



Welding I and Welding II

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Conference Period: 11:00 AM to 11:50 AM

Tutoring Opportunities: 8:30 AM to 9:00 AM

Class Materials:

NCCER Welding - Texas Manufacturing Welding (Online)

- Welding Helmet (Hood) with Grind Mode
- 2 Pairs of Long-sleeved denim, 100% cotton, or flame-retardant shirt
- 2 Pairs of Denim or flame-retardant pants
- Leather Work Boots
- 2 Pairs of clear safety glasses
- American Welding Society Certification Fee (TBD)
- Certification materials and Test Preparation Fee (\$75.00)

Access to Canvas and Office365 tools is available to students through our [Single Sign-on Portal \(SSO\)](#). Students receive their SSO login during enrollment.

Course Description:

Welding is a course designed to familiarize students with the knowledge, skills, and career opportunities in the welding trade. Emphasis is placed on technical and practical applications of shielded metal arc welding, flux core arc welding, gas metal arc welding, gas tungsten arc welding and oxyfuel-acetylene cutting processes as well as safety, weld testing, and the effects of welding heat on metals. Students will also gain the skills to read and interpret shop and structural drawings and prints with emphasis placed on structural shape identification, nomenclature and weld symbols. [EMS ISD Counseling Website](#).

Course Goals:

Students who complete this course successfully will be able to:

- Welding Fundamentals - Students will identify and use welding symbols and read detailed drawings; sketches will include basic welding symbols for fillet, groove, spot, plug, flanged, and other basic welds. Students will demonstrate the use of elements within a detailed drawing and interpret welding symbols from a detailed drawing. Additionally, students will be able to identify and use the basic weld types, weld joints, and weld positions.
- Oxy-Fuel Cutting - Students will be able to identify and explain, oxy-fuel cutting. Students will demonstrate the safe setting up and disassembly process of oxy-fuel equipment. Students will

demonstrate lighting, adjusting, and making cuts with oxy-fuel. Students will be able to identify and understand some common hazards in oxy-fuel cutting.

Plasma Arc Cutting - Students will learn knowledge regarding plasma arc cutting. Students will be able to identify and demonstrate setting up plasma arc cutting equipment. Students will identify, explain, and demonstrate the proper processes, safety procedures, and fume extraction for plasma arc cutting.

- Students will demonstrate the skills required to perform various cuts with plasma arc on various materials, including steel, aluminum, and stainless steel.
- Shielded Metal Arc Welding (SMAW) - Students will understand that Shielded Metal Arc Welding process (SMAW), commonly referred to as stick welding, derives the heat for welding from an electric arc established between a consumable stick electrode and the part to be welded. During this unit students will demonstrate knowledge of Shielded Metal Arc Welding (SMAW) including setting up of equipment. Students will identify and vertical, and overhead positions to AWS code through National Skills Education standards. explain the American Welding Society (AWS) classification of wire. Students will identify, explain, and demonstrate the proper AWS codes for fillet weld quality performing fillet welds in the flat, horizontal, vertical, and overhead positions to AWS code through National Skills Education standards.
- Gas Metal Arc Welding (GMAW) - Students will learn and understand that Gas Metal Arc Welding (GMAW) is a process in which an electric arc forms between a consumable wire electrode and the workpiece metal(s), which heats the workpiece metal(s), causing them to melt and join; GMAW eliminates any need for a welding rod. Students will use appropriate equipment for safe operating practices for base metal in gas metal arc welding. Students will identify, explain, and demonstrate the proper AWS codes for fillet weld quality performing fillet welds in the flat, horizontal, vertical, and overhead positions to AWS code.
- Fluxed Core Arc Welding (FCAW) - The unit on Fluxed Core Arc Welding (FCAW) includes the identification of the welding machine and parts along with the safe and proper use of the machines in the lab environment. This unit will incorporate the use of the machine to weld test coupons and construct welded projects. Students will understand that FCAW requires a continuously-fed consumable tubular electrode containing a flux and a constant-voltage or, less commonly, a constant-current welding power supply. Students will identify, explain, and demonstrate the proper AWS codes for fillet weld quality performing fillet welds in the flat, horizontal, vertical, and overhead positions to AWS code.
- Gas Tungsten Arc Welding (GTAW) - Gas Tungsten Arc Welding (GTAW) is frequently referred to as TIG welding. TIG welding is a commonly used high quality welding process. TIG welding has become a popular choice of welding processes when high quality, precision welding is required. In TIG welding an arc is formed between a non-consumable tungsten electrode and the metal being welded. Gas is fed through the torch to shield the electrode and molten weld pool. If filler wire is used, it is added to the weld pool separately

Student Evaluation:

The grading system for this course is as follows:

- Grade averaged 60% Major 40% Minor (**Advanced courses 70% Major 30% Minor**)
- Major grades – tests (including District Common Assessments, projects, final essays, research papers, presentations); minimum three per six weeks
- Minor grades – quizzes, daily assignments, journals; minimum four per six weeks
- Each six weeks will count as 1/3 and the semester exam will count as 1/7 of the semester grade.
- A letter system (S, N, U) is used to report a student's conduct based on proper/responsive conduct and citizenship

- Per Board Policy EIA (LOCAL), “The District shall permit a student who meets the criteria detailed in the grading guidelines a reasonable opportunity to redo an assignment or retake a test for which the student received a **failing** grade. This policy applies only to initial identified major grades and does not apply to daily assignments and quizzes. Upon reteach and retest, the new test, project, etc. recorded will be a high score of 70%.
- Official grades will be in Skyward only and can be accessed by student and parent through Family Access.

Assignments, exams, expectations outside of the classroom:

1. All assignments are due on or before the due date assigned by the teacher.
2. Students that were absent will have the opportunity to makeup work. The student shall have a time equal to days absent from class plus one day to complete all missed assignments.
3. Students are responsible for discussing with the teacher about when makeup work is due.
4. All makeup tests must be completed during the school day.
5. Work, including tests, assigned prior to an absence may be due on the first return day.

Attendance/Tardy Policy/Make-Up Work:

All students are expected to be on time and attend class. EMS ISD tardy policy will be followed. If a student is absent from class, the note will need to be given to the student’s home campus attendance clerk.

If a student needs to leave early for an appointment, the student’s guardian must call the HCTC front desk at 817-306-1925 for dismissal and the student must sign out at the front office.

The HCTC allows students 3 minutes after class to walk to their vehicle or bus and then 20 minutes for transportation to and from their home campus. If a student is tardy, it is the student’s responsibility to notify the teacher for attendance purposes. Excuses such as car trouble, traffic problems or inclement weather are considered to be unexcused for students driving personal vehicles.

Make-Up Work – district policy for make-up work applies. See student handbook.

Classroom Expectations:

Work hard. Function as a professional. Be a team player.

Preliminary Schedule of Topics, Readings, and Assignments

- Welding Safety
- Oxyfuel Cutting
- Plasma Arc Cutting
- SMAW – Equipment and Setup
- GMAW – Equipment and Setup
- FCAW – Equipment and Setup
- GTAW – Equipment and Setup

Academic Integrity: Update from GRH

Academic integrity values the work of individuals regardless if it is another student’s work, a researcher, or author. The pursuit of learning requires each student to be responsible for his or her academic work. Academic dishonesty is not tolerated in our schools. Academic dishonesty, includes cheating, copying the work of another student, plagiarism, and unauthorized communication between students during an examination. The determination that a student has engaged in academic dishonesty shall be based on the judgment of the classroom teacher or other supervising professional employee and considers written materials, observation, or information from students. Students found to have engaged in academic dishonesty shall be subject to disciplinary and/or academic penalties. The teacher and campus administrator shall jointly determine such action.