

# Level 2: Applied Mechanical Systems



The driving force behind most industrial applications is Mechanical Systems. Gears, drives, bearings, pulleys, and more are found in nearly everything that moves. The Mechanical Systems course covers the installation, use, maintenance, and troubleshooting of mechanical drive components and systems. The industry recognized certification is divided into various topics which deal with the components encountered in industry. The learning is based on practical, hands-on tasks to build know-how in operating and maintaining these vital systems

Level 2

## Industry Recognized Certification Topics

- Bearings and Seals
- Shaft Alignment and Couplings
- Ball and Screw Linear Bearings
- Clutches and Brakes

## Core Competencies

- Familiarization with mechanical drives and their roles in industrial applications.
- Properly installation different types of mechanical drives and the importance of following specific protocols.
- Identification of the main components of the mechanical drive systems in industrial installations.
- Familiarization with ball screws and linear ball bearings.
- Installation of ball screws and linear bearings and how they are used in linear guide assemblies.
- have learned what backlash is, in regard to ball screws, and how to minimize or eliminate it.
- Pitch, lead, and start of a ball screw, and know how to determine and calculate these parameters.
- Familiarization with the relationship between the pitch, lead, and start of a ball screw, as well as their effects on the ball screw speed.
- The main elements required for the lubrication and maintenance of linear bearings and ball screws.
- Familiarization with the basic principles of shaft alignment in applications requiring the coupling of two machines.
- learn how to perform shaft alignment using the straightedge and feeler gauge, rim and face, reverse dial indicator, and laser (optional) methods.
- How the coupling of two machines requires a device called a coupling.
- Different characteristics and typical applications of the following coupling types: flange, flexible sleeve, chain, gear, grid, and universal joint couplings.

## Equipment

### Mechanical Training System

- Modular system to fit different training needs and budgets
- Heavy-duty equipment with industrial components
- Fully illustrated job sheets direct students to complete tasks safely and efficiently
- Lockout/tagout on the disconnecting switch and safety panels ensure student safety
- Working space can be increased by adding a slave base unit
- Universal base unit can be mounted on a regular table as well as optional benches
- Quality industrial components are mounted on panels for storage and inventory control
- Cost-effective solution with comprehensive curriculum
- Provides hands-on, safe mechanical training



Utilizes the same bench system from Level 1.

