Course Prefix and Number: WLD-I
Instructor: Moran
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Course Title: Welding Technology & Careers
Curriculum: Welding & Manufacturing Technology

Course Description:

WLD-I is an introductory Industry Orientation course which emphasizes safety, Soft Skills, job readiness, ongoing education and career planning. Topics will cover welding terms & symbols, blueprints, procedures, organizations as well as the technology used in the Welding Industry. As an American Welding Society (AWS) Educational Institution, this program is intended to prepare students for the expectations & demands of becoming an AWS Entry Level Welder.

Students will also receive hands-on training on the fundamentals of the Arc Welding Process. This includes exposure to: Shielded Metal Arc Welding (SMAW) & Gas Metal Arc Welding (GMAW). Additional training will cover Plasma Arc & Oxy-Fuel Cutting processes (PAC & OFC), the use of shop equipment, tools and techniques involved with welding mild steel.

Classwork will be split between classroom lecture, direct instruction and lab/shop exercises.

Course Objectives:

A student completing this course will be capable of identifying and pursuing different positions & career pathways in the Welding, Manufacturing and Skilled Trade sectors. Students will be familiarized with options for continuing education, internships, apprenticeships and essential job requirements. In addition, this class will emphasize the Soft Skills & technical skills needed to pursue entry-level welding positions or apprenticeships. Various Skilled Trade Union, Industrial Employment and Military opportunities available to graduates will be presented in class, with in-class visits by representatives of the Unions, Local Employers and Military branches.

Students will be prepared to safely operate in a commercial/industrial environment under OSHA guidelines. As part of their Industry Orientation WLD-1 students will participate in an OSHA-10 General Industry safety course. Upon successful course completion students will receive their OSHA-10 safety card

A student completing this course will be capable of welding to specifications, as defined by AWS D1.1 Code for Structural Welding of Carbon Steel. Throughout the course the student will be working on individual lab welding projects, or in group/team settings as dictated by instructors. Hands-on training will cover the use of equipment needed to weld a basic surfacing bead as well as Groove & Fillet joint configurations in the flat & horizontal positions, using mild steel, as well as be able to cut mild steel using manual & automatic cutting methods.

Student materials:

A. Textbooks (provided)

Author	Title	Publisher	Edition
Bowditch Turnquist Althouse	Modern Welding	G-W	Twelfth

B. Notebook: note taking is a compulsory portion of classroom education. Students are required to take notes during lecture and presentations.

C. Computers: Students will be issued a laptop for classroom use by Wilco, however, students are allowed to use laptops or Chromebooks provided by their home school. No personal computers are allowed on school networks.

Student Evaluation & Testing Policy

Students will be assessed through a combination of academic Testing, practical (hands-on) Skills Assessment and Participation in organized learning activities. Criteria for Skills Assessment are aligned to the American Welding Society guidance for Entry-Level Welders & AWS B1.11. Assignments are graded on a point value system aligned to the Wilco standard for grading.

Participation & Job Readiness evaluations are daily and ongoing assessments of student performance as it pertains to the Non-Technical skills & overall preparedness for job performance. Each student will be given a 400-point total each week (simulating hourly pay in a work context). Points will be reduced based on unsatisfactory performance or violations of policy & procedure (simulating pay reduction practices in work contexts)

The Semester Exams & Finals will contain a written Exam as well as a Practical Test, making up 20% of the overall grade.

The remaining 80% of the Progress Scores are a combination of Hands-On/Technical Skill Development (30%), Participation/Preparedness/Job Readiness (40%), Practical: Quiz/Tests (10%)

Wilco Area Career Center Grading Scale:	**JJC Grading Scale:**
100–90 = **A**	100-94 = A
89 – 80 = **B**	88-93 = B
79 – 70 = **C**	80-87 = C
69 – 60 = **D**	79 & Below = DROP FROM DUAL CREDIT
below 59 = **F**	

Note: All in-class assignments must be actively worked on to their completion within the Welding Laboratory. For academic testing, re-tests are allowed based on student needs and instructor approval. Re-test dates shall be presented to students. Re-test on Practical/Lab based assessments may be subjected to reduced scores for late submission per instructor discretion.

Safety:
Safety Guidelines and Personal Protective Equipment requirements are based on OSHA: cfr1910 & AWS/ANSI: Z49.1 standards. All safety policies are compulsory and compliance is mandatory for class credit. Students are required to abide by all shop safety criteria established by the instructor or be withdrawn from class activity. **Safety glasses will be worn at all times**, except during sit-down lectures in the classroom area. Lab dress code requirements are a class safety policy and students improperly dressed for class will not be allowed access to lab areas. Disruptive behavior or improper actions of any kind are considered a safety hazard and are also grounds for disciplinary intervention. After completion of the OSHA-10 training it is expected that students follow the guidelines established during training.

*Welding Shop temperatures can significantly exceed outdoor temps, which can lead to high temps in work areas. During hot days students are encouraged to bring a water bottle (or other form of hydration) to class.

There are refill stations and water bottles are available for purchase at Wilco, but it is recommended that students are properly hydrated upon arrival.

Dress Code:

Participation in Lab activities will require students to be properly dressed in clothing appropriate for an Industrial environment where exposure to heat, sparks, flames and falling objects are present. Students will be asked to wear clothing made from natural fibers such as cotton (or wool) and no synthetic materials such as polyester, spandex or vinyl. Recommendations are Cotton t-shirts, jeans and leather work-boots (steel or safety-composite toe boots are recommended) as daily wear items. Students will be expected to arrived "dressed for work" each day.

Personal Protective Equipment (PPE):

The use of Arc Welding equipment will require the student purchase of PPE. Students are required to provide a Welding Helmet, Welding Jacket & Welding Gloves. A pair of safety glasses will be issued, but students are required to replace missing or damaged safety glasses. Information about PPE specifications and requirements (as well as how & where to purchase) will be given during class orientation.

*Students on the Free/Reduced Lunch Programs will be issued a set of PPE by Wilco, to be returned upon course completion (*See home school for details on FRL program*)

Attendance:

Attendance at Wilco is viewed as preparation for the workplace. Excessive absence in the workforce is a major reason for dismissal. Students are evaluated on participation in their programs which requires regular attendance. Wilco will send a warning letter home to notify students and parents that five days of school have been missed. After the tenth absence, a parent conference may be required with an attendance contract being issued. Continued absences may result in the student being dropped from Wilco, and the student receiving a failing grade. The only absences not included in the policy are those covered by a doctor's note, court document, or notification/verification of a death in the family.

- Excused absence: Students may make up work for credit but will have one day for every day absent from class plus one day to submit it.
- Unexcused absence: No credit for course work missed.
- Tardy to class: If a student is not in class by the late/second bell, the student will be considered tardy. The teacher will notify administration with a possible detention issued.
- School events: Students may be required to attend assemblies, field trips, and meetings at their home schools. Absence due to a school event is not factored into their Wilco absences.
- Suspensions: Students who are not in school because of disciplinary action may submit work in accordance with the excused absence policy.

Laboratory Maintenance:

Students are required to participate in laboratory maintenance (clean up) per shop policy/procedure. Maintaining shop organization and "housekeeping" is a routine part of the Industrial profession. If the student does not participate in laboratory maintenance during class periods points will be deducted from Class Participation scores. Clean up is inclusive of all work stations, shop floor and all equipment areas. Students are required to report any area or equipment found in an unsafe condition. Clean Up procedures will be detailed in class, posted in work areas and applied daily.

Student Code of Conduct

Wilco Area Career Center is an educational extension of the home school. As an extension, Wilco maintains the policies of each school in combination with the policies developed by the Wilco Board of Control. The combined policies represent the discipline procedures that will be followed by the Wilco Staff, Faculty and

Administration. The home school will be consulted/contacted on all discipline incidents. Disciplinary consequences will be the result of communication between the home school and Wilco's administration.

Three principles govern all discipline and regulations at Wilco Area Career Center:

1. Conduct that is disruptive to the educational environment is prohibited.

2. Conduct that infringes on the rights of others is prohibited.

3. Conduct that is unsafe is prohibited

Student Conduct expectations in the Welding Program are aligned to industry standards and students are expected to behave as if "they are on the job". This means that basic workplace professional conduct is to be maintained while in class.

Students shall NOT:

- Leave class/work areas without approval
- Remove PPE in Shop areas
- Modify, damage or improperly use tools & equipment
- Exit/enter through unapproved doors, prop open doors or allow unauthorized persons access to the building
- Carry flammables, valuables or electronic devices in pockets into the Shop Areas

  ***The Welding Program has a Zero Tolerance policy on fighting, wrestling and/or "Horseplay". As an Industrial Worksite, safety hazards must be considered at all times, and any risky or violent behavior is extremely dangerous, and therefore STRICTLY prohibited at all times.**

****Use of cellular equipment (i.e. telephones) is not permitted in the lab areas, and classroom use is based on instructor approval. Students may be encouraged to use cell phones in class for research, job or technical reasons, but this is based on Instructor authorization. Earbuds & Headphones are strictly prohibited at all times.**

This list is not exhaustive and additional Policies & Procedures will be detailed in class and posted in work areas. Students are responsible for becoming familiar with all Policies & Procedures, and they shall make an effort abide by them. Students in violation of Program policy or procedure will receive corrective instruction. Repeat violations may result in ongoing Disciplinary intervention

Disciplinary Procedures

Student compliance with Wilco and Welding Program rules is expected, and infractions will result in an intervention. All efforts will be made to resolve issues through conversation, however, when there are recurring or significant issues, Instructors will document the behavior, contact a parent, report issues to school counselors & administrators and develop a Corrective Action Plan. Disciplinary actions can include Student Contracts, Suspension and/or Expulsion from the program (depending on nature & severity).

E-Learning

E-learning & Remote activities will be used when in-class instruction is not authorized or available.

All E-learning assignments are required coursework and must be completed by assigned dates for full credit. Late submission scores will be reduced by 10%. Confirmed Sick-Days will be added to deadline date.

Students will be issued an email address (@wilcoacc.org domain) for all E-Learning activities. All communication and assignments must be completed using the "@wilcoacc.org" Profile.

Students are expected to engage with online work daily(when required), regardless of assignment completion. Daily activity will be used to verify online/class attendance Mon-Fri (engagement required before 12am).

Attendance online during live sessions (Google Meet, Zoom, etc.) may be required. Instructors will coordinate times to ensure students can attend online meetings during class periods. Any inability to attend online

meetings shall be communicated to Instructors prior to the meeting time to determine alternative arrangements.

In order to accommodate the schedules and policies of all Wilco feeder schools, policies are subject to change at the discretion of Instructors.

Dual Credit

Students have an opportunity to earn college credit through Joliet Junior College Welding Technology Program. WLD-2 covers JJC course requirements for the OPS299 course and WLD110. Earning credits is dependent on the student applying for admission and completing the registration form, the student fulfilling college prerequisites, and the student meeting the academic rigor of the course.

- Dual Credit requirements are set by the participating college. Students must meet all placement requirements before signing up for the college course.
- Students may participate in the coursework at Wilco and decline the dual credit. However, the work assigned will still be at a college level.
- Wilco instructors may drop students from Dual Credit if they are not meeting the academic requirements of the class with a grade of 'C' or higher or 80%.
- A student who does not perform at a passing rate in a dual credit course may jeopardize their college financial aid.
- Some of the credit offered is transferrable to other institutions. Please visit http://www.itransfer.org/ for more information on transferring credits from one institution to another.

Course Outline & Competency
In order to receive full credit for the course, students are required to meet minimum degrees of proficiency & demonstrate competency in a variety of assigned tasks. SMAW welds are performed with 3/32" & 1/8" E6010 & E7018 electrodes. GMAW welds are performed with .023" & .035" diameter ER70S-6 wire in the Short Circuit or Globular transfer method. Proficiency will be demonstrated on Carbon Steel, ranging in thickness from 22ga, 16ga, 1/8", 1/4", and up to 3/8" for SMAW & GMAW.

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GMAW components are performed with ER70S-6 in .023" to .035" diameter wire. Metal thickness will range from Sheet Gauge to 3/8" Structural thickness.

WLD-I includes the following areas of study and associated Competency Task:

<u>Semester 1:</u>

- OSHA-10: Commercial Safety (Academic Test: must pass to be authorized for Lab activity)
- Industry Orientation, Soft Skills Development & Career Planning:
    - Orientation: The American Welding Society (AWS) & related Regulatory Agencies
    - Orientation: Commercial/Industrial & Skilled Trade Positions
    - Orientation: Terms, Definitions, Blueprints & Welding Symbols
    - Job Skills: E-mail use, Resumes, Interviews, Job Search, and Performance Evaluations
    - Planning: Apprentice, Entry-Level, & Military Pathways
- Process Fundamentals: terms, definitions, tools, cutting methods & SMAW equipment
- Plasma Cut (w/guide): sheet gauge to 1/8" thickness
- Plasma Cut, freehand: sheet gauge thickness
- SMAW: Surfacing Welds, Flat/Horizontal Position
- SMAW: Square Butt-Joint, Flat/horizontal Position
- SMAW: Corner Joint, Flat/horizontal Position
- SMAW: T-Joint, single & multiple pass, Horizontal (2F) Position

Semester 2:

- Career & Educational Planning (Class Activity)
    - Pre-Apprenticeship Paths in Skilled Trade Unions
    - Trade Schools & College Education Paths
- Industry Orientation: Manufacturing Shop Exercise (Lab Activity)
- Process Fundamentals, Shop Tools & GMAW (Lab Activity)
- OFC: Oxy-Fuel Cut w/guide: 3/8" thickness (Acyt. & Propane fuel)
- GMAW: T-joint, single & multi-pass, Horizontal (2F) Position
- GMAW: Lap Joint, Vertical & Overhead Position
- GMAW: Surfacing Welds, Horizontal Position
- GMAW: Butt Joint Horizontal, Vertical & Overhead Position
- Final (Academic Testing & Practical/Hands-on, full course competency demonstrated by cumulative passing score)