Process Control & Safeguarding

INTRODUCTION

- In the process control industry, safeguarding is an important priority, especially when it comes to the installation of safety equipment and systems. Even so, advances in technology (including, but not limited to aspects such as specialized Fieldbus) suggest that plants take a fresh look at their safety systems and have become the driving force for the renewed approach of safeguarding a process control system.
- This workshop covers the fundamentals of safety, and the major approaches for assuring system safety for process control, including an integrated and separate systems, Fieldbus solutions, intrinsic safety, functional safety, process control design solutions, SIS, safety alarms and various international standards.
- This is EXACTLY the same as the highly successful face-to-face course presented over many years by our institute, but with the added benefit of doing it on-line, at a venue convenient to you.

This online training course will highlight:

- How traditional Fieldbus is inadequate for safety-related controls
- Existing safety systems that are ready to be used
- The current approach to a safe communication bus
- Checks and balances to meet safety requirements and protection
- How to share infrastructure between the safety bus and conventional communication channels, and
- All aspects of process control, where it is affected by safeguarding

OBJECTIVES

At the end of this online training course, you will learn to:

- Provide an overview of safety systems related to process control systems
- Discuss intrinsic and functional safety solutions
- Understand Safety Integrity Levels (SIL) and techniques
- Consider the appropriate Fieldbus choices that are available
- Implement safe design and risk management, and consider safety approvals

TRAINING METHODOLOGY

- This online training course will utilize a variety of proven online learning techniques to ensure maximum understanding, comprehension, retention of the information presented. The training course is conducted Online via an Advanced Virtual Learning Platform in the comfort of any location of your choice.

ORGANISATIONAL IMPACT

The organizational impact would be seen over a wide spectrum of important areas, and as this subject matter is intertwined with crucial plant safety, will play a leading role in plant safety. Amongst other things, the organizational impact would include:

- Having people with comprehensive knowledge on process control, instrumentation and fieldbus, when it comes to safeguarding applications
- Having critical staff fully understand and implement concepts such as reliability, availability, safety and security
- The ability to implement numerous options of safety systems (whether they be integrated or separate)
- Having staff that can adequately address the matter of Functional Safety, and
- Having staff that can make valuable input pertaining to Operator intervention, emergency safety and safety approvals

PERSONAL IMPACT

Participants will gain knowledge and learn to apply themselves, fully, in matters pertaining to process control and safeguarding. Such skills and knowledge should result in better career prospects within the organization, and will play a meaningful role in their abilities to be leaders in their field of expertise. Personal impact would include:

- Building up their levels of confidence in process control and safeguarding
- Communicating effectively with their peers, about the subject matter
- Understanding and enhancing their subject knowledge about safeguarding principles, solutions, security, etc.
- Having the ability to make a positive contribution in group discussions and company safety strategy
- Priming themselves to eventually become an expert in such control and safeguarding matters
- Having the ability to show their organization that they are, indeed, a valuable team member, and that they can be further developed for senior roles, where necessary

WHO SHOULD ATTEND?

- Professionals involved in designing, selecting, specifying, installing, testing, operating and maintaining safety systems for process control
- Professionals involved in safeguarding processes control systems of any kind
- Any individual that needs to get to grip with the ever expanding and complex field of safety in the industrial environment

This online training course is suitable to a wide range of professionals but will greatly benefit:

- Automation Engineers, Chemical Engineers, Consulting Engineers and Process Engineers
- Electrical and C&I Engineers, Electricians and Technicians
- Installation and Maintenance Technicians
- Maintenance Engineers
- Production Managers
- Supervisors and Process Operators
- Project Managers, System Integrators and other professionals who require a better understanding of the subject matter

Course Outline

Overview of Process Control, Instrumentation and Fieldbus

- Process control systems
- Control algorithms and the PID controller
- Intelligent (Smart) sensors and transmitters
- Valves and actuators

Dependability Concepts, Safe Design, Failures and Standards

- Dependability concepts
- Safety systems in process control and safe design
- Device-, communication-, and control failures
- Failure modes
- Error detection and avoidance mechanisms
- Safety Instrumented Systems (SIS)
- Risk management
- Safety standards: Safety Integrity Level (SIL) and Layers of Protection Analysis (LOPA)

Dependability Concepts, Safe Design, Failures and Standards

- Fieldbus safety solutions (with specific reference to intrinsic safety)
- Implementation options (specifically considering integrated and separate systems)
- The various benefits of the implementation options
- FISCO

Functional Safety, and SIS Aspects

- (Functional Safety) process control safety solutions
- Achieving target SILs
- Safe control system design
- Safety-related controls
- Safety control loops
- SIS protocol
- SIS function blocks
- SIS diagnostics

Testing, Intervention and Analysis

- Testing
- Process alarms
- Operator intervention
- Safety approvals
- Economic analysis