Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza · 1122 Burnett St, Hatfield 0028 · Pretoria, Gauteng · South Africa

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COURSE BROCHURE

SIL and Safety Instrumented Systems

Custom Courses / Energy, Oil and Gas

Unit Standard AATICD-0403 · NQF Level 5 · 4 Credits · 2 Days

COURSE OVERVIEW

This course provides learners with a comprehensive understanding of Safety Instrumented Systems (SIS) and Safety Integrity Levels (SIL), as defined by international standards such as IEC 61511. Participants will gain the knowledge and skills to design, implement, and maintain SIS to ensure functional safety in industrial processes, thereby reducing risk to people, the environment, and assets.

Category	Custom Courses
Subfield	Energy, Oil and Gas
Unit Standard	AATICD-0403
Accreditation	SAQA Accredited · NQF Level 5 · 4 Credits
Duration	2 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS — verifiable online

LEARNING OUTCOMES

- Apply the principles of functional safety to identify and assess hazards and risks in industrial processes.
- Analyze and determine Safety Integrity Levels (SIL) using risk-based methodologies such as risk graphs and LOPA.
- Design Safety Instrumented Systems (SIS) that meet specified SIL requirements, including sensor, logic solver, and final element selection.
- Evaluate the performance of SIS through verification calculations and reliability analysis.
- Implement SIS according to international standards (IEC 61508/61511) and industry best practices.
- Demonstrate the ability to maintain and manage SIS throughout their lifecycle, including proof testing and management of change.

WHO SHOULD ATTEND

- This course is designed for engineers, technicians, and safety professionals involved in the design, operation, and maintenance of safety instrumented systems in the process industries, including oil and gas, chemical, and manufacturing sectors.

COURSE OUTLINE

Day 1: **Foundations of Safety Instrumented Systems and SIL**

- Introduction to process safety and risk
- Overview of Safety Instrumented Systems (SIS
- Safety Integrity Level (SIL) definitions and SIL levels
- Layers of protection analysis (LOPA) and risk reduction
- SIS components: sensors, logic solvers, final elements
- Introduction to IEC 61511 and the safety lifecycle
- Functional safety management and documentation
- Common misconceptions and pitfalls in SIS

Day 2: **SIL Determination, Implementation, and Verification**

- SIL determination methodologies (risk matrix, LOPA
- Safety requirements specification (SRS) development
- Component selection and architectural constraints
- Probability of Failure on Demand (PFDavg) and SIL verification
- Reliability data sources and failure modes
- Systematic capability and hardware fault tolerance
- SIS operation, maintenance, and proof testing
- Case studies and practical examples

ASSESSMENT & CERTIFICATION

Delegates are assessed through exercises and a final test. A mark of **50% or above** earns an **AATICD Certificate of Completion**, issued digitally with a unique verification code. This course carries **4 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 11,900.00	**R 11,900.00**
1	In-House	R 16,100.00	**R 16,100.00**
1	On-Campus (Pretoria)	R 17,800.00	**R 17,800.00**

UPCOMING SESSIONS

Start	End	Method	Venue
01 Dec 2026	02 Dec 2026	On-Campus	Durban, South Africa
02 Dec 2026	03 Dec 2026	On-Campus	Dubai, UAE
03 Dec 2026	04 Dec 2026	On-Campus	Victoria Falls, Zimbabwe
03 Dec 2026	04 Dec 2026	On-Campus	Cape Town, South Africa
10 Dec 2026	11 Dec 2026	On-Campus	Maseru, Lesotho
10 Dec 2026	11 Dec 2026	On-Campus	Kigali, Rwanda
10 Dec 2026	11 Dec 2026	On-Campus	Accra, Ghana
10 Dec 2026	11 Dec 2026	On-Campus	Cape Town, South Africa

Contact us if no suitable date is listed — on-demand sessions can be arranged for groups.

HOW TO GET A QUOTATION OR APPLY

1. **Get an instant quotation online:** visit www.aaticd.co.za, open the page for this course (Unit Standard AATICD-0403) and click **Get A Quotation**. Select your training method and number of delegates — your quotation is generated immediately and emailed to you with the course brochure attached.
2. **Apply by email:** send the course title, your preferred training method (Online, In-House or On-Campus Pretoria), the number of delegates and your preferred dates to **apply@aaticd.co.za** — our team will reply with a formal quotation.
3. **Apply by phone or WhatsApp:** call **+27 12 004 8389** or WhatsApp **+27 65 077 6310** and we will prepare your quotation and reserve your seats.
4. **Confirm your booking:** accept the quotation and settle the invoice. As soon as payment is confirmed your delegates are enrolled and receive their AATICD LMS login details by email, along with joining instructions for their chosen training method.

Group discounts apply automatically — the more delegates you enrol, the lower the price per delegate. No payment is required to request a quotation.

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