



Functional Safety Engineer (TUV Rheinland) Training 14-17 October. Manchester, UK.

As the UK partner for GM International, Exloc Instruments (UK) Ltd are pleased to recommend the first UK based Functional Safety Engineer (TÜV Rheinland) vocational Training for Safety Instrumented System Professionals promoted by GMI and presented by Worldwide renowned Functional Safety Expert, Tino Vande Capelle.

Tino is an accepted course provider within the Functional Safety Program for Safety Instrumented Systems (SIS) of TÜV Rheinland. The course focuses on functional safety aspects for the process, oil & gas, petrochemical and chemical industries according to IEC 61508 / 61511.

Course objective

The main objective is to provide all engineers involved in safety instrumented systems with elementary and necessary knowledge about functional safety, based on the leading international functional safety standards IEC 61508 and IEC 61511.

A second objective is to give anybody attending the course the opportunity to have his or her functional safety competency confirmed by the TÜV Rheinland upon successfully passing the exam.

Who Should Attend?

- Plant and quality managers
- System integrators and independent consultants
- Control and process engineers
- Maintenance and instrumentation engineers
- Managers of engineering departments
- Risk, reliability, safety and quality engineers
- Loss prevention engineers
- Sales engineers - Sales managers - Marketing specialists for safety-products, systems and services
- Technical staff involved in any part of SIS lifecycle that need or want to develop their competency in Functional Safety

Why Should You Attend?

IEC 61508 ed2.0, released in April 2010, clearly indicates as a 'Normative' requirement, that anybody involved in safety lifecycle activities shall be competent to carry out the activities for which they are accountable.

Take advantage of this course, examination and certification to prove your clients, peers and management, your competency in the field of Functional Safety. Success in the final examination certifies your functional safety knowledge on your personal name, adding a great value to your professional career and image.





Participant eligibility requirements

In accordance with the FS Engineer (TÜV Rheinland) Program:

- Minimum 3 years experience in the field of functional safety
- University degree (Master's or Bachelor's degree in Engineering) or equivalent engineer level responsibilities status certified by employer

Course Duration

3.5 days: 3 consecutive days vocational training with student exercises, + 4 hours closed book exam in the morning of the fourth consecutive day.

Course Dates and Location:

14-17 October

£2,150.00 per person (please see terms and conditions of booking)

This is the course / examination fee only - any participants requiring accommodation at The Saddleworth Hotel should contact them directly and ask for the Exloc agreed rate of £85.00 B&B.

The Saddleworth Hotel

Huddersfield Road (A62),

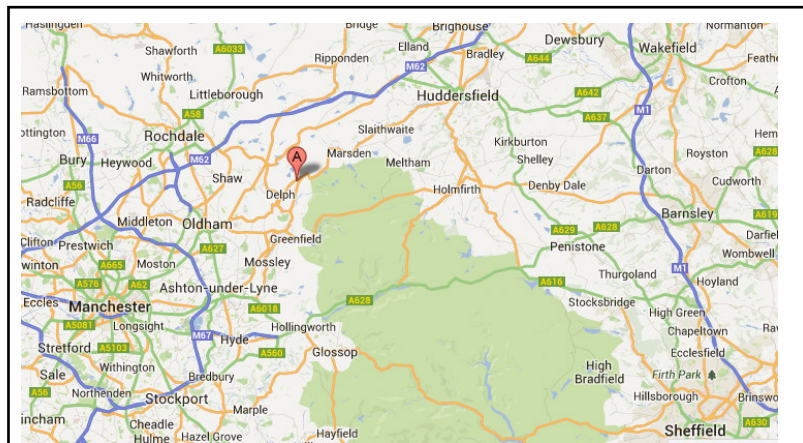
Delph,

Saddleworth,

Greater Manchester,

OL3 5LX

www.thesaddleworthhotel.co.uk





Topics Covered

Introduction to functional safety

- What is safety?
- Legal status IEC61511
- Overview of legal requirements
- Layers of protection
- Safety Instrumented System
- Safety integrity level
- Problems with safety systems
- Safety system failures
- What is functional safety?
- Functional Safety Standards

The basics of functional safety

- Functional safety management
- Lifecycle concept
- Documentation
- Verification & Validation
- Assessments & Audits
- Modifications
- Competency of people

Hazard & Risk Analysis

- Hazard & Risk definition
- Tolerable risk
- Risk management
- Hazard Identification Techniques, FMEA, FTA, HAZOP
- Hazard Analysis Techniques ETA
- Risk Reduction Techniques, risk matrix, risk graph, LOPA
- Safety Functions
- Safety Requirement Specification

Planning the Safety System

- Planning for end users (integrators)
- Realisation safety system
- Three important documents
- Requirements for suppliers

Hardware design

- Hardware lifecycle
- Hardware concepts
- Hardware fault tolerance
- Diagnostics, Proof test
- Safe failure fraction
- Architectural constraints
- Reliability analysis

Hardware design cont.

- Markov modeling
- FMEDA
- Failure Data

Software design

- Software lifecycle
- Safe software
- Three types of software
- Software testing
- V-model
- Measures to avoid failures
- Measures to control failures

Certification and Proven In Use

- Certification & compliance
- Safety Manual requirements
- Certificates & reports
- Proven in use, how to use?
- Reliability data, sources

Using the Safety System

- Installation and commissioning
- Safety Validation
- Operation, maintenance and repair
- Modification and retrofit

Student exercises

- With the student exercises, the participants will have the opportunity to put the learned theory into practice
- Failure classification
- Verification
- Hazard and risk analysis (FMEA, FTA & HAZOP)
- Selecting the appropriate SIL
- Safety versus Availability
- Design a Safety Integrity Function
- Define device level safety functions
- Selection and comparing devices
- Accident documentary (video)
- Questions & Answers

Wrap up

- Summary
- Exam preparation





Rules & regulations of the course and exam:

The applicant has to attend the 3 consecutive days training course given by TinoVC
The Eligibility Requirements forms must be completed, signed and supported with the necessary documents (University degree or statement letter from employer)

The maximum duration of the exam is 4 hours and comprises 85 questions:

60 Multiple Choice questions to be answered by selecting A-B-C or D. Only 1 will be the most complete and correct answer. Every good answer will be 1 point. (There are no negative points for wrong answers)

25 Open Questions to be answered in a written form. Every single question can score anything between 0 and 1 (There are no negative points for wrong answers)

The passing criteria is 75%, so you need minimum 63.75 points in able to pass the exam.
All exams are monitored by TÜV Rheinland, which will issue the successful participants their personal certificate.

What you will need:

A pen or pencil / eraser - both are acceptable
A bilingual dictionary is allowed if required, but not compulsory
You will not need a calculator to complete this exam.

What is absolutely forbidden:

Mobile telephone
Photo/video - camera or 'any' recording enabled devices
Course manual, notes or summaries

Exam Re-sit

The re-sit needs to take place within one calendar year from the first exam date without undertaking the complete training course again.
You are free to choose a location in any one of the upcoming TinoVC training courses currently released on both the TinoVC (www.tinovc.com) & TÜV Rheinland (www.tuvasi.com) website.
You will need to register at least 4 weeks before the event is due in able to comply with the administration regulations.

Any re-sits undertaken over one calendar year from the date of the first exam will require the complete course to be done once again with the full fee payable .





Terms and Conditions:

Payment in full (£2150.00) is required at least 4 weeks before the course starts. Payment not made by this time will result in the participant being removed from the attendance list for their course.

In the event of cancellation by the participant within 4 weeks of the course start date, no refund is offered but the participant may attend any alternative location/venue organized by GMI/TinoVC within 1 year at no extra cost.

If an alternative course is not undertaken within one year then a full fee would become applicable to any future training.

In the event of cancellation by the organisation (TinoVC, GM International) at any time, full refunds will be given on any payments made. The organisation will not be liable for any other costs incurred by the participant.

For availability and registration, please contact:

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