Topic 13: Practical Safety Instrumentation and Emergency Shutdown Systems for Process Industries Using IEC 61511* And IEC 61508

You Will Learn How to:

- Determine required SIL ratings using at least 3 different methods as listed in IEC 61511
- Assess your plant's compliance with the latest international safety standards
- Understand the fundamentals of IEC 61511 and IEC 61508 which you can apply immediately to your plant
- Help your company to comply with the best available practices for their safety control systems
- Get a practical understanding of the key sections of IEC 61511 and 61508 without wading through hundreds of pages of standards documents
- Configure safety systems to minimise or avoid spurious trips and create the potential to reduce production losses.
- Know what can be done and what should not be done with PLCs and smart sensors

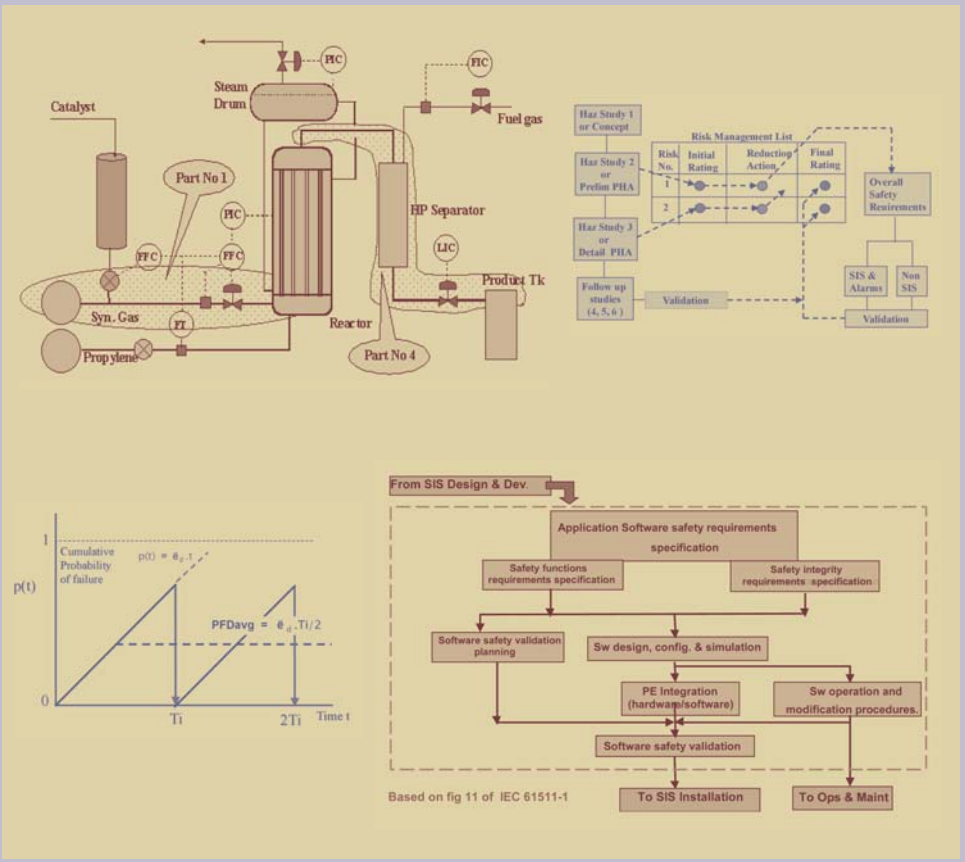
* The IEC 61511 standard is effectively the operating company's guide to the management, planning and execution of state of the art risk reduction measures using instrumentation and control equipment. IEC 61511 effectively merges the established USA standard ANSI/ISA S 84 - 1996 with the European practices founded in IEC 61508.

Overview

For project managers and engineers involved with hazardous processes, this section of the course focuses on the management, planning and execution of automatic safety systems in accordance with IEC 61511, the newly released international standard for process industry safety controls. IEC 61511 has been recognized by European safety authorities and by USA based process companies as representing the best practices available for the provision of automatic safety systems. The content is structured into two major parts to ensure that both managers and engineering staff are trained in the fundamentals of safety system practices.

Practical Sessions

There are at least five practical exercise sessions to give you the hands-on experience you will need to: test your understanding of risk reduction principles, apply fault tree analysis methods to evaluate risk levels, specify safety performance requirements, determine SIL targets, decide on system architectures and perform reliability evaluations.



THE PROGRAM

Module 13.1

AN OVERVIEW OF SAFETY INSTRUMENTED SYSTEMS FOR MANAGERS

- The principles of safety-instrumented systems including the concepts of risk reduction, safety integrity levels and the essential design and performance requirements of safety control systems.
- The scope and application of the IEC standards 61508 and 61511 and their principal requirements.
- Essential features of safety PLCs
- The safety life cycle

Module 13.2

SAFETY REQUIREMENTS SPECIFICATION

- How hazard analysis and risk assessment leads to the safety requirements specification
- Demand mode and continuous mode methods for risk reduction
- LOPA and Risk graph methods for determination of SIL targets
- Fault tolerance and redundant architectures

Module 13.3

SAFETY SYSTEM EQUIPMENT SELECTION AND APPLICATION SOFTWARE

- Essential features of field devices
- Instrument selection and issues of certification
- Safety PLCs and networks
- Application software activities and tools

Module 13.4

PERFORMANCE EVALUATION, TESTING AND MAINTENANCE OF SAFETY SYSTEMS

- Basic reliability analysis and how it benefits the end user
- Diagnostics and proof testing for improved performance
- The benefits of safety certified and smart instruments