

Fundamentals of Reliability Centered Maintenance (RCM)

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Fundamentals of Reliability Centered Maintenance (RCM)



Overview

Reliability-centred maintenance (RCM) is a corporate-level maintenance strategy implemented to optimise a company's or facility's maintenance program. The outcome of an RCM program is the implementation of a tailored maintenance strategy for each asset within the facility. The maintenance strategies are optimised so that the plant's productivity is maintained using cost-effective maintenance techniques.

Course Objectives

At the end of this course, the participants will be able to:

- Explore the components that comprise an effective maintenance program.
- Understand the role of Reliability-Centred Maintenance in the maintenance business and its contribution to determining the optimal maintenance program.
- Review the history and principles of RCM along with the various approaches
- Present a methodology for applying RCM using examples and working sessions
- Understand what is needed to implement RCM and its results
- Understand the role of condition monitoring and information systems in the implementation of RCM

Course Content

1. Introduction to Maintenance

- History of maintenance?
- Components of maintenance

2. Current Approaches to Maintenance

- Total Productive Maintenance
- Condition-Based Maintenance
- Proactive Maintenance

3. Optimum Maintenance Program

- Maintenance planning approaches
- Maintenance processes



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Course Content

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4. Introduction to RCM

- History of RCM
- Principles of RCM
- Benefits of RCM
- RCM and risk
- Types of maintenance tasks

5. The Nature of Failure

- What is failure?
- The failure process
- The failure mechanism
- The bathtub curve?

6. The RCM Process

- Classical RCM process
- Streamlined RCM process
- RCM as a project

7. Functional Failure Analysis

- Data gathering
- System boundaries
- Functions and performance standards
- Functional failures

8. Failure Modes and Effects Analysis

- Failure modes
- Failure effects and consequences
- Equipment criticality, working session

9. Task Selection

- Failure causes
- Applicable and effective tasks
- Task logic tree
- Cost-benefit analysis
- Working session

10. Implementation

- Task comparison
- Task packaging
- Redesign
- Criticality checklist
- Implementation planning
- Project completion
- Implementation

11. Ongoing Role of RCM

- Organizational issues
- The living program
- Performance measures

12. Documentation and Information Systems

- Operating and maintenance documentation
- Computerised Maintenance Management Systems
- RCM analysis system



Fundamentals of Reliability Centered Maintenance (RCM)



Targeted Audience

- RCM team members
- Reliability engineers
- Project engineers
- Maintenance analysts
- Maintenance superintendents
- Design engineers
- Plant Performance engineers

Course Methodology

Facilitated by an experienced professional trainer, this training course will be conducted as a highly interactive workshop session. A variety of training methodologies and facilitation techniques will be employed before and during the course, as applicable. These methods are aimed at enhancing individual and group interaction while maximising learning. Some of these methods are:

- Online Pre-post Test
- Colourful Visual Aids
- Gamification
- Self-Assessment Instruments
- Simulations
- Case Studies
- Videos
- Group Exercises & Discussions
- Role plays
- Indoor & Outdoor games

