Accredited Africa Training Institute for Capacity Development

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

Tel: +27 12 004 8389 · Mobile: +27 65 077 6310

Email: apply@aaticd.co.za · Website: www.aaticd.co.za

COURSE BROCHURE

SIL / Functional Safety

Custom Courses / Health, Safety and Environment (HSE)

Unit Standard AATICD-0328 · NQF Level 5 · 10 Credits · 5 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to implement and maintain Safety Instrumented Systems (SIS) in accordance with international functional safety standards such as IEC 61511. It focuses on the practical application of safety lifecycle principles, risk assessment, and the management of functional safety to ensure process safety and regulatory compliance.

Category	Custom Courses
Subfield	Health, Safety and Environment (HSE)
Unit Standard	AATICD-0328
Accreditation	SAQA Accredited · NQF Level 5 · 10 Credits
Duration	5 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS — verifiable online

LEARNING OUTCOMES

- Apply the principles of the safety lifecycle to identify and specify safety instrumented functions.
- Analyze process hazards and risk to determine required Safety Integrity Levels (SIL) using techniques such as LOPA.
- Design Safety Instrumented Systems that meet the required SIL, including selection of sensors, logic solvers, and final elements.
- Implement functional safety management plans, including verification, validation, and functional safety assessment.
- Demonstrate the ability to maintain and operate SIS in accordance with procedures, ensuring ongoing functional safety.
- Evaluate the performance of SIS and apply continuous improvement strategies to enhance safety and reliability.

WHO SHOULD ATTEND

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

COURSE OUTLINE

Day 1: Introduction to Functional Safety and SIL

- Introduction to functional safety: definitions and terminology
- Risk and safety integrity: concepts of risk reduction
- Overview of IEC 61508 and IEC 61511 standards
- Safety lifecycle: from concept to decommissioning
- Introduction to Safety Integrity Levels (SIL) and SIL targets

Day 2: Hazard and Risk Assessment

- Hazard identification methods: HAZOP, What-If, Checklist
- Layer of Protection Analysis (LOPA) fundamentals
- Risk quantification: frequency and consequence analysis
- Risk graph and risk matrix approaches for SIL determination
- Case studies: assigning SIL targets

Day 3: SIL Verification and System Design

- Reliability fundamentals: failure rates, PFD, and RRF
- Safe Failure Fraction (SFF) and diagnostic coverage
- Hardware fault tolerance and architectural constraints (IEC 61508
- SIL verification methods: simplified equations, Markov analysis, and fault tree analysis
- Design considerations for SIS: sensor, logic solver, final elements

Day 4: Safety Instrumented Systems (SIS) Implementation

- Safety Requirements Specification (SRS): content and development
- SIS design: redundancy, diagnostics, and proof testing
- Installation and commissioning considerations
- Validation and functional safety assessment
- Operation and maintenance: procedures, proof testing, and management of change

Day 5: Functional Safety Management and Case Studies

- Functional safety management: policies, procedures, and documentation
- Competency and training requirements for personnel
- Case studies: SIL determination and verification in various industries
- Functional safety audits and assessments
- Course review and examination

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 **10 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 17,700.00	**R 17,700.00**
1	In-House	R 23,900.00	**R 23,900.00**
1	On-Campus (Pretoria)	R 26,700.00	**R 26,700.00**

UPCOMING SESSIONS

Start	End	Method	Venue
07 Dec 2026	11 Dec 2026	Online	—
07 Dec 2026	11 Dec 2026	On-Campus	Maseru, Lesotho
07 Dec 2026	11 Dec 2026	On-Campus	Kigali, Rwanda
07 Dec 2026	11 Dec 2026	On-Campus	Accra, Ghana
07 Dec 2026	11 Dec 2026	On-Campus	Cape Town, South Africa
07 Dec 2026	11 Dec 2026	On-Campus	Abu Dhabi, UAE
07 Dec 2026	11 Dec 2026	On-Campus	Victoria Falls, Zimbabwe
14 Dec 2026	18 Dec 2026	On-Campus	Mbabane, Eswatini

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-0328) 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.

Accredited Africa Training Institute for Capacity Development
Unit FO409, Hatfield Plaza, 1122 Burnett St, Hatfield 0028, Pretoria, Gauteng, South Africa
Tel: +27 12 004 8389 · WhatsApp: +27 65 077 6310 · apply@aaticd.co.za · www.aaticd.co.za