

## exida Can Show you the Way



### *Training Course: Functional Safety Engineering II*

This course provides an overview of process industry safety engineering from the point of view of the Control System Designers and Integrators. The second half of the safety lifecycle will be explained, as well as reviewing reliability engineering concepts, architectural design, SIL verification calculations, Proof test planning, detail design, and maintenance data collection. The course sequence of Functional Safety Engineering I & II is designed as a broad review in preparation for the Certified Functional Safety Expert (CFSE) and Certified Functional Safety Professional (CFSP) process industry application engineering exams.

### *Skills You Will Learn:*

- Review the fundamental concepts from reliability engineering
- Understand Safety Instrumented System (SIS) failure modes
- Develop a thorough understanding of the Safety Lifecycle requirements as defined by IEC 61511 & ANSI/ISA S84.01
- Review how to implement SIS design from requirements analysis and documentation
- Understand Safety Instrumented System (SIS) analysis techniques

### *Course Topics:*

- Overview of reliability engineering
- Failure Modes and Effects Analysis
- Overview of the safety lifecycle
- Functional safety management
- Safety Instrumented System (SIS) design
- SIS technologies
- Major design issues
- Functional safety assessment
- Verification & Validation concepts
- Fault tolerant architectures
- Sensor architectures

### **Suggested Reference Textbooks:**

**Certified Functional Safety Expert / Professional (CFSE / CFSP) Study Guide**

**Practical SIL Target Selection - Risk Analysis per the IEC 61511 Safety Lifecycle**

**Safety Instrumented Systems Verification - Practical Probabilistic Calculations**

### *Who Should Attend:*

- CFSE and CFSP application exam candidates who want a good review
- Process safety coordinators
- Plant risk analysts
- Control engineers and their management
- System integrators

### *Course Length: 2 Days*

**\*\*This course is presented as Part I of a 4-day training, along with Functional Safety Engineering I. This course will take place on Days 3 & 4, while Functional Safety Engineering I will take place on Days 1 & 2.**

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## Learning from the Experts

Experience has shown that most companies benefit from training as the first step in implementing a safety, security, or alarm management program. Having a solid understanding of the relevant industry standards, requirements for compliance, and best practices (tools and techniques) ensures a focused and cost-effective initiative. Led by industry experts, exida offers a number of training options that can be modified to help meet the specific needs of your company. Whether your interests lie with Functional Safety, Control System Cyber Security, or Alarm Management, exida has the experience and expertise to ensure an informative and rewarding training program.

### About exida Training:

#### *Functional Safety*

exida offers overview courses on both the IEC 61508 and IEC 61511 standards focused on understanding what they mean and how to comply with them. Along with overview courses, exida also offers more in-depth training options that provide hands-on access to exSILentia, exida's own SIL Selection and SIL Verification tool. With various options available, exida can offer modifications to the training options that will be suit your company's needs at the present time.

#### *Control System Cyber Security*

Cyber security has quickly become a serious issue for professionals in the process and critical infrastructure industries. An unprecedented number of security vulnerabilities have been exposed in industrial control products and regulatory agencies are demanding compliance to complex and confusing regulations. There are well established strategies and techniques that automation professionals can employ to discover and mitigate security vulnerabilities and improve the inherent security of their products and systems. Learning and adopting these strategies will help companies stay ahead of potential vulnerabilities. exida offers both basic and in-depth training options that will provide you with the information and skills necessary to help your organization implement and maintain secure control systems.

#### *Alarm Management*

exida's Alarm Management practices and principles training discusses industry best practices for alarm management including and educates key personnel about how their roles & responsibilities could be affected by complying with the ISA-18.2 standard. Creating an effective, sustainable alarm management program that delivers quantifiable benefits and complies with industry standards and guidelines is a key aspect of our training. Participants are prepared to support a facility alarm management program including the creation of an alarm philosophy document, alarm rationalization, analyzing alarm system performance, alarm system maintenance, and resolution of alarm management issues. Also available is an in-depth training on SILAlarm, exida's own alarm rationalization tool, which is used to guide the participants through the rationalization process and capture the results.

These various exida training programs have been designed to help accommodate your time and budget. Options include training courses delivered in various cities around the globe, your office location, an exida office, or through computer-based training modules.

exida also regularly publishes white papers and textbooks to facilitate learning on key topics, including our recently published book [Practical SIL Target Selection - Risk Analysis per the IEC 61511 Safety Lifecycle](#).

Stay tuned for new exida authored books to be released in 2013.