# METAL PREPARATION & HEAT TREATMENTS
## Course Syllabus

### Course Number:
WELD-0756

### OCAS Code:
None

### Course Length:
30 Hours

### Career Cluster:
Manufacturing

### Career Pathway:
Welding and Metal Fabrication

### Career Major(s):
Combination Welder, Welding Fabricator

### Pre-requisite(s):
This course provides information on how to clean and prepare all types of base metals for cutting and welding. The course explains preheating, interpass temperature control, and postheating procedures that sometimes need to be done to preserve weldment ductility, and weld quality. It introduces students to the equipment used for heat treatment of metals.

### Textbooks:
- Math for Welders, Marion and Nino, GoodHeart-Willcox (2001)

### Textbooks:

### Course Objectives:

**A. Demonstrate an Understanding of Base Metal Preparation**

1. Clean base metal for welding or cutting.  
2. Identify and explain joint design.  
3. Explain joint design considerations.  
4. Using a nibbler, cutter, or grinder, mechanically prepare the edge of a mild steel plate 1/4" to 3/4" thick at 221/2° (or 30° depending on equipment available).  
5. Using a nibbler, cutter, or grinder, mechanically prepare the end of a pipe with a 30° or 371/2° bevel (depending on equipment available) and a 3/32" land. Use 6", 8", or 10" Schedule 40 or Schedule 80 mild steel pipe.  
6. Select the proper joint design based on a welding procedure specification (WPS) or instructor direction.  

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1. Welding Skills, National Center for Construction Education and Research (NCCER)

### Teaching Methods:
The class will primarily be taught by the lecture and demonstration method and supported by various media materials to address various learning styles. There will be question and answer sessions over material covered in lecture and media presentations. Supervised lab time is provided for students to complete required projects.
Grading Procedures:
1. Students are graded on theory and shop practice and performance.
2. Each course must be passed with seventy (70%) percent or better.
3. Grading scale: A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=50-59%.

Description of Classroom, Laboratories, and Equipment:
Tulsa Technology Center campuses are owned and operated by Tulsa Technology Center School District No. 18. All programs provide students the opportunity to work with professionally certified instructors in modern, well-equipped facilities.

Available Certifications/College Credit
The student may be eligible to take state, national or industry exam after completion of the program. College credit may be issued from Oklahoma State University-Okmulgee or Tulsa Community College. See program counselor for additional information.

College Credit Eligibility:
The student must maintain a grade point average of 2.0 or better.