



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@aatikd.co.za · Website: www.aatikd.co.za

COURSE BROCHURE

Reliability Engineering

Custom Courses / Engineering & Technical Maintenance

Unit Standard AATICD-0215 · NQF Level 5 · 10 Credits · 5 Days

COURSE OVERVIEW

This course equips learners with the principles and practices of reliability engineering to optimize asset performance, minimize downtime, and reduce lifecycle costs. Participants will gain the skills to implement reliability-centered maintenance strategies and data-driven decision-making in industrial environments.

Category	Custom Courses
Subfield	Engineering & Technical Maintenance
Unit Standard	AATICD-0215
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 reliability engineering principles to identify and analyze failure modes in industrial systems.
- Implement reliability-centered maintenance (RCM) strategies to improve asset availability and performance.
- Analyze maintenance data using statistical tools to predict equipment failures and optimize maintenance schedules.
- Evaluate the lifecycle cost of assets and recommend cost-effective reliability improvements.
- Design a reliability improvement plan incorporating root cause analysis and corrective actions.
- Demonstrate the use of key reliability metrics such as MTBF, MTTR, and OEE to monitor and enhance system reliability.

WHO SHOULD ATTEND

- Maintenance managers, reliability engineers, plant supervisors, and technical professionals involved in asset management and maintenance planning within manufacturing, mining, or process industries.

COURSE OUTLINE

Day 1: Foundations of Reliability Engineering

- Definition and scope of reliability engineering
- Reliability, availability, maintainability (RAM) principles
- Historical development and standards (SAE JA1011, ISO 55000)
- Asset lifecycle and reliability strategy
- Introduction to failure modes and effects
- Reliability metrics: MTBF, MTTR, availability

Day 2: Data Analysis and Failure Modelling

- Probability distributions in reliability (exponential, Weibull, lognormal)
- Weibull analysis: parameter estimation and plotting
- Reliability block diagrams (RBDs) and series/parallel systems
- Failure rate and hazard function concepts
- Data sources: maintenance records, CMMS, SCADA
- Practical exercise: Weibull analysis using software

Day 3: Failure Modes, Effects, and Criticality Analysis (FMECA)

- FMEA methodology: scope, functions, failure modes, effects, causes
- Criticality assessment using RPN, risk matrix, or MIL-STD-1629
- FMECA vs. FMEA: when to include criticality
- FMECA in design vs. operational phases
- Case study: FMECA on a pump system
- Integration with RCM and maintenance task selection

Day 4: Reliability-Centred Maintenance (RCM) and Lifecycle Costing

- RCM principles and the seven basic questions
- Failure consequences: hidden, safety, environmental, operational, non-operational
- Maintenance task selection: condition-based, time-based, failure-finding
- Life Cycle Costing: acquisition, operation, maintenance, disposal
- RCM facilitation and team roles
- Practical exercise: RCM analysis on a conveyor system

Day 5: Reliability Programme Implementation and Continuous Improvement

- Root Cause Analysis (RCA): 5 Whys, fishbone, fault tree analysis
- Reliability KPIs: OEE, MTBF, MTTR, failure rate trends
- Reliability improvement projects: prioritisation and implementation
- Reliability culture: training, communication, management support
- Integration with asset management systems (ISO 55001)
- Course wrap-up and action planning

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 24,200.00	R 24,200.00
1	In-House	R 31,400.00	R 31,400.00
1	On-Campus (Pretoria)	R 36,200.00	R 36,200.00

UPCOMING SESSIONS

Start	End	Method	Venue
03 Aug 2026	07 Aug 2026	On-Campus	Pretoria, South Africa
03 Aug 2026	07 Aug 2026	On-Campus	Dubai, UAE
10 Aug 2026	14 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	14 Aug 2026	On-Campus	Abu Dhabi, UAE
17 Aug 2026	21 Aug 2026	On-Campus	Harare, Zimbabwe
17 Aug 2026	21 Aug 2026	On-Campus	Shenzhen, China
24 Aug 2026	28 Aug 2026	On-Campus	Bangkok, Thailand
24 Aug 2026	28 Aug 2026	On-Campus	Victoria Falls, Zimbabwe

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

HOW TO GET A QUOTE OR APPLY

- 1. Get an instant quotation online:** visit www.aaticd.co.za, open the page for this course (Unit Standard AATICD-0215) and click **Get A Quote / Apply**. 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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