



INSTITUTE
of
HAZARD PREVENTION

F.S. ENGINEER TÜV (RHEINLAND) FOR PROCESS HAZARDS & RISK ANALYSIS (PH&RA)

FUNCTIONAL SAFETY ENGINEERING CERTIFICATION – PROCESS HAZARDS & RISK ANALYSIS, TÜV (RHEINLAND) FUNCTIONAL SAFETY PROGRAM



PROFESSIONAL DEVELOPMENT:

Four classroom days providing 3.2 CEU (Continuing Education Units) or 32 PDH (Professional Development Hours). Includes course registration, course materials, lunch and refreshments, exam, and a submission to TÜV (Rheinland).



BENEFITS OF THE F.S. ENGINEER TÜV (Rheinland) FOR PROCESS HAZARDS & RISK ANALYSIS COURSE:

- Understand the most commonly used methods for risk analysis associated with process and operational related hazards.
- Introduce the concepts and definitions related with Process Hazards and Risk Analysis, PH&RA
- Participate taking an active role and give effective support during the PH&RA process
- Assess the impact those hazards, create and determine the risk involved
- Determine and assess the safety related measures needed to control the hazards and reduce the risks
- Relationship of international standards related to PH&RA including the international standards IEC 61822, and REVISED IEC 61511:2016-2nd EDITION.
- How to avoid common pitfalls and traps of the presented PH&RA methods



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 61822 and REVISED IEC 61511:2016-2nd EDITION, 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).



PREREQUISITES OR RELATED COURSES:

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 PH&RA TÜV (Rheinland)" concerning Process Hazards & Risk Analysis within the TÜV (Rheinland) Functional Safety Program provided that they:

- Attend ACM's TÜV (Rheinland) Functional Safety Program training in Process Hazards & Risk Analysis;
- Pass the Final Exam after attending the ACM Automation Inc. provided 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.



WHO SHOULD ATTEND?

- PHA / HAZOP Team Leaders & scribes
- Health & Safety / HSE professionals
- Process Safety Management (PSM) / Loss Management specialists
- Supervisors, managers and engineers responsible for PHA studies
- F.S. Eng. Certified Professionals

This course will teach you the details of each of the most commonly used methods for risk analysis. If you would like to learn more about how to prepare for, manage and facilitate PHAs, ACM also offers a PHA/HAZOP Leadership Workshop.



COURSE OUTLINE:

The course follows the framework of the Safety Lifecycle.

DAY 1	DAY 2	DAY 3	DAY 4
Objectives	Hazard & Risk Analysis Methods, (Continuation) <ul style="list-style-type: none"> • FMEA • Allocation of Safety Functions To Protection Layers 	Hazard & Risk Analysis Methods, (Continuation) <ul style="list-style-type: none"> • Layer of Protection Analysis, LOPA (Cont.) 	F.S. Eng. PH&RA Exam (4.5 hours)
Overview of TÜV Program	<ul style="list-style-type: none"> • ALARP (Concept) / Tolerable Frequency 	Fault Tree Analysis, FTA	
Why are we here?	<ul style="list-style-type: none"> • Calibrated Risk Graph / Safety Layer Matrix 	Event Tree Analysis, ETA	
Introduction to Process Hazard and Risk Analysis	<ul style="list-style-type: none"> • Layer of Protection Analysis, LOPA 	System Safety Requirements	
Standards Overview		Reporting – Recording	
Process Safety Management		Selection of a Hazard Analysis Technique	
Process Hazard & Risk Analysis Methods <ul style="list-style-type: none"> • HAZOP • What-if, What-if / Check List 		Objectives Review	



THE ACM EXPERIENCE:

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



COURSE TESTIMONIALS:

Here are a few quotes from over 3,300 participants we've trained;

- *"Very helpful instruction and activities in this course helped me get what I was looking for from it!"*
Project Coordinator
- *"The instructor was very interactive, encouraged discussion and welcomed feedback."*
Process Engineer
- *"Great course! The instructor made the course very enjoyable. With their wealth of knowledge and experience they could answer all of the questions, as well as provide a real life situation in which it applied."*
New Grad EIT
- *"Great course content, coverage and length. Superb instructor who presented material as it applies to real world scenarios."*
I&C Engineer



COURSE INSTRUCTORS:



Guillermo Pacanins

B.Sc. Elec. Eng., P. Eng., TÜV (Rheinland) F.S. Senior Expert / Instructor

Mr. Guillermo Pacanins is an Electrical Engineer with over 27 years of experience with knowledge in Process Controls and Functional Safety in the process industry. He has taught several courses in Process Automation to some of the largest companies in the world. With Mr. Guillermo's excellent communication and leadership skills, combined with his in-depth understanding of Process Safety Engineering makes him a successful functional safety analyst/educator. Guillermo is a TÜV Functional Safety Senior Expert and teaches several functional safety workshops globally for ACM. Also, Guillermo has a Process Safety Practice Certificate from Texas A&M University, Mary Kay O'Connor Center for Process Safety.

[View instructor profiles online.](#)

CONTACT FOR FURTHER INFORMATION: info@acm.ca

CALL TOLL FREE AT 1-877-264-9637

PRIVATE IN HOUSE TRAINING COURSES:

<http://www.acm.ca/institute-of-hazard-prevention/private-courses>

