it can be renewed with TÜV Rheinland for a further 5 years. Those who do not have the necessary functional safety experience may participate in the training as well as complete the examination. However, they will only be issued the FS Engineer (TÜV Rheinland) certificate if they pass the exam and once they have attained the necessary 3 years of experience in the area of functional safety.

Pricing

The price for the 5 day course is **GBP 1,850** per person plus VAT. The price includes training materials and registration fees with the TÜV Rheinland Functional Safety Programme.

This price is reduced to **GBP 1,775** per person plus VAT for more than one participant from the same organisation.

Please contact us if you would like to discuss a course delivered specifically for your organisation.

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Register now!	**Register now!**	**Register now!**	**Register now!**

Frequently Asked Questions

Why should I seek a certificate in process safety?

Obtaining the certificate will create a stronger recognition of the role of the process safety engineer and reduce the uncertainty about what it involves. There is a shortage of skilled process safety professionals in what is a growing profession, so a formal certificate that recognises your expertise can help improve your career prospects and increase your remuneration by differentiating yourself from others. Gaining the certificate demonstrates your commitment to learning, with the ability to think creatively in order to solve complex process safety and risk problems.

Why should I become a TÜV Rheinland Functional Safety Engineer?

TÜVRheinland®
Precisely Right.

Over 10,000 engineers have participated in training courses and are holders of the FS Engineer (TÜV Rheinland) certificate. The TÜV Rheinland Functional Safety Training Programme is the only worldwide extended vocational training programme in the area of functional safety where knowledge and competencies are approved by a third neutral party and where certificates are issued. Many organizations are increasingly stipulating that studies such as LOPA and SIL classification are led by TÜV Rheinland FS engineers or equivalent.

How does this Process Hazard & Risk Analysis certificate relate to the Safety Instrumented Systems certificate?

Both the Process Hazard & Risk Analysis (PH&RA) certificate and the Safety Instrumented Systems (SIS) certificate fall under the same TÜV Rheinland Functional Safety Training Programme. The difference between the PH&RA and SIS certificates is simply the content studied and examined. The SIS certificate focuses on understanding and applying the standards IEC 61508 and 61511 for electrical, electronic, programmable electronic (E/E/PE) safety systems. The PH&RA certificate focuses on applying the principles of process hazard and risk analysis within the context of process safety management, noting the relationships with IEC 61508 and 61511 where they exist, but considering the full range of barriers for controlling risk, whether engineered systems, procedural controls or human intervention.

Why should I do this training with Risktec?

Risktec is respected as a leading safety and risk management consulting and education company, with some of the world's most impressive companies as clients. Enrolling on this course ensures that your learning is relevant to industry and the situations you are likely to encounter in the real professional world. You will gain access to Risktec's experienced consultant-trainers, as well as the opportunity to network and interact with other delegates.

How hard is the examination?

The exam is a professional exam and is designed to test the application of knowledge rather than simply recalling facts. As such the examination must reflect a level of difficulty which demonstrates the high quality of a qualified risk professional. All of the multiple choice questions must be answered and they encompass the full range of topics covered by the course. You may select which of the longer questions to answer from a larger set of questions. This allows you to focus on those topics that you are most experienced in. The exam recognises that professionals often specialise and that not everyone can be highly experienced in all techniques and their application.

What do I get when I pass the exam?

You will receive a FS Engineer (TÜV Rheinland) certificate from TÜV Rheinland, Germany, which will be valid for 5 years. After that it can be renewed with TÜV Rheinland for a further 5 years against a reference letter from your employer and payment of a fee. TÜV Rheinland will issue you with a unique ID and publish your name on its website. You can use the title FS Engineer (TÜV Rheinland) on your business card and within the signature on your emails, etc.

What happens if I fail the exam?

You can retake the examination after at least six months have passed but this will incur an additional fee.