



**Use the successful methods, practices and techniques of outstanding reliability improvement to reduce plant and equipment failures and boost production uptime**

## **Applied Reliability Engineering Training Course for Mobile and Industrial Plant and Equipment Reliability Growth**

*“Discover the powerful reliability practices that improve reliability performance.”*

***Register your name for our 3-day training course***

**In Australia we run public courses in Sydney, Melbourne, Brisbane and Perth when five (5) or more people are registered in that city.**

*(Save money and run the course in-house if you have 4 or more people.)*

**Practical ways to apply reliability engineering to improve operating asset uptime, boost production, and lift plant and equipment reliability**



This course is packed with practical reliability engineering insights and powerful reliability improvement techniques to use in the workplace. The 3-day training course in ‘Applied Reliability Engineering for Operating Plant and Equipment’ is for people who want to lift the efficiency, productivity and output of their operating assets with successful reliability engineering methods. The course is a great introduction to the practical aspects of using reliability engineering concepts in the workplace. There is little mathematics but there are lots of practicable reliability improvement methods to use. It takes the understandings of reliability engineering and shows you how to apply them to get better production plant performance. Though there

is no university level reliability engineering content the course gives you the good reliability engineering principles you need to use to lift the performance of your production, utilities, resources or operating plant and equipment.

You learn practical, effective reliability improvement methods and tools that help you boost your equipment reliability, lift plant availability, and gets you higher production output. The reliability math is kept to the bare essentials, just so you can see the scientific foundations on which reliability engineering is based. The real focus of the course is on the useful techniques of reliability engineering that you use every day to improve operating and production performance through lower maintenance costs, less downtime, fewer equipment failures and higher production output.

**A practical reliability training course that takes you go from basics to improved equipment performance and smart maintenance optimisation**

### **MORE TRAINING**

**Industrial Maintenance  
Management Mastery**

**Maintenance Planning and  
Scheduling for Reliability**

**Enterprise Asset  
Management Excellence for  
Executives and Managers**

**Applied Reliability  
Engineering for Operating  
Plants**

**Plant and Equipment Root  
Cause Failure Analysis**

**SEE OUR WEBSITE FOR  
MORE INDUSTRIAL  
TRAINING COURSES**

**[www.lifetime-  
reliability.com](http://www.lifetime-reliability.com)**



For a highly effective maintenance program you use reliability engineering to understand the cause and effect relationships of equipment and operational problems. Where the consequence of failure is important you put into place the right actions to prevent the failure. These include introducing defect eliminating practices, timely overhauls of parts suffering usage-based failures, replacement of equipment when key parts approach end-of-life, and equipment redesign to remove failure modes. The Applied Reliability Engineering for Operating Plant and Equipment Course will help you make effective and good maintenance and reliability decisions. With the training you get you learn how and what to do to optimise your maintenance interventions and apply sound maintenance and reliability strategy that is sure to produce improved operational performance.

**Attend the course and learn how to:**

- Improve operating and maintenance methods and practices to get least life cycle cost (LCC) from your assets.
- Optimise and develop reliable, low LCC plant and equipment designs to give you higher plant and equipment availability.
- Identify how your equipment parts and systems fail so you can select the ideal maintenance strategies for your operation.
- Apply Reliability, Availability and Maintainability (RAM) modeling for production improvement.
- Improve reliability of equipment designs with data analyse of the historic failure patterns affecting your equipment.

**You will benefit from:**

- Understanding the practical methods and useful features of Reliability Engineering and how they help you.
- Knowing when to use reliability engineering to get the most benefit for your operation.
- Learning which reliability engineering techniques to use to improve your operating equipment performance and profits.
- Recognising how to use reliability professionals to deliver better operating outcomes and plant availability.
- Realising where reliability engineering can deliver simple and low-cost reliability improvements to you.
- Recognising and solving the root causes of your equipment failures

Learn how to deliver equipment reliability improvement using every-day reliability engineering to enrich your operating and maintenance processes. The training provides you with valuable and insightful knowledge, along with practical case studies and hands-on data analysis activities you learn from. After a basic introduction to reliability engineering and equipment operational risk you see how reliability engineering is practically applied and used to achieve equipment reliability growth and optimise your maintenance management strategy



**Overview of Training Course Content**

**Day 1 – Reliability Engineering Basics**

- Definitions of Reliability
- Measuring Reliability of Operating Plant
- MTBF/MTTF/MTTR/Availability
- Reliability Availability Maintainability explained
- Physics of Equipment Failure
- Activity* – Component failure causes
- Developing failure curves
- Failure Mode Effects Analysis
- Activity* – FMEA example
- Reliability terms explained
- Probability and Distributions simplified
- Explaining Reliability Math simply
- Reliability and Hazard Functions
- Failures and Survivors
- Prioritising with Pareto Charts
- Understanding failure mode distributions
- Timelines and failure modes
- Separating failure modes
- Activity* – Graphing reliability
- Stability of data
- Data goodness-of-fit
- Activity* – Analysing data and planning improvement

**Day 2 – Creating Reliability Improvement**

- Series / Parallel arrangements and systems
- Reliability block diagrams
- Total business-wide cost of failure
- Risk Analysis methodology
- Frequency and Consequence
- Risk Matrix and Risk Triangle
- Equipment Criticality
- Acceptable risk boundaries
- Operating Risk Management
- Defect creation
- Defect elimination
- Activity* – Using Ichikawa diagrams
- Precision and Quality Control
- Root Cause Failure Analysis
- Event Trees and Fault Trees
- RCFA / 5-Whys with Evidence
- Activity* – Using 5Why root cause analysis
- Human Factors and Human Error
- Adding quality control and proof testing to procedures
- Activity* – Applying work quality assurance

**Day 3 – Apply Reliability Improvement Tools**

Designing a Reliability Improvement Process  
The FRACAS Process  
Monitoring and Measuring Reliability Improvement  
Crow-AMSAA reliability growth plotting  
Life Cycle Cost Management Explained  
Overview of Life Cycle Cost Simulation Modeling  
Maintenance Strategy selection using Reliability Analysis  
Reliability Centered Maintenance methodology  
Introduction to Weibull Analysis

Reading Weibull graphs and parameters

Activity – *Weibull Plotting example*

Optimising Preventive Maintenance

Activity – *Investigate PM optimisation*

Optimising Predictive Maintenance (Condition Monitoring)

Activity – *Investigate PdM optimisation*

Repair-Replace decisions

Activity – *Investigate Replacement decisions*

Cost Benefit Analysis of Improvement Projects

Activity – *Cost-Benefit examples*

Overview of Culture Change and Change Management

## Details of Your Course Presenter

Your trainer and course presenter has extensive industrial business experience, equipment reliability and plant maintenance optimization expertise. He uses that knowledge and the insights gained over the years in industry to take course attendees on a thorough and comprehensive coverage of the key reliability improvement knowledge, understandings and skills to improve asset productivity, reduce maintenance costs and maximise production performance and quality.

Our trainers have been involved in engineering, reliability and maintenance careers in a wide range of companies and operations including original equipment manufacturing, beverage production, resources and mining industries, fabrication and construction, process plants, industrial chemical manufacturing, quality management, project management, industrial asset management, maintenance management and industrial training. They use their years of experience in business and industry to focus on the critical success factors of what to do for sure reliability improvement, and how to do it quickly and well.

Your Presenter shows you how you and your people can make wise reliability improvement decisions, effectively use your resources, work expertly in the least time necessary, and continually improve your operation's productivity, efficiency and effectiveness.

## You Need to Book Yourself into the Course Early if You want to be Sure to Get One of the Ten Seats Available

Register for the course immediately if you want to be sure of getting a seat. Seating is limited to a maximum of 10 people per course and seats are allocated on a first-come-first-served basis. Complete your registration form, and fax it to us at (+61 8) 9457 8642 or scan it and email to [info@lifetime-reliability.com](mailto:info@lifetime-reliability.com). Book yourself and your people into the course now; don't delay. Contact us now on mobile 0402 731 563 to confirm a place is still available for you on the next course.

## A 100% Money Back Guarantee

You get maximum protection in our seminars, courses and workshops with a 100% Money Back Guarantee. If you attend the course and, for whatever reason, you believe that your expectations have not been met, our fees will be totally refunded. As further compensation you keep all materials handed out during the presentation. (Guarantee is subject to the full booking fee being received before the due date.)

## Discounts are Available for Companies Sending Multiple Attendees

For companies sending more than two people a twenty percent discount is available for the third person, twenty five percent for the fourth, thirty percent for subsequent persons.

## More Course Information and On-Site Training Details

The training course venue in each city will be advised in a confirmation email sent to all participants two (2) weeks before the course start date.





On the first day course registration is from 8am, with the course starting at 8.30am and finishing at 4.30pm each day.

A PDF certificate of training is sent to participants following the course.

We can run also this training course on-site in your operation at your convenience. Contact us to get a free quotation and practical advice.

Email us at [info@lifetime-reliability.com](mailto:info@lifetime-reliability.com) or telephone us on +61 8 9457 6297 or cell/mobile +61 (0) 402 731 563 to get more information and answer any questions that you have.

Our best regards,

Mike Sondalini

[www.lifetime-reliability.com](http://www.lifetime-reliability.com)

