



CAT-I

ARP Category I – Advocate

Asset Reliability Practitioner Training & Certification

Manager-Engineer Awareness

The **Asset Reliability Practitioner [ARP] Category I "Manager-Engineer Awareness"** course is intended for senior management, maintenance & operations/production management, graduate engineers, junior reliability engineers, planners and condition monitoring technicians who need to understand their role and opportunities in the reliability improvement process.

Whether your organization manufactures products or a commodity; provides an essential service; relies on machinery/electrical equipment, or is involved with protecting their country, this course will provide a thorough explanation of how and why to improve reliability and performance.

Key Topics are:

- The negative consequences of unreliability
- How to eliminate the sources of systematic defects that cause unreliability
- How to gain management support to resource reliability initiatives
- Strategic maintenance work management as a foundation to reliability
- Why good maintenance and a CM program does not fix reliability problems
- The process of criticality analysis and optimising maintenance activities
- Using data with reliability analysis tools to identify priorities
- Condition Monitoring technologies and their application
- The job roles and resources required to support a reliability program
- How to break away from reactive maintenance and have time for proactive activity
- Sustaining a long-term culture of reliability

Detailed topic list:

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
- The relationship between reliability and safety

ASSESSING THE BENEFITS

- An overview of the 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 individual 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]

GAINING SENIOR MANAGEMENT SUPPORT

- Building the business case based on the goals of the business, the identified gaps and the value of closing those gaps.
- How to ensure on-going 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 & 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 benefits 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

ROOT CAUSE ANALYSIS

- The importance of conducting RCA/RCFA
- The importance of making the improvements and managing the process
- How to perform RCA/RCFA

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
- The need for on-going education, skills and awareness training

CAT-I Course Details

Duration: 2.5 days

Certification Exam:

2 hour exam with 60 multiple choice questions.
Pass grade is 70% for certification.

Certification Prerequisite:

Prior experience is not required for attending the training course or sitting the exam, however 6 months of relevant industrial experience is required for certification.

Pre-study:

On-line videos of the course are available to students to allow for study prior to the attending classroom course and exam.

What our Category I students have said:

" Very good . Relevant and interesting. The content was excellent"

"Very rich in knowledge related to reliability. Great course. Great Teacher."

"It gives me more awareness to look for opportunities on my site to improve reliability"

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.

Two independent international committees developed the certification program. The Scheme Committee defined the topics and the requirements (such as training, experience, and examination). The Technical Committee approved the topics and is responsible for approving training courses and the examination database.

Both committees are made up of experienced practitioners, consultants and educators from around the world to ensure that the scheme meets the requirements of the majority of industries in all countries.

Category I Certification



All MIBoC certified reliability practitioners receive personalized logos with their certification number and name for their own professional use. Mobius Institute also maintains a listing of all certified analysts on their website and provides each person with a certification confirmation webpage.

For more information about Mobius Institute's accreditation, please visit www.mobiusinstitute.com/certification.



Learn more about other Classroom, Distance Learning or On-Line training options.

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