INSTITUTE of HAZARD PREVENTION

FSENG SIS (TÜV RHEINLAND) CERTIFICATION

(FUNCTIONAL SAFETY ENGINEERING) CERTIFICATION - SAFETY INSTRUMENTED SYSTEMS OR TÜV RHEINLAND FUNCTIONAL SAFETY QUALIFIED

Course Fee: **$4,300** per participant
Includes course registration, course materials, lunch and refreshments, exam, & a submission to TÜV Rheinland. Price is exclusive of applicable taxes. Courses held in the U.S are billed in U.S. dollars.

COURSE OVERVIEW:

The TÜV Rheinland Functional Safety Program supports engineers or any person working in the functional safety business. It supports the professional development of practitioners in the field of functional safety by incorporating the principles of IEC 61511 and other relevant international standards into a training course designed to add to their depth of knowledge and understanding of the subject. The program also offers engineers who possess significant work experience in the field of functional safety the ability to obtain a certificate verifying their expertise. For more information, refer to **www.tuvasi.com**.
ACM's TÜV Rheinland **Functional Safety Engineering** training course within the TÜV Rheinland Functional Safety Program has been reviewed and accepted by TÜV Rheinland Industrie Service GmbH - Automation, Software and Information Technology (ASI)**.** For more information, refer to **www.acm.ca**

PREREQUISITES:

In accordance with the TÜV Rheinland Functional Safety Program guidelines, students should possess:

- A minimum of 3 to 5 years' experience in the field of functional safety
- University degree or equivalent engineer level responsibilities status as certified by employer

Participants are eligible to receive a TÜV Rheinland certificate and to use the title " Functional Safety Engineer (TÜV Rheinland)" concerning Safety Instrumented Systems within the TÜV Rheinland Functional Safety Program provided that they:

- Attend ACM's TÜV Rheinland Functional Safety Program training in Safety Instrumented Systems;
- Pass the Final Exam after attending ACM Automation Inc. training;
- Meet all other eligibility criteria according to the TÜV Rheinland Functional Safety Program.

Note: Participants who meet these requirements without a professional engineer designation (ie. Technologists) will be given the option of selecting either the "Functional Safety Engineer (TÜV Rheinland)" or ""TÜV Rheinland Functional Safety Qualified" title.

THE ACM EXPERIENCE:

Our courses and workshops are experiential, interactive and provide participant's with practical knowledge and tools that can be immediately applied back at work.

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WHO SHOULD ATTEND:

This course is well suited to engineers and technologists who aim to follow the best engineering practices with regard to the application of Safety Instrumented Systems in the process industry, including:

- Risk professionals responsible for establishing corporate tolerable risk targets
- Managers / Team Leaders responsible for determining SIS design standards
- Engineers and technicians responsible for ensuring that SIS have been designed to appropriately mitigate the level of risk identified
- Project Managers who need to understand the concepts and principles of IEC 61508 & 61511
- Engineers involved in any aspect of the SIS Safety Lifecycle

COURSE OUTLINE:

The course follows the framework of the SIS Lifecycle within the IEC standards.

Day 1	Day 2	Day 3	Day 4	Day 5
Overview of TÜV Rheinland Program Why are we here? Introduction to Safety Instrumented Systems Overview of IEC 61511 Standard more depth Phase 10 - Management of Functional Safety Phase 1 - Hazard & Risk Analysis Phase 2 - Allocation of Safety Functions to Protection Layers More depth	SIL Determination Methods (more depth) - Fault Tree - Safety Layer Matrix - Calibrated Risk Graph - LOPA Phase 3 - Safety Requirements Specification Phase 4 - SIS Design & Engineering (more depth)	Phase 4 - SIS Design & Engineering (more depth)	Phase 5 - Installation, Commissioning & Validation Phase 6 - Operation & Maintenance Phase 7 - Modification Phase 8 - Decommissioning Phase 9 - Verification Phase 10 - Assessment & Auditing Phase 11 – SLC Structure & Planning	Morning – 4.5 hr exam

FINAL EXAM:

A passing mark of 75% is required on the Final Exam. Students should bring a complete, unmarked copy of the full IEC 61511 - *Functional safety - Safety instrumented systems for the process industry sector* standard to the course. It is the only reference material allowed into the exam. The standard is readily available from various sources, including the ISA web site http://www.isa.org/

COURSE INSTRUCTORS SEE LINKS:

Mr. Malcolm Harrison, B.Sc. Mech. Eng., P.Eng., TÜV Rheinland F. S. Expert
Guillermo Pacanins, B.SC. Electrical. Eng., P.Eng. TÜV Rheinland F.S. Expert

Contact for further information: info@acm.ca

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