

# MFG 103 : WELDING TECHNOLOGY I

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## Transcript title

Welding Technology I

## Credits

4

## Grading mode

Standard letter grades

## Total contact hours

80

## Lecture hours

20

## Lab hours

60

## Prerequisites with concurrency

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 the MATC Welding Lab.
2. Demonstrate introductory level set up, maintenance, and use of Shielded Metal Arc Welding (SMAW) equipment for basic weldments.
3. Demonstrate introductory level set up, maintenance, and use of Gas Metal Arc Welding (GMAW) equipment for basic weldments.
4. Weld common basic joint assemblies with SMAW and GMAW processes to welding industry standards.
5. Apply basic visual examination principles and practices in accordance with welding industry standards.

## Content outline

1. Welding Safety
2. Personal safety by using proper protective gear
3. Power tool safety
4. Maintain a safe work area
5. Fundamentals of shielded metal arc welding (SMAW) operations
6. Welding equipment setup, shut down
7. Electrode characteristics
8. Welding arc length and travel speed
9. Welding starting, stopping and restarting techniques
10. Welding bead placement
11. Fundamentals of gas metal arc welding (GMAW) operations

12. Weld examination principles and practices in accordance with American Welding Society (AWS) standards

## Required materials

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