

# Forging Die Design Essentials

*eLearning courses designed to increase productivity and profits*



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

The THORS *Forging Die Design Essentials* course provides design parameters and best practices to maximize die tooling efficiency while minimizing cost factors.

With a visually interactive format, this course focuses on process improvement for real-world forging die applications and process control scenarios.

Credit Hours **2**

## **Learning Objectives**

- 💡 Identify the primary parts of a typical forging die.
- 💡 Understand the relevance of die design parameters.
- 💡 Recall forging die design best practices and die setup recommendations.
- 💡 Recognize forging process control tools that assist the forging process.
- 💡 Differentiate between forging die process control methods.
- 💡 Understand the methodology behind forging die inspection and testing.

## **Table of Contents**

### **I. Forging Die Tooling Design**

- **Design Parameters**
  - ▣ Material Selection
  - ▣ Heat Treatment
  - ▣ Cross Section Design
- **Design Best Practices**
  - ▣ Shrink Fit Die
  - ▣ Impression Ring Die
  - ▣ Hammer Die Insert
  - ▣ Cassette Die
- **Die Setup Procedures**
  - ▣ Ram and Sow Block Setup
  - ▣ Finish Die Setup
  - ▣ Trim and Piercing Die Setup

### **II. Forging Process Control**

- **Process Control Tools**
  - ▣ Air Knives
  - ▣ Knockout Pins
  - ▣ Billet Spotters
  - ▣ Handheld Tongs
  - ▣ Fulcrum Rest Bars
- **Process Control Methods**
  - ▣ Locating Die Wear
  - ▣ Measuring Heat Loss
- **Lubrication Considerations**
- **Inspection and Testing**
  - ▣ Liquid Penetrant Testing
  - ▣ Hot Forging Inspection

