Multistage Centrifugal Pump Maintenance

**Course Description:**

Centrifugal pumps are among the most common types of pumps used in industrial facilities. A centrifugal pump has a rotating impeller that circulates fluid within a casing and directs it to an outlet, or discharge, pipe. A single stage centrifugal pump has a single impeller and develops relatively low discharge pressures. A multistage centrifugal pump has two or more impellers and develops relatively higher discharge pressures. Although multistage centrifugal pumps are generally larger and more complicated than single-stage pumps, they operate under the same basic principles. This course describes the general operation of multistage centrifugal pumps and explains how to identify problems with these units. The disassembly and reassembly of two types of multistage centrifugal pumps are also covered.

**Learning Objectives:**

- Identify the components of a typical multistage centrifugal pump
- Describe the operation of a typical multistage centrifugal pump
- Describe how pump manufacturers minimize axial thrust
- Describe how pump manufacturers minimize radial thrust
- Identify problems commonly found in multistage centrifugal pumps
- Describe some techniques used to identify pump problems
- Describe a procedure for disassembling an axially split multistage centrifugal pump
- Describe checks and measurements that can be made as an axially split multistage centrifugal pump is disassembled
- Describe a procedure for reassembling an axially split multistage centrifugal pump
- Describe checks and measurements that can be made as an axially split multistage centrifugal pump is reassembled
- Describe a procedure for disassembling a radially split multistage centrifugal pump
- Describe checks and measurements that can be made as a radially split multistage centrifugal pump is disassembled
- Describe a procedure for reassembling a radially split multistage centrifugal pump
- Describe checks and measurements that can be made as a radially split multistage centrifugal pump is reassembled
- Describe the parts and operation of two types of multistage centrifugal pumps
- Explain techniques to minimize thrust in multistage centrifugal pumps
• Discuss troubleshooting of multistage centrifugal pumps