MAESTRO CONSULTANTS

ROTATING MACHINERY PREVENTIVE AND PREDICTIVE MAINTENANCE

COURSE OUTLINE 2020

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TRAINING TITLE

ROTATING MACHINERY PREVENTIVE AND PREDICTIVE MAINTENANCE

VENUE

Dubai, UAE

DURATION

5 Days

DATES

15 - 19 November 2020

PRICE

US$4,000 per attendee including training material/handouts, morning/afternoon coffee breaks and Lunch buffet daily.

TRAINING INTRODUCTION

This is a five-day course on Rotary Machinery Preventive and Predictive Maintenance. Different maintenance strategies will be discussed; elements of each maintenance strategy, their advantages and disadvantages will be explored. The selection of the appropriate strategy that fit the mode of failure and results in the minimum time between repair and that leads to least down time and maintenance cost is one of the maintenance engineer duty that must be mastered. Tools and measurements involved in each maintenance strategy must also be recognized and deeply understood. To apply the above techniques effectively on the Rotary Machinery, one should be aware of their failure modes, and methods of troubleshooting. The above will applied on different type of Rotary Machinery like pumps, compressors, and Turbines.

TRAINING OBJECTIVES

- Define predictive maintenance and differentiate it from other approaches such as run-to-failure and preventive maintenance
- Describe the benefits of predictive maintenance
- Describe how equipment vibration can provide an indication of equipment condition
- Describe how impurities in equipment lubricant can provide an indication of the condition of the components being lubricated
- Describe how trends reflected in equipment records can provide an indication of equipment condition

- Describe some basic guidelines for a successful predictive maintenance program.

TRAINING AUDIENCE

Engineers, technicians and managers responsible for selection, installation, machinery failure analysis, troubleshooting and maintenance of different rotary machines like pumps, compressors, fans, blowers, steam turbines, gas turbines will benefit from this course.

TRAINING OUTLINE

The following topics will be covered in the course over five working days:

Ch 1 Maintenance Strategies

Maintenance Strategies

Corrective Maintenance

Breakdown Maintenance

Preventive Maintenance

Predictive Maintenance

Corrective Maintenance

Effective Preventive Maintenance

Planning & Scheduling

Mode of Failures

Coordination with Production

Opportunity Preventive Maintenance Activities

Predictive Maintenance Techniques

Vibration monitoring

Themography

Tribology

Visual inspections

Ultrasonics

Process Parameters

Ch 2 Causes of Machinery Failure

Improper Specifications

Improper Sizing

Material Deterioration

Overstressing

Material Corrosion

Overheating

Fatigue Failure

Brittlement Failure

Misalignment

Cold versus Hot Alignment

Alignment Tolerances

Imbalance

Causes of Imbalance

Level of Balancing

Vibration due to Imbalnce

Off-design Operation

Range of Acceptable Operation

Limits of Operation

Controlling Systems

Loop Oil Systems

Bearings

Seals

Control Systems

Installation Problems

Piping Stresses

Ch 3 Root Cause and Troubleshooting

Failure Consequences

Failure Modes

Age-related Failure

Failure which are not age-related

The Failure Process

The Six Failure Patterns

Technical History Data

Failure Finding Task

Ch 4 Failure Prevention

Proper Specifications

Codes and Standards

Proper Operation

Protective and Safety Devices

Proper Training

Monitoring Systems

Maintenance Planning

Ch5 Applications and Case Studies

Pumps

Fans and Blowers

Compressors

Steam Turbines

Gas Turbines

TRAINING CERTIFICATE

MAESTRO CONSULTANTS Certificate of Completion for delegates who attend and complete the training course

METHODOLOGY

Our courses are highly interactive, typically taking a case study approach that we have found to be an effective method of fostering discussions and transferring knowledge. Participants will learn by active participation during the program through the use of individual exercises, questionnaires, team exercises, training videos and discussions of "real life" issues in their organizations. The material has been designed to enable delegates to apply all of the material with immediate effect back in the workplace.