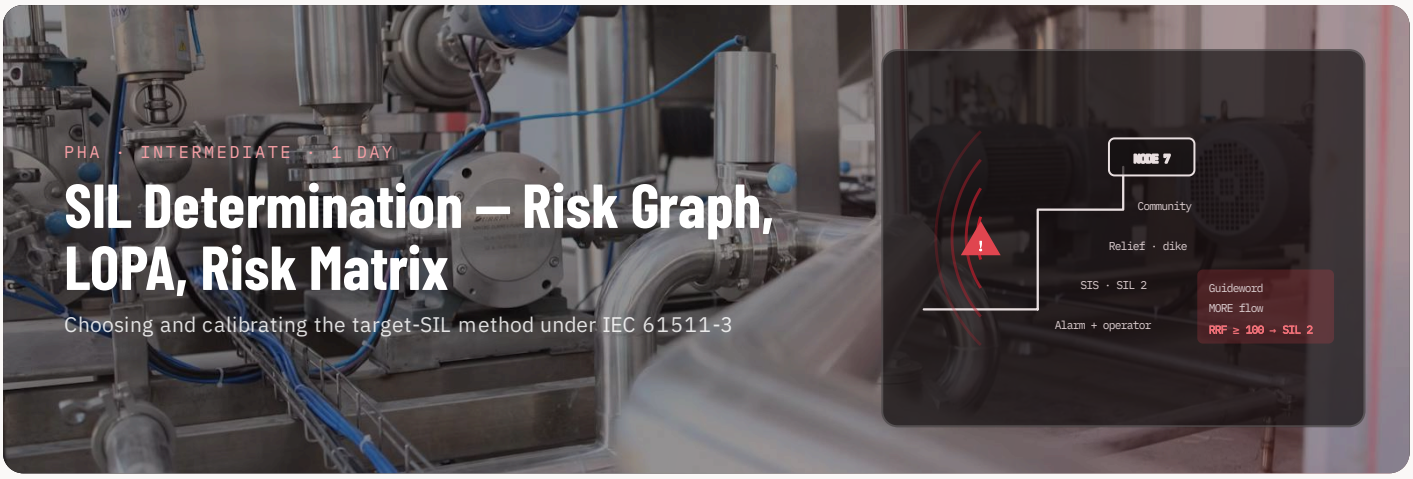

PHA · INTERMEDIATE · 1 DAY

SIL Determination — Risk Graph, LOPA, Risk Matrix

Choosing and calibrating the target-SIL method under IEC 61511-3

DURATION	LEVEL	FORMAT	LANGUAGE	MAX. PARTICIPANTS
1 day	Intermediate	On-site classroom · virtual instructor-led	English	16

3 methods applied to the same SIFs

8 SIFs classified in the workshop

1 method-calibration record

Overview

IEC 61511 allows several routes to a SIL target and each gives a different answer unless it has been calibrated to the same tolerable risk. The course explains the risk graph, calibrated risk graph, risk matrix and LOPA methods, how to calibrate them against the site's risk criteria, and how to run a SIL classification workshop that produces a consistent, documented target for every SIF. Participants classify eight SIFs by three methods and compare the results.

Learning outcomes

- Explain what a SIL target means and how it is used in SIF design and verification
- Apply the risk graph and calibrated risk graph with defensible parameter definitions
- Use a risk matrix and LOPA for the same SIF and reconcile the results
- Calibrate a method against the site's individual and societal risk criteria
- Run a SIL classification workshop with the right team and information
- Record the classification so it survives audit and revalidation

Who should attend

Process safety and instrument engineers, HAZOP and LOPA leaders, SIS responsible engineers and PSM coordinators

Course outline

MORNING

SIL targets in the IEC 61511 lifecycle · consequence, frequency, occupancy and avoidance parameters · risk graph and calibrated risk graph · risk matrix approaches · calibration against tolerable risk criteria

AFTERNOON

LOPA as a SIL determination method · reconciling method disagreements · classification workshop on eight SIFs in CeraPHA Studio · demand rate, mode of operation and RRF · documenting the SIL target and safety requirement inputs

Standards referenced

IEC 61511-3 · IEC 61508-5 · ANSI/ISA-84.00.01 · CCPS Layer of Protection Analysis

Tools & exercises

Classification exercises in CeraPHA Studio's SIL determination module

What's included

- ✓ Course manual and slide pack
- ✓ Software access for the course
- ✓ Post-course Q&A with the instructor
- ✓ Exercise and case-study pack
- ✓ Competency quiz and certificate
- ✓ Templates used in the exercises

PREREQUISITES
HAZOP participation; LOPA course (TR-A04) or equivalent recommended

CERTIFICATION
Certificate of completion

INSTRUCTORS
Practising engineers — TÜV HAZOP Leader, CCPSC and IEC 61511 Functional Safety certified — with 200+ years of cumulative plant experience.

Book this course or build a custom curriculum
On-site at your plant or virtual · in-house groups · competency assessment included

sales@cerasus.ai · +974 5506 2743
Cerasus Technologies QFZ LLC · Ras Bufontas Free Zone · Doha, Qatar