Mission Valley ROP
Welding & Metal Fabrication Syllabus
2024-2025

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Mission Valley ROP Center

Monday-Friday: Bldg K1
Block 1: 8:30am - 10:30am
Block 2: 10:45am-12:45pm
Block 3: 1:45pm – 3:45pm

Overview of the Course :
This course prepares students in core skills needed for the Welding and Metal Fabrication industry. This course is an introduction to welding and an exposure to metalworking basics. Students will learn proper safety practices associated with welding, perform basic welds using different types of welding equipment, and identify properties of ferrous and nonferrous metals. Students will learn the use of basic hand tools and cutting & preparation techniques as they relate to welding and fabrication. Students will take part in group and individual projects throughout the semester.

Course Objectives:

Students will learn and practice general shop, tool, and equipment safety. Students will demonstrate proper usage of basic hand tools, as well as specialty tools. Students will learn how to set up and use Oxy Fuel Torch Cutting equipment and make various cuts in various positions on Carbon steel. Students will learn how to set up and use Stick, Mig and Tig welding equipment and make welds on various joints in various positions. Students will also be taught how to operate basic metal working tools and equipment such as grinders, band saws, shear and press break. Throughout the course students will learn about and practice professionalism and develop career building skills.

Supplies Provided:
- American Welding Society's *Fundamentals of Welding* Curriculum
- OSHA10 curriculum and certification
- Lab materials for hands-on training
- Necessary tools and equipment
- Welding Personal Protective Equipment (PPE)

Supplies Needed (Every Day) :
- Pencil or pen (black/blue only) and Notebook
- Safety glasses and PPE are mandatory at all times in the laboratory

Safety
Safety is our #1 priority. The Welding Shop has many hazardous situations. Students are allowed to use equipment only after receiving instructions from the instructor and demonstrating a clear understanding. **Students will participate in the OSHA 10 safety training** earning many certificates as well as having a review of safety protocols each time they use a piece of equipment. Any infraction of established safety rules will result in dismissal from class for a period of time and a negative affect to their grade.

Long hair must be tied back and all jewelry removed before entering the shop. No headphones, cell phones or other electronic devices are allowed in the shop or the classroom without the instructor's permission. Protective clothing (coveralls, shop coats, hoods, gloves and other appropriate clothing), must be kept clean and in good repair. No open toe shoes or sandals, crocks, HeyDudes, yoga pants, dresses, shorts or tank tops allowed in the lab. Blue Jeans with no holes are mandatory for welding. Proper clothing that respects the hazards of a welding/fabrication shop must be properly worn at all times. Small storage lockers are provided.

Safety glasses are to be worn at ALL times while working in the shop and yard. <u>This is NOT optional.</u> Standard safety glasses and over-prescription glasses will be provided. You are allowed to provide your own glasses only if they are ANSI Z87/Z87+ rated.

Cleanup HOUSEKEEPING:
At the end of class, each and every student is responsible for cleanup.

- All work is to stop when told to (last 20 min of the class.)
- The tools are to be cleaned and correctly put away in their respective places.
- The area where the student was working is to be completely cleaned. (see Shop Cleanup procedures)
- Students are NOT to punch out before 3 minutes to end of class and students are not to crowd around and line up at the door after punching out. No one leaves until instructor indicates class is over.

Students will not be dismissed unless the shop is secure and all tools are returned.

Attendance, Participation and Citizenship

This is an interactive class and the course work deals with issues that significantly affect a student's success on the job. Much of the work will be done in class. Because of this, the work is difficult to make up. Make up assignments will be given for excused absences only from a medical doctor. No other type of excuse is accepted including letters/emails/phone calls from parents/guardians. Failure to complete make-up assignments adversely affect your grade one letter and deny any certificate of completion.
Five tardies per semester equals one unexcused absence.
Five unexcused absences per semester lowers grade one letter.

Students with any unexcused absences regardless of letter grade, or projects completed will not receive a certificate of completion/competency.

Classroom Rules

Students are to:

- Arrive to class **on time**, be prepared, and stay on task at all times.
- Deposit their cell phones in the cell phone holder during the class period.
- Act professionally at all times
- Show respect for instructor and staff, for fellow students, and for our facility and tools- **ABSOLUTELY NO HORSEPLAY OR BULLYING WILL BE TOLERATED**.
- Abide by MVROP student policies and shop rules including cleanup policies
- Sign and adhere to Student contract along with parents
- Ensure that the entire weld lab is immaculately kept

Students are NOT to:

- Perform any welding task without using the appropriate safety PPE.
- Perform any welding task or project without the instructor's knowledge or permission
- Use ANY electronic devices unless directed by the instructor.
- Enter the instructor's office without permission, or touch the instructor's computer at any time.
- Deface any part of the facility, or tamper with any locker
- Use tools from the instructor's toolbox without permission.
- Leave class without being dismissed by the instructor.
- Leave an unkept mess, tools and scrap weldments out of place

Grading Policy

Grading is based on your completion of all assignments, attendance, participation and professionalism, and quizzes and tests. Letter grades will be based on total points available. Grades are weighted as follows:

- 20% Skill Demonstration via Projects with assigned due dates
    - Students must master specific Welding Skills per AWS codes and metal fabrication skills and competencies in a timely manner. Late work results in half grade for the late assignment.
- 10% Academic-Assignments/Chapter Work, Exams and Quizzes
    - American Welding Society work, OSHA10 written projects, tests, quizzes,
- 70% Employability–attendance, tardies, participation, work ethic
    - Each student may earn 10 points daily for participation and on time attendance. If a student is Tardy, the most they could earn for that day is 4 points.
    - If a student is absent and has a doctor excuse, a call to the MVROP front desk (510-657-1865) is expected.

- An excess of 3 absences in a week (or consecutive days) without a doctor's note will result in no points for that week and a call to parents.
- Unexcused absences will result in 0 points for the day.
- Use of cell phone, or not wearing safety glasses result in NO POINTS.

A 90 - 100 %
B 80 - <90%
C 70 - <80%
D 60 - <70%
F <60%

Students who complete Welding and Materials Joining with a grade of 'B-' or better and have less than 5 unexcused absences are eligible for a certificate of completion. Course Competencies must be earned

Mission Valley ROP
Leader In Career Technical Education

Student Learning Outcomes for Mission Valley ROP Welding Program

Student Learning Outcomes (SLOs) are essential tools for several reasons:

1. **Clarity and Focus:**
   - SLOs provide clear and specific goals for what students should know and be able to do by the end of a course or unit. This clarity helps teachers focus their instruction on key learning objectives.
2. **Guidance for Instruction:**
   - SLOs help teachers design their lessons, activities, and assessments to align with desired learning outcomes. This ensures that instruction is purposeful and directed toward achieving specific educational goals.
3. **Assessment and Evaluation:**
   - With clearly defined SLOs, teachers can develop assessments that accurately measure whether students have achieved the intended learning outcomes. This allows for more targeted and meaningful evaluations of student progress.
4. **Consistency and Accountability:**
   - SLOs establish consistent expectations for learning across different classrooms and teachers. This consistency ensures that all students are held to the same standards, regardless of their instructor or school.
5. **Feedback and Improvement:**
   - SLOs provide a basis for giving students specific feedback on their progress. Teachers can identify areas where students excel or struggle, allowing for targeted interventions and support.
6. **Curriculum Planning and Alignment:**
   - SLOs assist in curriculum planning by ensuring that instructional content and activities are aligned with the desired outcomes. This alignment helps to create a coherent and cohesive learning experience for students.
7. **Professional Development:**
   - SLOs are used as a framework for student development. By reflecting on which outcomes students are or are not achieving, teachers can identify areas where students may need further training or support.
8. **Communication with Stakeholders:**
   - SLOs help communicate expectations and achievements to students, parents, administrators, and other stakeholders. They provide a transparent framework for discussing student progress and curriculum goals.
9. **Encouraging Student Responsibility:**
   - When students understand the learning outcomes, they are more likely to take responsibility for their learning. SLOs help students set personal goals and understand the purpose behind their studies.
10. **Continuous Improvement:**

- By analyzing the achievement of SLOs over time, teachers and schools can identify trends and areas for improvement in the curriculum and instruction. This data-driven approach supports ongoing educational improvement.

Overall, SLOs as well as Course Outlines and Syllabi are all foundational to effective teaching and learning. They help ensure that education is intentional, measurable, and aligned with desired educational standards and outcomes.

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Below are the Student Learning Outcomes for the Mission Valley ROP Welding Program

1. **Safety and Equipment Use**
   - Students will demonstrate proper safety practices and procedures in a welding environment, including the use of personal protective equipment (PPE) and awareness of potential hazards.
   - Students will correctly set up and operate various welding machines and equipment, such as MIG, TIG, Stick, and oxy-acetylene welding setups.
2. **Technical Skills in Welding Processes**
   - Students will proficiently perform basic welding techniques, including fillet welds, groove welds, and welds in different positions (flat, horizontal, vertical, overhead).
   - Students will identify and differentiate between various welding processes (MIG, TIG, Stick, etc.) and select the appropriate process for different materials and applications.
3. **Material Knowledge**
   - Students will demonstrate an understanding of different types of metals and alloys, including their properties and suitability for various welding processes.
   - Students will properly prepare materials for welding, including cutting, cleaning, and positioning.
4. **Blueprint Reading and Welding Symbols**
   - Students will accurately read and interpret welding blueprints, American Welding Society (AWS) welding symbols, and specifications to guide their work.
   - Students will create simple project plans and layouts based on blueprints and design requirements.
5. **Quality Control and Inspection**
   - Students will assess weld quality using visual inspection and other techniques to identify common welding defects, such as porosity, cracks, and incomplete fusion.
   - Students will demonstrate the ability to make necessary corrections, adjustments and repairs to improve weld quality and meet industry standards.
6. **Critical Thinking and Problem Solving**
   - Students will apply critical thinking and problem-solving skills to troubleshoot issues that arise during the welding process.
   - Students will adapt to changing project requirements and constraints while maintaining safety and quality standards.
7. **Communication and Collaboration**
   - Students will effectively communicate with peers and instructors, both verbally and in writing, to discuss project plans, progress, and any issues encountered.
   - Students will work collaboratively in team settings, demonstrating respect, responsibility, and teamwork in completing welding projects.

8. **Career Awareness and Professional Development**
    - Students will explore various career paths within the welding and metalworking industries, understanding the skills and qualifications required for different roles.
    - Students will develop a professional portfolio showcasing their welding projects, skills, and accomplishments, preparing them for job applications or further education.
9. **Ethical and Environmental Responsibility**
    - Students will understand the ethical responsibilities related to welding work, including honesty, integrity, and respect for others' work.
    - Students will demonstrate awareness of environmental considerations in welding, including proper disposal of materials and waste management.
10. **Employability**
    - Students will learn and demonstrate essential soft skills for the workplace, such as punctuality, dependability, and a strong work ethic.
    - Students will prepare for the job market by writing resumes, practicing interview skills, and understanding professional networking strategies.
11. **Personal Finance**
    - Students will develop basic personal finance skills, including budgeting, saving, and managing expenses.
    - Students will develop an understanding of costs related to the welding/fabrication trades.
    - Students will understand the importance of financial literacy, including knowledge of taxes, credit, loans, and financial planning for the future.

These outcomes provide a comprehensive framework for a high school welding program, preparing students for entry-level positions in the industry or further education and training in the field.

Note: Student and Parent/Guardian <u>must</u> sign and return this page to signify that you understand this class syllabus.

I/We have read and agree to abide by the rules and regulations of the Welding and Metal Fabrication Program course as described in the above syllabus.

Print Student Name _____

Student Signature _____ Date: _____

Print Parent/Guardian Name _____

Parent/Guardian Signature _____ Date: _____

Parent/Guardian email _____

Parent/Guardian phone number _____