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

Safety Instrumented Systems

Custom Courses / Energy, Oil and Gas

Unit Standard AATICD-0441 · NQF Level 5 · 4 Credits · 2 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to design, implement, and maintain Safety Instrumented Systems (SIS) in industrial processes, ensuring functional safety and compliance with international standards. It focuses on the application of the safety lifecycle, risk assessment, and the verification of safety integrity levels (SIL) to mitigate process risks effectively.

Category	Custom Courses
Subfield	Energy, Oil and Gas
Unit Standard	AATICD-0441
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 safety lifecycle approach to identify, analyze, and specify safety instrumented functions (SIFs) for a given process.
- Analyze process hazards and determine required Safety Integrity Levels (SIL) using risk assessment methodologies such as LOPA and risk graphs.
- Design Safety Instrumented Systems (SIS) architecture that meets SIL requirements, considering redundancy, diagnostics, and common cause failures.
- Evaluate the performance of SIS components and subsystems to verify SIL compliance through reliability calculations and testing.
- Implement SIS management procedures, including validation, operation, maintenance, and change management, to ensure ongoing functional safety.
- Demonstrate the ability to conduct audits and assessments of existing SIS to identify gaps and recommend improvements.

WHO SHOULD ATTEND

- This course is designed for process engineers, control systems engineers, safety professionals, and technical managers involved in the design, operation, or maintenance of safety-critical systems in industries such as petrochemical, pharmaceutical, and manufacturing.

COURSE OUTLINE

Day 1: **Fundamentals of Safety Instrumented Systems**

- Introduction to functional safety and SIS
- SIS components: sensors, logic solvers, final elements
- The safety lifecycle: from hazard analysis to decommissioning
- Safety Integrity Levels (SIL) and risk reduction factors
- Overview of IEC 61511 and South African regulatory context
- Basics of reliability: failure modes, PFD, and RRF
- Introduction to safety requirement specifications (SRS
- Case studies of SIS applications in local industries

Day 2: **Design, Implementation, and Management of SIS**

- SIS design principles: redundancy, diagnostics, and voting
- Developing and reviewing the SRS
- Installation and commissioning best practices
- SIL verification methods: simplified formulas and reliability block diagrams
- Validation testing and proof testing strategies
- Operation, maintenance, and modification management
- Documentation and audit trails for compliance
- Practical exercises in SIS design and analysis

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	Victoria Falls, Zimbabwe
01 Dec 2026	02 Dec 2026	On-Campus	Cape Town, South Africa
02 Dec 2026	03 Dec 2026	On-Campus	Shenzhen, China
02 Dec 2026	03 Dec 2026	On-Campus	Lagos, Nigeria
03 Dec 2026	04 Dec 2026	On-Campus	Durban, South Africa
08 Dec 2026	09 Dec 2026	On-Campus	Maseru, Lesotho
08 Dec 2026	09 Dec 2026	On-Campus	Kigali, Rwanda
08 Dec 2026	09 Dec 2026	On-Campus	Accra, Ghana

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-0441) 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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