

**Course name:** MECHANICAL EQUIPMENT BASICS

**Short name:** MEB

**Length:** 80 hrs

**Prerequisites:** None

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### **Purpose**

This course has been designed to introduce basic mechanical training for machine operators. It is for those who are required to perform duties of a mechanical nature. It is also an excellent course for supervisors and engineers who need only basic mechanical skills or knowledge.

### **Description**

The course includes basic print reading, Metric system, hand tools, precision measuring, mechanical technologies, and European and international standards. Classroom emphasis is on the knowledge and skills necessary to reference blueprints to understand parts location and machine function. The workshop portion builds basic mechanical skills supporting the classroom subject area.

### **Topics include:**

- Assembly drawings
- Bearings/bushings
- Detail drawings
- Basic hand tools
- Visualization of detail parts
- Layout techniques
- Section views
- Precision measuring
- Dimensioning
- Drilling/tapping/reaming
- The Metric system
- Writing simple work methods
- ISO tolerances
- Assemble simple machines
- Threads and fasteners
- Workshop safety
- Transmission devices

### **Course Objectives:**

Upon successful completion of this course, the trainee will leave with an introduction in/for:

- General shop safety procedures as they apply to power and hand tools and equipment
- Mechanical drawing package including Nomenclature (Bill of Materials), detail and assembly drawings and different drawing techniques
- Mechanical transmission devices such as belts/pulleys, chains/sprockets, and gears
- Mechanical components such as bearings/bushings and different type fasteners
- Hand skills such as layout techniques, drilling, tapping, reaming of holes
- The Metric system and the ISO tolerance system

<b>Course name:</b>	MECHANICAL EQUIPMENT INTERMEDIATE
<b>Short name:</b>	MEI
<b>Length:</b>	120 hrs
<b>Prerequisite:</b>	None

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### **Purpose**

This course has been designed to introduce basic mechanical technology for machine operators. Classroom emphasis is on the knowledge and skills necessary to reference blueprints to understand parts location and machine function. The workshop portion builds basic mechanical skills supporting the classroom subject area. It is also an excellent course for supervisors and engineers who need only basic mechanical skills or knowledge.

### **Description**

The course includes basic print reading, basic adult math, Metric system, hand tools, precision measuring devices, basic pneumatic components, mechanical technologies, and European and international standards. Classroom emphasis is on the knowledge and skills necessary to use blueprints to understand parts location and machine function. The workshop portion builds basic mechanical skills supporting the classroom subject area.

### **Topics include:**

- Workshop safety
- Threads and fasteners
- Assembly drawings
- Transmission devices
- Detail drawings
- Bearings/bushings
- Visualization of detail parts
- Basic hand tools
- Section views
- Layout techniques
- Dimensioning
- Precision measuring
- Auxiliary views
- Drilling/tapping/reaming
- The Metric system
- Key fitting
- Basic adult math
- Writing simple work methods
- ISO tolerances
- Assemble simple machines
- Lubrication

### **Course Objectives:**

Upon successful completion of this course, the trainee will leave with an introduction in/for:

- General shop safety procedures as they apply to power and hand tools and equipment
- Mechanical drawing package including Nomenclature (Bill of Materials), detail and assembly drawings and different drawing techniques
- Mechanical transmission devices such as belts/pulleys, chains/sprockets, and gears
- Mechanical components such as bearings/bushings and different type fasteners
- Hand skills such as layout techniques, drilling, tapping, reaming of holes
- The Metric system and the ISO tolerance system
- Writing simple work methods
- Machine assembly
- Proper key fitting techniques and tolerances
- Basic adult math
- Lubrication

<b>Course name:</b>	ELECTRICAL EQUIPMENT BASICS
<b>Short name:</b>	EEB
<b>Length:</b>	80 hrs
<b>Prerequisites:</b>	None

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### **Purpose**

This course is designed to provide the machine operator with a basic understanding of the theory and technology of an electrical nature. The trainee will develop a working schematic and wire a functional control panel as part of the training. The course provides hands-on training knowledge of theory, technology, and troubleshooting techniques.

### **Description**

This course introduces the trainee to electrical equipment technology, schematic drawing and wiring methods. Several practical wiring exercises are constructed on simulators. The analytical techniques developed in the classroom are utilized in locating actual faults on the wiring simulators.

### **Topics include:**

- Electrical safety
- Basic DC circuits
- Basic AC circuits
- Push button and limit switch technology
- Photocell and proximity switch technology
- Relay and contactor technology
- Fuse technology and other circuit protection devices
- Single phase transformer technology
- Conductors and insulators
- Wiring methods
- Electrical symbols and drawings
- Basic motor operation
- Control circuit wiring (lab exercises)
- Troubleshooting techniques and application

### **Course Objectives:**

Upon successful completion of this course, the trainee will be competent in:

- The hazards associated with electrical circuits.
- AC and DC circuit theory and analysis.
- Proper application concerning electrical protection devices.
- Electrical symbols and schematic design.
- Wiring methods and practical application.
- Practical and efficient troubleshooting methods.