OCS Training Institute
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RELIABILITY CENTERED MAINTENANCE

OCS Training Instructor

Over the last 30 years, Dr. Taha Aldoss teaches numerous number of training courses that covers subjects like turbomachinery performance, monitoring, operation and maintenance, Piping system design, testing, inspection, and repairs, Piping system stress analysis and fitness for service, Control valves and safety relief valves sizing, operation and maintenance, Heat transfer equipment, heat exchangers, boilers and furnaces, Maintenance, Root cause analysis, and troubleshooting. These courses were both public and in-house customized training courses.

He has been awarded a number of prizes for his distinguished publications and research work. His awards include the Shoman prize and the Fulbright Fellowship. He has more than 100 publications in international journals and international conferences. He also holds three patents.

Course Description :

Equipment failure means services interruption, increased downtime costs, plus a serious safety hazards. The RCM, Reliability-Centered Maintenance, evolves the new strategic framework that ensures that any asset continues to perform, as its users want it to perform. Using the right methodology leads to maintenance management best practice. This workshop will discuss the principles of RCM, and its implementation and best practice. RCM is a tool that deals with failures in a systematic way, analyzes the failure and sets up a maintenance strategy to predict, prevent, eliminate, or reduce the probability of failure.

The objective is to learn how to apply proven reliability methods that will reduce equipment failures and downtime. Reliability Centered Maintenance is a strategy that start from the very first stages of design, supported by pre-determined operation procedures and maintenance strategies, and implementation of an effective monitoring system. Reliability Centered Maintenance involves Condition Based Maintenance too.

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Course Objectives:

- Learn the principles of Reliability engineering, and the reliability measures.
- Learn and implement the reliability centered maintenance requirements.
- Use RCM decision diagram effectively.
- Learn different failure prediction techniques.
- Learn how to implement condition based maintenance.
- Learn how to apply failure prevention programs

Who Should Attend :

Plant and Machinery Design Personnel, Operation, Maintenance & Reliability personnel and engineers needs such training

Training Methodology:

The training will include power point slides lecturing and discussion, participants' involvement through questions and discussions. Participants will be asked to practice different procedures and methods of RCM and implement the same on assigned as well as their own choice cases

Course Agenda :

Day 1 - Principle of Reliability Engineering

Reliability is about cost effective systems that runs with least failures. It involves best design, right operation procedures and appropriate maintenance strategies. In day 1 participant will learn about the concept of reliability, its importance and key indicators and measures of the same.

- Growing Expectation of Maintenance
- Maintenance and RCM
- The RCM seven basic questions
- RAM, Reliability, Availability, and Maintainability
- Determining availability requirements
- Specifying reliability and maintainability needs
- Reliability Measures
- OEE, Overall Equipment Effectiveness
- TEEP, Total Effectiveness Equipment Performance
- MTBF, Mean Time between Failures

Day 2 - Functions and Failures

In day 2, the participant will learn the parameters and functions describing the reliability based maintenance, how to construct, to read and implement. The participant will learn how to estimate the risks, cost and consequences of failures. Also will learn how to practice that through RCM decision diagram.

- RCM Information Worksheet
- Types of Functions
- Performance Standards
- Functional Failures
- Failure Modes
- Root Causes of Failure
- Failure Effects
- Hidden Failure Consequences (protective devices)
- Operational Consequences
- Preventing Operational Failures
- RCM Decision Diagram

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Course Agenda :

Day 3 - Maintenance Strategies

RCM involve determining the appropriate maintenance strategies. In day 3 the participant will learn about life cycle cost, condition monitoring, and failure-finding tasks. He will learn how to construct, read and implement P-F curve, and use the same to suggest the appropriate maintenance strategy.

- The purpose of maintenance
- The basic practice of maintenance
  - Breakdown maintenance
  - Preventive maintenance
  - RCM maintenance
  - Scheduled on-condition tasks
  - The P-F curve
- The machine life cycle
  - Life cycle cost reduction
- Condition Monitoring
- The techniques of condition monitoring
- Failure-Finding Tasks
- Scheduled Failure-finding Tasks

Day 4 Failure Reduction Programs

One of the objective of the RCM is to prevent or reduce failures. In day 4 participant will learn how to plan and to apply the appropriate failure reduction programs. He will practice the same through number of exercises.

- Implementing a failure reduction program
- Value-based Six Sigma Improvement Process
- Development/Definition Phase
- Measurement Phase
- Analysis Phase, Root Cause Analysis
- Improvement Phase
- Control Phase

Day 5 - Case Studies

Participant will be asked to discuss how they can implement and practice RCM considered certain case studies as assigned or and ones applicable to their own selected cases.

IN-HOUSE SOLUTIONS

SAVE COST • IMPROVE PERFORMANCE • REDUCE RISK

OCS Training understands that in current economic climate, getting an excellent return on your training investment is critical for all our clients. This excellent training can be conducted exclusively for your organization. The training can be tailored to meet your specific needs at your preferred location and time. We will meet you anywhere around the globe.

If you like to know more about this excellent program, please contact us on +6221 2555 5772 or email at **sales@ocsgroup.com**

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