



Welding Course Information

Course Name: **Welding**
Two year, Six credits
Year: **2023-2024**
Class Day(s): **Monday - Friday**
Class Time: **Daily Schedule:**

AM Class
First Bell 7:35 am
Second Bell 7:40 am

Dismissal Bell
Buses 10:20 am
Drivers 10:25 am

PM Class
First Bell 11:05 am
Second Bell 11:30 am

Dismissal Bell
Buses 1:45 pm
Drivers 1:55 pm

Building/Room: **Welding Lab**

Instructor Information

Name: **Mark Besselman**
Office Phone: **636-443-4979**
E-mail: **mbesselman@stcharlessd.org**
Office location: **welding Shop**
Office hours: **7:00 to 7:25 am and 1:55 to 2:40 pm M-F**

Course Description

Combination Welding is open to students interested in welding and metal working as an occupation. Students are instructed in shop safety and proper procedure for each welding process. Oxy fuel cutting, arc, mig and tig welding, plasma cutting, and air arc cutting processes are taught in all four

weld positions and on the five basic weld joints. Metallurgy, blueprint reading, reading a tape measure, metal fabrication techniques and weld symbols are included in the program.

The lab is set up to simulate the welding industry. Students are evaluated by written tests and by testing their welds as specified by the American Welding Society code D 1.1.

Students interested in a career in welding should have good eye/hand coordination, mechanical aptitude, manual dexterity, freedom from asthma and allergies, and no physical disabilities which prevent bending, stooping, lifting, or working in awkward positions.

Course Level Student Outcomes

Students successfully completing the 2 year program will be exposed to:

● Welding I

- Welding safety
- Reading a tape measure
- Shielded metal arc welding
- Gas metal arc welding
- Electric components of a welder
- Oxygen fuel cutting / Brazing
- Plasma cutting
- Welding theory
- Weldability of metal
- Identification of metals
- Welding positions and terminology
- Fabricate parts using simple drawings
- Prepare material for weld procedure
- Metallurgy and heat treating
- Skills USA

● Welding II

- Safety in welding
- Tape measure reading
- FCAW
- Advanced Smaw
- Advanced Gmaw
- American Welding Society D1.1 Qualification
- Read and interpret Blueprints / Welding symbols
- Identification of metals
- Weldability of metals
- Visual inspection of welds
- Destructive and non Destructive testing
- Carbon arc gouging

- SkillsUSA

Course Materials, Study Guides

All course textbooks are available through Cengage Mindtap @ <https://nglsync.cengage.com/>. Study Guides provided and can be used on the test.

Welding 1

Section 1 CH. 1 introduction to welding
 Section 1 CH. 2 safety in welding
 Section 2 CH. 3 SMAW equipment setup and operation
 Section 5 CH. 31 Oxyfuel Welding, Cutting Equipment and Operation
 Section 4 CH. 10 GMAW equipment setup and operation
 section 4 CH. 11 Gas Metal Arc Welding
 Section 3 CH. 7 Flame Cutting
 Section 5 CH. 21 Reading Technical Drawings
 Section 5 CH. 22 Welding Joint Design and Symbols
 Section 5 CH. 23 Fabricating Techniques and Practices
 Section 5 CH. 24 Welding codes and Standards

Welding 2

Section 1 CH. 1 introduction to welding
 Section 1 CH. 2 safety in welding
 Section 4 CH. 16 GTAW Equipment, setup and Operation
 Section 4 CH. 17 GTAW Welding of Plate
 Section 5 CH. 20 Shop Math and Weld Cost
 Section 4 CH. 12 FCAW Equipment, Setup and Operation
 Section 4 CH. 13 FCAW Welding of Plate
 Section 5 CH. 21 Reading Technical Drawings
 Section 5 CH. 22 Welding Joint Design and Welding Symbols
 Section 5 CH. 25 Testing and Inspection
 Section 5 CH. 24 Welding Codes Standards

Academic Testing

Open note tests will be taken in class using Google Forms. If students do not score higher than an 80%, they will be required to use a class period for studying and retake the Exam. The original grade will be entered in the grade book.

Shop Grades, Benchmark Welds and Competencies

Ongoing formative assessment will be given for all shop grades throughout the 2 year program using a standard rubric . 18 Benchmark welds including SMAW 7018, 6010 and GMAW ER 70 S-6 in 4 weld positions with 2 joints. First year students will work through the Benchmark welds at their own pace. **If first year students do not pass 7 Benchmark welds they will not be placed into the second year of the welding program.** Once the Benchmark welds are completed Students are able to start working on the 150 plus Competencies offered in the welding program. Students must complete 120 Competencies to earn a Certificate.

Employability Standards

See the Lewis and Clark Career Center Student Handbook.

Classroom/Shop Policies

Covered Orientation Presentation.

Students are to wear proper PPE every day.

Program

The welding program at Lewis and Clark Career Center is meant to give students the basic skills and exposure to many different welding / cutting processes needed to create a long lasting career.

Students interested in a career in welding should have good eye/hand coordination, mechanical aptitude, manual dexterity, freedom from asthma and allergies, and no physical disabilities which prevent bending, stooping, lifting, or working in awkward positions.

Grading, Certificate Requirements

(Students must maintain a 75% or better to be placed into the second year)

A	90-100%	Excellent
B	80-90%	Average
C	75-80%	Below Average
D	60-75%	Unsatisfactory; does not satisfy course requirement
F	Below 60	Failing

Final Grade Weights:

Employability	30%
Academics	20%
Shop Grades	50%

Required Supplies

Please do not purchase supplies without talking with Mr. Besselman first. Supplies for the Welding program can be very expensive in excess of 350 dollars. Some items may need to be replaced at times for safety reasons. Please let the welding instructor or your counselor know if financial assistance may be appropriate.

Steel toed boots, safety glasses, 2 pair welding gloves, welding pliers, welding jacket, welding hood, spark lighter, chipping hammer, wire brush, *tape measure, 12” combination square, 10” vise grip pliers, work gloves, clear replacement lens, notebook, pens, pencils, ear plugs/hearing protection, approximately \$45 for a Welding Blueprint workbook, \$25 for SkillsUSA membership.