



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

Equipment Failure Analysis and Prevention

Custom Courses / Engineering and Instrumentation

Unit Standard AATICD-0034 · NQF Level 5 · 10 Credits · 5 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to systematically identify, analyze, and prevent equipment failures in industrial settings. Participants will learn to apply root cause analysis techniques and implement preventive strategies to enhance equipment reliability and reduce downtime. The course aims to foster a proactive maintenance culture aligned with South African industry standards.

Category	Custom Courses
Subfield	Engineering and Instrumentation
Unit Standard	AATICD-0034
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 systematic root cause analysis methods to determine equipment failure modes and causes.
- Analyze failure data using tools such as fault tree analysis and failure mode and effects analysis (FMEA).
- Evaluate the effectiveness of existing maintenance strategies and recommend improvements.
- Design preventive and predictive maintenance plans to mitigate common failure mechanisms.
- Implement corrective actions and monitor their impact on equipment reliability.
- Demonstrate the ability to document and report failure analysis findings in accordance with organizational procedures.

WHO SHOULD ATTEND

- This course is designed for maintenance technicians, engineers, reliability specialists, and operations supervisors who are responsible for equipment performance and reliability in manufacturing, mining, or process industries.

COURSE OUTLINE

Day 1: Fundamentals of Equipment Failure

- Introduction to equipment failure: definitions and costs
- Failure modes and mechanisms (wear, corrosion, fatigue, fracture)
- Basic reliability concepts: MTBF, MTTF, failure rate
- The bathtub curve and failure patterns
- Overview of maintenance strategies (corrective, preventive, predictive)
- Case study: common failures in rotating equipment
- Introduction to failure reporting and documentation
- Q&A; and group discussion

Day 2: Failure Analysis Techniques

- Failure analysis process: data collection, examination, testing
- Visual inspection and fractography basics
- Non-destructive testing (NDT) methods for failure analysis
- Root cause analysis tools: 5 Whys, fishbone diagram, fault tree
- Material analysis: metallography, hardness testing, SEM
- Case study: bearing failure analysis
- Writing a failure analysis report
- Group exercise: RCA on a given failure scenario

Day 3: Prevention Strategies – Design and Operation

- Design for reliability: FMEA and design reviews
- Preventive maintenance: planning and scheduling
- Condition monitoring: vibration analysis, thermography, oil analysis
- Lubrication best practices and contamination control
- Standard operating procedures and operator training
- Human factors in equipment operation
- Case study: preventing pump failures through design changes
- Group activity: develop a PM plan for a compressor

Day 4: Advanced Prevention – Reliability Engineering

- Reliability Centered Maintenance (RCM) framework
- Weibull analysis: parameter estimation and interpretation
- Predictive maintenance: infrared, ultrasonic, motor current analysis
- Availability, OEE, and reliability metrics
- Life cycle cost analysis
- Root cause failure analysis (RCFA) follow-up
- Case study: implementing RCM on a conveyor system
- Workshop: Weibull analysis using sample data

Day 5: Integration and Continuous Improvement

- Building a failure prevention program: policy and procedures
- Data management and reliability databases
- Key performance indicators for failure prevention
- Continuous improvement: PDCA, Kaizen, and reliability teams
- Capstone project: analyze a real-world failure and propose prevention

- Group presentations and peer review
- Course review and assessment
- Action planning for workplace implementation

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
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
31 Aug 2026	04 Sep 2026	On-Campus	Lusaka, Zambia
31 Aug 2026	04 Sep 2026	On-Campus	London, UK

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-0034) 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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