

# METAL CUTTING: MACHINING TOOL FUNDAMENTALS

*eLearning courses designed to increase productivity and profits*



## **Learning made Simple, Visual, and Interactive**

Machine Tool Fundamentals provides an introduction to the components, terminology, and capabilities of machine tools typically used in the industry. Presented in THORS' highly visual and interactive learning format, this course will help employees in machining industries become familiar with the important equipment and terminology associated with their profession.

Credit Hours **4**

## **Learning Objectives**

- Identify various common elements of machine tools, such as cutting tools, workholding, and operational movement.
- Identify primary components and characteristics of various machine tools in the industry.
- Identify the operational axes of various machine tools in the industry and what motions occur along the axes.
- Recognize parts that could be made and the processes that could be performed by the various machine tools.

## **Table of Contents**

### **I. Common Elements**

- Cutting Tools
- Workholding Devices
- Operational Axes

### **II. Drilling and Milling Machines**

- Drilling Machines
- Milling Machines

### **III. Lathes and Turning Centers**

- Manual Lathes
- Turning Centers

### **IV. Machining Centers**

- Machining Center Components
- Vertical Machining Center (VMC)
- Horizontal Machining Center (HMC)
- Five-Axis Machining Center

### **V. Grinding Machines**

- Cylindrical Grinding Machine
- Surface Grinding Machine
- Thread Grinding Machine
- Tool and Cutter Grinding Machine
- Gear Grinding Machine

