

# Asset Reliability Practitioner Training & Certification ARP Category I

The Asset Reliability Practitioner [ARP] Category I “Manager-Engineer Awareness” course is intended for senior management, maintenance and operations/production management, engineers, junior reliability engineers, and condition monitoring professionals who need to understand the “big picture” of the reliability and performance improvement process.

## Manager-Engineer Awareness (Track B)

This course seeks to achieve two goals:

1. Present the business case and explain how it is possible to assess the benefits to your organization. You can take what you learn to justify a new program, expand your existing program, or to simply breathe new life into a stale program.
2. Demystify the concepts, terminology, and the process required to improve reliability and performance. All the key issues will be covered, from defect elimination to the development of the asset strategy, from condition monitoring to operator driven reliability, from culture change to continuous improvement, and so much more.

This course will leave you with a clear vision of what the process is, how to justify the initiative, and all the key elements. You will learn what has worked for other organizations, and why so many programs have failed.

The course achieves this goal by utilizing animations and animated simulations that make it understandable, memorable, and interesting. Delivered by passionate industry experts, this course, with the optional exam/certification, the course will make a difference to the future of your organization.

## About the ARP Training & Certification Program

Practitioners and leaders involved with the important role of improving the reliability and performance of an industrial facility should be recognized for their knowledge, experience, and contribution.

The new Mobius Institute Asset Reliability Practitioner (ARP) certification scheme will recognize the knowledge and basic experience of people at three levels; the Advocate who contributes to the initiative, the Reliability Engineer, and the Leader of the program. In addition, the certification scheme will separately recognize reliability engineers and leaders who have proven competence.

Prior experience is not required for attending the training course, but 6 months of general industrial experience is required for certification.

# Course Breakdown

## Introduction

- Overview of reliability and performance improvement
- What causes equipment to be unreliable or perform poorly
- The relationship between reliability improvement and asset management, operational excellence, TPM, and lean strategies
  - An introduction to ISO 55000
- The relationship between reliability and safety

## Benefits

- An overview of the benefits, with basic examples

## Assessing Your Benefits

- What is important to your business?
- What are you good at, where do you need help?
- What do those gaps cost you?

## Culture Change

- The importance of developing the culture of reliability
- The steps necessary to change people's and an organization's culture
- Being aware of human error and human psychology (e.g. biases)
- The importance of defining who is responsible and accountable, who will provide support, who should be consulted, and who should be kept informed [RASCI]

## Selling Senior Management

- Building the business case based on the goals of the business, the identified gaps, and the value gained by closing those gaps
- How to ensure you gain and retain senior management support

## Strategy

- What is involved in developing a strategy
  - Setting goals
  - The need for a mission/vision statement
  - The main components of a "roadmap" strategy
  - The need to establish a "steering committee"
  - Gaining support across the organization

## Understanding Failure

- Why does equipment fail?
  - Mechanical failures
  - Electrical failures
- Understanding equipment "failure patterns"
  - Does all equipment wear out with age?
  - What are "random failures"
  - Early age "infant mortality" failures
- Why is this so important?

## Defect Elimination

- Overview of the goals of defect elimination
- An overview of each of the main sources of defects and how to eliminate them
  - Design for reliability, maintainability, operability, and sustainability
  - Procurement for lowest life cycle costs
  - Transport without damage
  - Acceptance testing to reject defective equipment
  - Storage to eliminate degradation
  - Eliminating maintenance induced failures through precision installation, maintenance and commissioning
  - Eliminating operator induced failures
  - Proactive tasks that reduce the likelihood of failure and poor performance

## Asset Strategy

- Overview of run-to-failure, condition-based, and interval-based maintenance
- The need for the master asset list and bill of materials
- Establishing the asset criticality ranking
- Utilizing Preventive Maintenance Optimization [PMO], Reliability Centered Maintenance [RCM], and/or Failure Modes Effects (and Criticality) Analysis [FMECA] to develop the asset reliability strategy
- Operator driven reliability [ODR]

## Work Management

- The benefits of coordinated, planned, and scheduled work
- An overview of the complete cycle: work requests, planned tasks, kitting, scheduling, managing break-in work, precision job execution (and the need for written procedures), job feedback and improvement
- The opportunity to improve work efficiency (or "wrench time")
- How planning can minimize time/costs with shutdowns and outages
- The role of the computerized maintenance management system [CMMS] or enterprise asset management [EAM] system

## Spares Management

- The financial and work management benefit of efficient spares management
- Basic introduction to spares selection
- Caring for spares

## Precision And Proactive Work

- What is precision and the importance of precision work
  - The basics of precision shaft and belt alignment, soft foot correction,

fastening, machine balancing, and other common mechanical and electrical tasks

- The importance of developing and following written procedures
- The importance of precision installation, such as bearings, seals, gears, belts, pumps, electrical equipment, and other equipment
- The importance of commissioning
- The importance of taking proactive steps to avoid future problems, including precision lubrication, resonance correction, power quality control, and keeping equipment and workplaces clean and organized

## Condition Monitoring

- Overview of CM principles for mechanical and electrical equipment
- The relationship between CM and planning/scheduling and operations
- A detailed overview of:
  - Vibration analysis
  - Ultrasound
  - Oil analysis
  - Wear particle analysis
  - Electric motor testing
  - Infrared analysis
  - Non-Destructive Testing [NDT]
  - Process/performance monitoring
  - Visual inspections
- The future of CM and predictive analytics

## Breaking Out Of Reactive Maintenance

- What to do if you are trapped in the reactive maintenance cycle

## Continuous Improvement

- The principle of and importance of continuous improvement, Kaizen, PDCA, and Lean
- The need to reassess business conditions and what is critical
- Utilizing metrics to measure and improve performance
  - Benchmarking against industry and the facilities "best day"
  - The importance of establishing the right KPIs
  - Suggested metrics and KPIs and the most effective use of KPIs
  - The importance of accurate data collection
- The importance of constant communication
- Root cause (failure) analysis [RCA and RCFA]
  - The importance of conducting RCA/RCFA
  - The importance of making the improvements
    - How to perform RCA/RCFA
- The need for on-going education, skills, and awareness training



The Asset Reliability Practitioner (ARP) certification scheme follows the independent format of the time-tested ISO certification programs, such as ISO 18436, and it follows the guidelines defined under ISO/IEC 17024 – the same process followed by the independently accredited Mobius Institute Board of Certification [MIBoC] certification scheme that has already certified tens of thousands of men and women from over 170 countries.

## Reliability Training

Yellotec offers a full complement training courses in Condition Monitoring disciplines as well product and Reliability Engineering specific courses. Courses offered are either presented under license from International Certification Bodies or are in accordance with ISO requirements.

### All Courses Offered By Yellotec

Infrared Thermography (IRT)  
IRT Basics, Level 1, Level 2 and Level 3

Vibration Analysis (Mobius)  
Category 1, 2 and 3

Field Lubricant Analysis  
Noria Level 1, 2 and 3

Machinery Lubrication  
Noria Level 1 and 2

Oil Analysis Series  
Level 1, 2 and 3

Ultrasound  
Level 1 and 2

Asset Reliability Practitioner Training  
Category 1 and 2

Shaft Alignment

Gearbox Maintenance

Failure Analysis

Condition Monitoring for Engineers

### Private Courses

All our public training courses can also be conducted as an in-house private courses. If you have 12 or more people attending, consider the benefits of an in-house session conducted in the privacy and conveniences of your facilities or a meeting site of your choice. Please contact us so that we can understand your requirements, explore the benefits and make it happen.

## About Yellotec

Yellotec is a reliability solutions specialists that provide complete solutions for the implementation and management of Condition Based Maintenance.

We stand proud in the belief that all failures are preventable.

We provide service, product and training solutions through the application of the following technologies:

- Vibration Analysis
- Oil Analysis
- Infrared Thermography
- Laser Alignment & Balancing
- Structural and Air borne Ultrasound
- Failure Analysis
- Fluid Management
- Conveyor Monitoring
- Electric Motor Testing