

TÜV Rheinland Functional Safety Engineer Certification

Time: Day 1 8:30 am to 4:30 pm Day 2 8:30 am to 4:30 pm Day 3 8:30 am to 4:00 pm
 Day 4 8:30 am to 11:30 am Test 1:00 pm to 5:00 pm
 CEU: 2.3

Audience: Control system specialists, instrumentation and electrical personnel, and SIS design specialists, who want to prepare for TUV certification

Description: This 3½ day course explains how hazards and risk analysis methods are used to identify the need for risk reduction from administrative and engineered safeguards. When a safety instrumented system (SIS) is required, the assigned risk reduction must be demonstrated through proof of compliance to the requirements of the international standard, IEC 61511. This standard establishes lifecycle requirements for designing and managing SISs to achieve order of magnitude ranges of risk reduction known as safety integrity levers (SIL) 1-4. The course supplements IEC 61511 requirements with additional guidance from other industry publications.

The course is designed to provide the attendee with an understanding of the functional safety management system, how to perform the hazards and risk analysis to identify the need for an SIS and to assign the SIL, how to design the SIS to meet the specified SIL, how to verify that the SIL is achieved, and how to develop an operating plan to maintain the SIL throughout the SIS life.

<p><u>DAY 1 – GETTING STARTED</u></p> <ul style="list-style-type: none"> • Module 1 - SIS Standards Overview • Module 2 - Planning • Module 3 - Process Risk and Protection Layers • Module 4 - Establishing Risk Evaluation Criteria 	<p><u>DAY 2 – RISK ANALYSIS TO DESIGN</u></p> <ul style="list-style-type: none"> • Module 5 - Layer of Protection Analysis (LOPA) • Module 6 - Safety Requirements Specification Part 1 • Module 7 - Safety Requirements Specification Part 2 • Module 8 - Selection of Devices 	<p><u>DAY 3 – VERIFICATION AND OPERATING BASIS</u></p> <ul style="list-style-type: none"> • Module 9 - Data Estimation • Module 10 - Design Decisions • Module 11 - Verification Example • Module 12 - Operating Basis
<p><u>DAY 4 – REVIEW AND TEST</u></p>	<ul style="list-style-type: none"> • Why TÜV Rheinland FSE • Lifecycle Overview 	<ul style="list-style-type: none"> • Test

Instructors:

Angela Summers is a TÜV Rheinland Functional Safety Expert and president of SIS-TECH Solutions with more than 20 years expertise in safety instrumented systems, process engineering and environmental engineering. She has published more than 50 papers on topics related to process safety, has written chapters for engineering handbooks and was lead editor for the Center for Chemical Process Safety book, *Guidelines for Safe Automation of Chemical Processes*.

Bill Hearn is a TÜV Rheinland Functional Safety Expert and a SIS-TECH Fellow with more than 30 years of engineering and project management experience focused on instrumentation, process measurement, and safety systems. After service in the US Army, Bill's career spanned DuPont, Westinghouse and Washington Group while providing project management and instrumentation engineering expertise at the Department of Energy Savannah River facility. His experience ranges from managing major project installations to performing risk assessments and drill down compliance audits.