

MFG 103 : WELDING TECHNOLOGY I

Transcript title

Welding Technology I

Credits

4

Grading mode

Standard letter grades

Total contact hours

80

Other hours

80

Recommended preparation

MFG 100.

Course Description

First course in a three-course sequence focused on introductory level skills used in structural plate welding in accordance to AWS D1.1 Structural Steel Welding code. Introduces basic welding processes, safety, nomenclature, and equipment operation for introduction to perform 1F and 2F weldments using shielded metal arc welding (SMAW) welding and gas metal arc welding (GMAW) on mild steel.

Course learning outcomes

1. Demonstrate safe practices while using SMAW, and GMAW process in the MATC Welding Lab.
2. Demonstrate appropriate set up, maintenance, and use of SMAW equipment for basic weldments.
3. Demonstrate appropriate set up, maintenance, and use of GMAW equipment for basic weldments.
4. Weld common joint assemblies with SMAW and GMAW processes to AWS D1-1 Structural Steel Welding Code.
5. Apply visual and destructive examination principles and practices in accordance with AWS D1-1.

Content outline

- Function safely in the MATC Welding Lab
- Understand and practice personal safety by using proper protective gear
- Understand and practice power tool safety
- Understand and maintain a safe work area
- Understand and apply fundamentals of SMAW Operations
- Describe and demonstrate equipment setup, shut down, and operation Identify electrode characteristics
- Demonstrate proper arc length and travel speed
- Demonstrate correct starting, stopping and restarting techniques
- Demonstrate proper bead placement
- Understand and apply fundamentals of GMAW operations

- Describe and demonstrate equipment setup, shut down, and operation Identify electrode types
- Demonstrate proper stick out and travel speed
- Demonstrate correct starting, stopping and restarting techniques
- Demonstrate proper bead placement SMAW: In 1F and 2F (flat and horizontal) T Joint Lap Joint Surfacing Edge Weld GMAW: In 1F and 2F (flat and horizontal) T Joint Lap Joint Surfacing Edge Weld
- Apply visual and destructive examination principles and practices in accordance with AWS D1.1
- Evaluate welds using appropriate welding inspection tools
- Assess weld discontinuities causes and corrections

Required materials

This class requires the purchase of safety equipment, reference books, measurement equipment, and tools.