

# Reliability Engineering Excellence

## Why Attend

- Reliability is a cornerstone of any maintenance process. Get it right and you can enjoy good safety performance, low running costs and a sustainably high production level at the right quality. Reliable plants are usually safer and cite a higher level of morale. Lose control of reliability and operations become less predictable, more chaotic and much more difficult to control.
- This is a highly practical course that includes the latest thinking in reliability improvement, how to gain maximum benefit for minimum effort and how to develop bespoke reliability strategies that will integrate effectively with other campaigns. This will include methods and tools as well as the Carcharodon Model of Excellence to add structure and enable participants to break this complex subject into smaller, more understandable parts.
- Reliability is not the responsibility of maintenance alone and outstanding performance can only be achieved with a strategy that includes operations, design, materials and contractors. This course is based upon our Model of Excellence for bringing all these considerations together as one to achieve pace-setter standards.

## Course Methodology

- This is an interactive course. There will be open question and answer sessions, regular group exercises and activities, videos, case studies and presentations on best practice and the fundamentals of reliability improvement. Participants will have the opportunity to share with the facilitator and other participant on what works well and not so well for them, as well as work on issues from their own organizations.

## Course Objectives

By the end of the course, participants will be able to:

- Explain how pace-setters achieve outstanding reliability performance and how to use the Carcharodon Model of Excellence
- Develop reliability programs that align with the unique needs of their business, asset and maintenance strategies
- Analyze their current performance against best-in-class benchmarks
- Calculate potential fixed and variable cost reductions along with productivity, output, and product quality improvements, that can be delivered through reliability improvement
- Apply key reliability improvement methodologies and tools to improve reliability performance
- Explain to colleagues the fundamentals of best practice in reliability, including the responsibilities of design and operations as well as maintenance
- Engage colleagues and consider the human factors required to support a high reliability culture

## Target Audience

- This course is suitable for reliability engineers, maintenance managers, maintenance supervisors, planners, project managers, project engineers, operations managers, shift managers, operations supervisors and people who are in training for these positions. This course is also designed for contractors who want to contribute to the reliability performance of client assets.

## Target Competencies

- Reliability analysis
- Use of reliability tools
- Risk assessment
- Continuous improvement
- Program management

### Reliability and its role in the wider business context

- An introduction to reliability
- Calculating the value of cost reduction and increased production
- The impact of reliability on safety, quality and team morale
- Overall Equipment Effectiveness (OEE), an international model for measuring asset performance
- A definition of maintenance
- The move to asset management and the modern maintenance strategy
- Sources of reliability losses and the role of operations, design and procurement
- Contractors, materials and equipment
- The reliability pyramid

## Sources of best practice and models of excellence

- Reliability benchmarks
- The link between performance and reliability practices
- Where to look for best practice
- Case studies of pace setter methodologies
- A Model of Excellence for reliability
- Building a reliability focused supply chain
- Customer focused reliability

## Building a unique reliability strategy for your plant

- Baseline plant performance
- How to project the potential level of improvement
- Calculating the benefits case
- How to focus on the most valuable priorities for any business
- Using the Define, Measure, Analyze, Improve and Control (DMAIC) methodology for structured performance improvement
- An end to end process for reliability improvement and asset life extension

## Reliability improvement tools

- Key principles of reliability centered maintenance, Total Productive Maintenance (TPM) and Six Sigma
- Using Root Cause Analysis to address historic failures
- Criticality analysis to prioritize reliability efforts
- Proactively avoiding future failures using Failure Mode Effect Analysis
- Reliability by design
- The 5S process for improving ergonomics and identifying issues
- An introduction to the Single-Minute Exchange of Die (SMED) process for reducing downtime to repair
- When to consider advanced software models

## Human factors to consider

- The impact of human factors on reliability performance
- Gaining buy in beyond just the maintenance team
- How to get people to own reliability
- Developing a reliability culture

## Sustaining improvements and tracking performance

- The importance of data in performance improvement
- Reliability metrics
- Use of Pareto analysis
- Loss accounting and failure reporting