

Mechanical Maintenance



Description

We recommend that this highly intense 160 hour course be delivered in four day blocks. This will allow the trainee ample time to absorb the large amount of information delivered during these sessions without it becoming overwhelming. Those who should attend would include anyone in the mechanical crafts area. This would include operators, millwrights, mechanics, machine troubleshooters and machine set up personnel. This course will enable you to quickly bring your mechanical apprentices up to speed and provide your senior people with added knowledge they can use in reducing downtime.

Outline

- Types of Industrial Pumps
- Basic Pump Alignment
- Calculating Load Weights
- Safety Guidelines for Rigging
- Safe Working Loads
- Inspection of Lifting Equipment
- Selecting the Proper Lifting Equipment
- ANSI Hand Signals for Operators
- Inspection Guidelines
- Variable Speed Belts "Reeves Drives"
- How to Determine Correct Belt Tension
- Troubleshooting Belts for Cause of Failure
- Predictive Maintenance of Belts
- Establishing the Correct Belt and Pulley Combination
- Industrial Chain Selection
- Troubleshooting Chain Failure
- Chain Lubrication
- Bearing Selection
- Types of Bearing Seals
- Bearing Installation and Removal
- Troubleshooting Failed Bearings
- Remedies to Cure Bearing Problems
- Troubleshooting Charts for Bearings
- Introduction to Precision Alignment
- Bearing Lubrication
- Precision Straight Edge Alignment
- Alignment Using Dial Indicators
- Rim and Face Alignment
- Reverse Dial Alignment
- Jack Shaft Alignment
- Understanding the Relationship of Power in Mechanical Transmission
- Clutches
- Coupling Selection
- Predictive Maintenance
- Introduction to Gears
- Selection of the Correct Type of Gearbox
- Gear Set Up

Prerequisites

None.

Course Length

160 hours.

Mechanical Maintenance (cont'd)

Performance Objectives

At the completion of this course the participant will be able to:

- Have a better understanding of predictive and preventative maintenance of pumps.
- Be able to select the best type of packing or mechanical seals for the application.
- Understand the lubrication needs of the pump bearings.
- Correctly set up a pump for maximum efficiency.
- Calculate the approximate weight of the object to be lifted.
- Select the proper rigging equipment.
- Calculate the effects of the sling angle on the tension of the sling.
- Perform safe rigging lifts.
- Demonstrate the correct hand signals used in lifting.
- Correctly maintain belt drive and chain drive systems.
- Troubleshoot a belt or chain drive system as to cause of failure.
- Select the proper type of bearing for the application.
- Troubleshoot failed bearings to prevent reoccurrence of the failure.
- Understand lubrication needs in regards to industrial bearings.
- Have an entry level understanding of Predictive and Preventive Maintenance.
- Select the correct type of seals to protect the industrial bearing.
- Correctly align a variety of industrial machines.
- Understand the effects of misalignment on the life of the machine.
- Demonstrate an understanding of precision alignment.
- Be able to select and troubleshoot a variety of belt drives.
- Demonstrate knowledge of the various mechanical gearing systems used.
- Have a thorough understanding of chains and chain drive systems.
- Understand correct ways to select and maintain mechanical drives.
- Properly "setup" an industrial gear drive.
- Understand the selection procedures used to select the correct industrial gearbox.
- Select the correct lubrication to ensure maximum life expectancy.
- Correctly remove and replace bearings, seals and gears.