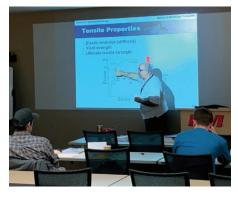
# **Fundamentals of Welding Engineering**



Three-day Course | Buffalo, New York

EWI offers "Fundamentals of Welding Engineering," a three-day course that provide engineers and technicians an overview of various aspects of welding engineering technology. This course is a combination of hands-on labs and in person classes. Participants will learn about different aspects of welding, including: welding processes, welding metallurgy and weldability, welding design and testing including NDE, and welding codes and qualifications. Participants will be awarded professional development hours and a certificate upon completion. To learn more about the Fundamentals of Welding Engineering course, contact Susan Witt at switt@ewi.org or 716.710.5538.



## Course Outline

#### DAY 1-

#### WELDING METALLURGY

- Basics of Metallurgy Principles
- Basics of Welding Metallurgy
- Material Types

#### DEFECTS AND WELDABILITY

- Introduction to Weldability
- Weld Defect Types

#### ARC WELDING PROCESSES

- Introduction to Arc Welding
- Gas Tungsten Arc Welding
- Shielded Metal Arc Welding
- Gas Metal and Flux Cored Arc Welding
- Other Arc Welding Processes

#### **ROBOTICS 101**

- Introduction to Robotics
- Collaborative vs. Non-collaborative
- Welding Robotics Applications

#### DAY 2 -

#### WELDING CODES AND QUALIFICATION

- Welding Codes Overview
- Qualification Requirements

#### WELDING DESIGN AND TESTING

- Joint Design
- Welding Symbols
- Residual Stress and Distortion
- Mechanical Testing

#### NON-ARC WELDING PROCESSES

- Resistance Welding
- Solid-state Welding

#### HANDS-ON LABS

- Hands-on Welding Lab
- Hands-on Additive Manufacturing Lab

#### DAY 3 -

### HIGH ENERGY DENSITY WELDING PROCESSES

- Laser Welding
- Electron Beam Welding

#### NONDESTRUCTIVE EVALUATION

- Introduction to Nondestructive Evaluation
- Types of Nondestructive Tests

#### HANDS-ON LABS

- Hands-on Welding Lab
- Hands-on Additive Manufacturing Lab



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