



## ENGINEERING AND TECHNICAL TRAINING

# Predictive Maintenance and Condition Monitoring Techniques

**3 day course**

Classroom, online or in-house

## Course overview

A three day hands on course in detecting equipment degradation before it becomes failure. Delegates work through vibration analysis and spectral diagnostics for bearing, gear and alignment faults, infrared thermography for electrical and mechanical hot spots, oil analysis for lubricant condition and wear debris trends, and ultrasonic testing for leaks, electrical discharge and early bearing wear. Each technique is taught through interpretation rather than instrument operation, because the readings are easy to take and hard to read. The course closes on integrating several monitoring technologies into one condition based programme, and on the judgement of when a trend justifies intervention, which matters most on mining and processing plants where unplanned downtime on rotating equipment carries a heavy production cost.

## What you will learn

- Interpret vibration spectra to diagnose bearing, gear and alignment faults
- Apply infrared thermography to detect electrical and mechanical hot spots
- Read oil analysis reports to track lubricant condition and wear debris trends
- Use ultrasonic testing to detect leaks, electrical discharge and early bearing wear
- Build a condition based maintenance programme integrating multiple monitoring technologies
- Set monitoring frequency and alarm thresholds from equipment criticality
- Judge when a trend justifies intervention and confirm the diagnosis after strip down

## Who should attend

- Condition monitoring technicians
- Reliability engineers
- Maintenance supervisors
- Vibration analysts
- Plant engineers responsible for rotating equipment

## Course outline

- 01 Principles of condition based maintenance
- 02 Vibration analysis fundamentals and spectral diagnostics
- 03 Infrared thermography for electrical and mechanical assets
- 04 Oil and lubricant analysis interpretation
- 05 Ultrasonic and acoustic emission testing
- 06 Criticality, monitoring frequency and alarm thresholds
- 07 Deciding when a trend justifies intervention
- 08 Integrating condition data into a predictive maintenance programme

## Upcoming dates



| Dates                   | Venue           | Format    | Fee per delegate |
|-------------------------|-----------------|-----------|------------------|
| 21 to 23 September 2026 | Maseru, Lesotho | Classroom | R14,950          |
| 12 to 14 October 2026   | Online          | Online    | R6,500           |
| 19 to 21 October 2026   | Kigali, Rwanda  | Classroom | USD 995          |
| 8 to 10 February 2027   | Lagos, Nigeria  | Classroom | USD 995          |

### Fees and how to register

This 3 day course is **R6,500** per delegate online, **R14,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 995** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit [www.afrisciencegroup.com](http://www.afrisciencegroup.com), email [info@afiscience.co.za](mailto:info@afiscience.co.za), or WhatsApp us on **+27 63 479 1136**.

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