

Ornamental Welding

Syllabus

Wenatchee Valley College
Continuing Education

Instructor: Ali Hashemi

Instructor email: bhashemi@wvc.edu

Instructor phone: 509-630-7245 (text only, please)

Class schedule: 4 Saturdays. Refer to the Continuing Education schedule or web site (www.wvc.edu/ced) for specific dates/times each quarter. You can also call (509.682.6900) or email (ceinfo@wvc.edu) for schedule information.

Location: WVC Industrial Technology Building, Room 7500

Parking: Parking on campus is free on the weekends. Street parking is available on Ninth Street.

Supply List

1. Safety glasses. Clear, non-tinted
2. Earmuffs to use when grinding. These are optional - WVC supplies standard ear plugs.
3. Comfortable leather gloves that cover your hand up just past your wrist. Heavy duty gloves are optional.
4. Welder's cap or scarf – to protect hair and head from heat and sparks.
5. Particle mask to use in the grinding room.
6. Wire cutters to use when wire feed welding.
7. Welding pliers
8. Vise grips to pick up hot metal.
9. Ten feet of steel – 1/8th inch thick by 2 inches wide. Ask to have it cut into two, five-foot lengths for easier transport.
10. Tape measure, black fine-point permanent markers (like Sharpies), lead pencils, and a tablet of graph paper that is 4 squares per inch.
11. Leather shoes
12. Jean type long sleeve shirts and full-length pants
13. A lock with TWO keys (*see note below under General Class Information)
14. For students interested in learning more, the Hobart Institute of Welding Technology's Gas Metal Arc Welding Basic book is a useful resource.

There are several local retail stores that sell welding equipment.



Session 1

- Review welding lab rules and WVC Safety Manual
- Shop orientation and housekeeping
- Review and inspection of tools and equipment
- Introduction to Scotchman Metal Worker – view video and written safety information.
- Introduction to wire feed welding machines and auto-darkening helmets.
- Students may then cut their metal into six-inch-long coupons to weld on.
- The instructor's goal is to have everyone plasma cut weld until the end of the session.

Session 2

- Project planning, including three-dimensional drawing/sketching, converting a drawing to "scale," and determining a materials list.
- Introduction to common hand tools used in metal fabrication – tape measure, metal squares, turnbuckles and clamps, etc.
- Everyone welds for the first half of the session. Each person will be assigned an area/bay with a welding machine in it.
- Second half of session: students will be shown the correct and safe way to operate the small handheld disc grinders and the plasma cutters. Each student must demonstrate that he/she can operate these grinders in a safe and correct manner.

Sessions 3 & 4

- Instructor will review and approve student project ideas. Projects must be within the student's skill level, and simple enough to complete within the class time frame. The project must be small enough to complete within the welding lab. Please note: the instructor cannot do your project for you. The instructor must always be available to all students.
- Students should spend this complete session learning how to weld and plasma cut.
- Students will plasma cut a name plaque to take home.
- Students will begin work on their project.
- Instructor will provide group instruction/demonstration as needed and will provide oversight and direction to students as they work on their projects.

General Class Information

- The college has auto-darkening helmets available for students to use in the lab, during class.
 - Bring your personal lock with TWO keys. A helmet locker will be assigned to each student. Students will keep one key, and give one key to the instructor
 - Students will sign a form for their assigned locker.
 - At the end of the class, students will remove their lock. The instructor will sign-off that the helmet is in the locker. The instructor will return the second key.
- Ornamental welding students may use:
 - Wire Feed welding machines.
 - Plasma cutters
 - Handheld disc grinders
 - Handheld ornamental iron benders
 - Scotchman Metal worker - shear function **only**. Use of other functions requires training

- Oxy/Acetylene cutting torch – requires instructor’s training and approval

There are other equipment items in the lab which are not on the “approved use list” for Ornamental Welding students. **Do not attempt to use them.** Items like the Ellis Band saws and the hydraulic pipe bender have the ability to cause **serious or fatal injuries.** If you need items cut in the saw, the instructor may offer to do it for you.

- Please be aware that there are usually return students in the class. They are allowed to start working the first session while the instructor is teaching new students. Returning students may be doing advanced projects that are beyond beginner skill level.
- Please observe the time and cease work fifteen minutes before the end of class in order to assist in sweeping and cleaning the lab.
- Every quarter there are at least 40 to 80 students using the weld lab. So....
 - Do not leave your personal items and metal in the lab.
 - Do not use items or metal that might be laying in the lab.
 - Do not use steel that might be in various places around the lab.
 - Steel that you may use is piled on the metal roller cart – usually located in the main weld lab room near the Scotsman Metal Worker.
- Remember that welding and cutting creates high temperatures in the base metals being used.
 - **Always wear gloves – assume the metal you are about to pick up is hot!**
 - Always cool smaller metal pieces in the water barrel. Do not leave hot metal anywhere.
- **WVC does not allow students to attend classes they are not registered in.**

Welding Lab Safety Issues

In a typical welding-steel fabrication shop there are various things that could cause serious harm or fatal injury:

1. **Cylinders.** Risk of rupture; explosion. Some contain inert gas, some contain highly explosive oxygen or gas.
2. **Welding machines.** Electric shock, arc radiation, heat
3. **Band saws.** Can cut fingers/body parts and can pull body parts into rotating mechanisms. Serious or fatal injuries.
4. **Supply pipes for oxygen.** Acetylene from source outside the building to work area inside. Do not apply heat to these.
5. **Drill presses.** Can cut fingers/body parts and can pull body parts into rotating mechanisms. Serious or fatal injuries.
6. **Clutter** blocking walkways, work areas, or exits.
7. **Slip or slide risks.** Grinding dust, metal pieces, electrodes, liquids on floor.
8. **Trip hazards.** Cords, hoses, etc.
9. **Crushing.** Body parts (or entire body) caught between moving items (between a forklift and a wall, for example)
10. **Amputations.** Loss of fingers, hands, by metal worker shears, punches, nibblers.
11. **Flying objects.** Disintegration of punch dies, damaged grinder-shop saw discs, and other airborne objects.

These are areas that everyone should be aware of. Follow all proper safety procedures and practice good housekeeping habits. WVC safety training covers these items. All equipment should be used following the manufacturer's suggested operating procedures.

STUDENT COPY

Welding Lab Rules

1. Operation of each tool and piece of equipment requires training and approval.
2. Lab equipment **cannot** be operated without the instructor present.
3. Do not remove or alter equipment safety guards or attachments.
4. Report safety hazards to the instructor immediately.
5. Report faulty equipment to the instructor immediately. Do not use!
6. Auto-darkening helmets. The shade should be set on 9 or 10, no darker. A slider switch can be toggled between “weld” and “grind.” Make sure the setting matches your activity. Do not weld with the helmet on the “grind” setting. If helmet does not darken it may need new batteries or it could be defective. **Notify the teacher immediately if the helmet does not darken.**
7. Follow all health rules. No spitting in lab or outside near the lab entrance.
8. Observe WVC smoking guidelines.
9. Acquaint yourself with exits. In case of fire or other emergency, exit the building and meet in the upper parking lot west of the lab entrance.
10. No pranks or horseplay.
11. Acquaint yourself with fire extinguishers.
12. Practice good housekeeping. Clean your area before moving to another. Grind tracks and spatter from tabletop. Cool metal and return to scrap bin or locker when done welding.
13. Practice safety. Do not leave sharp tack remnants on material or tabletop. Do not leave hot or sharp metal anywhere. Keep floor clear of cords, electrodes, metal, liquids, etc. Do not create safety hazards. Keep arc welder machine covers closed. Do not open!
14. Safety glasses, ear plugs, and proper dress are required during lab welding time.
15. Respect others. Act and speak in a professional manner. No profanity.
16. Do not attempt to repair or alter any weld lab machines or equipment. Only designated persons maintain and work on the machines. If a machine or tool stops functioning, immediately report it to the instructor. **Violation of this rule can result in a student being dropped from the class.**

INSTRUCTOR COPY

Welding Lab Rules

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Student Signature: _____

Student Name: _____