



RF-1

Reliability Fundamentals

Equipment Reliability Awareness Training

The **Reliability Fundamentals** course is intended for maintenance, engineering and operational personnel involved in planning, supervision, improvement and management of maintenance work activities.

The course explains the basics of why equipment does not often reach its design or service life and challenges some long-held beliefs of how and why equipment fails.

It is necessary that everyone is aware of the core reliability principals that will set the organisation on the path to reduce maintenance costs and improve the performance of operational assets.

The course is run over 1 day and is suitable for in-house training in groups of 8 - 20 participants.

Key Topics are:

- Why is reliability important?
- Reliability & Failure Theory
- Asset Maintenance Strategies
- Defect Elimination
- The 7 main sources of equipment unreliability
- Condition Monitoring Technologies & their application

Reliability Fundamentals

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Course Content

1. Introduction - why is reliability important?

- The case for Reliability – what are the benefits of improved reliability?
- Is it worth the effort to make changes?
- Quantifying the benefit to the business.

2. Reliability & Failure Theory

- Why do failures occur?
- When do things fail – the theory & research on when equipment is most likely to fail
- Understanding the PF interval (the time to functionally fail)

3. Asset Maintenance Strategy

- Asset Criticality Review – identifying what is most critical
- Planned Preventive Maintenance (PM) and Run to Fail (RTF) strategies
- Condition based Maintenance (CBM) – maintain equipment based on condition, not time.
- Operator Asset Care - how operations can be part of the reliability improvement process

4. Defect elimination

- Proactive defect elimination - preventing failure
- Reactive defect elimination - using Root Cause Analysis after failure

5. The 7 main sources of unreliability

- Original Design
- Purchasing and Condition of Spares
- Maintenance Strategy
- Installation Practices
- External Repairers quality of work
- Operational factors
- Lubrication & Contamination

6. Condition Monitoring Technologies & their application

- Ultrasound
- Thermal Imaging
- Oil Analysis
- Vibration Analysis
- Motion Amplification
- Electrical Testing

7. Review of key topics



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