



Woodland Community College
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ARTICULATION AGREEMENT

Date Approved: 11/14/2017

Woodland Community College Course:	Dept: Welding Course No: WELD 51 & 52 Title: Intro to Arc Welding & Oxy-Acetylene Welding	High School or ROP Course: Hours:	AG Mechanics Metals 144 hrs
College:	Woodland Community College	School/ROP:	Middletown High School/LCOE ROP

A. COLLEGE UNITS: WELD 51 - 2 Units WELD 52 - 2 Units TOTAL - 4 Units

B. GENERAL COURSE DESCRIPTION FOR WELD 51:

This course is designed to advance beginning arc welding skills with an emphasis on SMAW. Power sources, electrode identification, weldability of metals, joint design and oxyacetylene cutting are covered. Activities include learning to weld stringer and weave bead, butt and fillet welds in the flat, horizontal vertical and overhead positions.

C. COURSE CONTENT FOR WELD 51:

1. Introduction to the course
2. Safety
3. Power sources
4. Arc welding in various positions
5. Weld joints
6. Common welding defects
7. Cutting with oxyacetylene and plasma arc cutting
8. Applications of the air arc process.
9. Introduction to other weld processes

A. COMPETENCIES AND SKILL REQUIREMENT (PERFORMANCE OBJECTIVES) FOR WELD 51:

At the conclusion of this course, the student should be able to:

1. Introduction to the course
2. Safety
3. Power sources
4. Arc welding in various positions
5. Weld joints
6. Common welding defects
7. Cutting with oxyacetylene and plasma arc cutting
8. Applications of the air arc process.
9. Introduction to other weld processes

B. GENERAL COURSE DESCRIPTION FOR WELD 52:

Gas welding processes: background, safety, applications and methods of operation; welding, burning, brazing and soldering. Activities include learning to weld in flat, horizontal, vertical, and overhead positions.

C. COURSE CONTENT FOR WELD 52:

1. Fundamentals of oxy-acety welding and safety
 - a. equipment care and set-up
 - b. weld flame adjustment
 - c. shut down of system
2. Torch manipulative techniques
 - a. controlling the heat
 - b. stringer beads
 - c. fusion beads
3. Characteristics of metals
 - a. effects of heat
 - b. controlling warpage
 - c. identification of common metals
4. Welding supplies and materials
 - a. gases
 - b. filler
5. Weld preparation and inspection
 - a. cleaning techniques
 - b. weldment set-ups
 - c. weld defects
 - d. weld testing
6. Typical weld joints
 - a. joining techniques
 - b. out of position welding
7. Brazing and soldering
 - a. joint techniques
 - b. braze welding
8. Burning processes
 - a. cutting equipment
 - b. procedures and techniques
 - c. machine cutting
 - d. hand cutting fuel gases

D. COMPETENCIES AND SKILL REQUIREMENT (PERFORMANCE OBJECTIVES) FOR WELD 52:

At the conclusion of this course, the student should be able to:

1. Demonstrate proper equipment set-up procedures.
2. Properly shut down gas welding equipment.
3. Identify three flame types.
4. Join metal in all the common joint configurations and positions.
5. Join metal by brazing and soldering techniques.
6. Demonstrate safe practices in the oxy-fuel welding laboratory. ****Requires Critical Thinking****

E. CREDIT BY EXAMINATION CRITERIA:

Students must obtain a grade of 'B' or better in the course and grade of 'B' or better on the final examination and have a minimum of 2 years in welding class.

F. PROCEDURES AND/OR CRITERIA FOR COURSE ARTICULATION:

1. The high school/ROP instructor will enter an articulation agreement with Woodland Community College.
2. Students will enroll into the CTE Transitions Program during the academic year at their high school/ROP.
3. When the student has completed the approved credit by examination criteria for the course the high school/ROP instructor will provide the CTE Transitions Program Office the course grade and the final exam grade.

MODERN METALWORKING

JOHN R. WALKER



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Name _____

Date _____

Middletown High School

Advanced Metals Final Exam

1. T F When Welding in the overhead position, amperage should be reduced as necessary.
2. T F Fast freeze electrodes are recommended with the proper motion when welding in the overhead position.
3. T F The arc length should be kept short when vertical welding.
4. T F When welding in the vertical position amperage should be increased to levels higher than those used in the flat position.
5. T F When welding a multiple pass butt joint, the last pass should penetrate deep into the root of the weld.
6. T F The electrode is positioned downward when welding a butt joint in the horizontal position.
7. T F The recommended amperage for a specific electrode is approximate and must be adjusted as nec
8. T F Factors such as size and type of electrode, current, position, and amperage all affect the speed of travel.
9. T F SMAW is the same as arc welding.
10. T F Arc length should be maintained at approximately $1/8''$.
11. T F Reverse polarity is also called electrode positive.
12. T F A transfer type welding machine provides AC current.
13. T F A clear plastic cover plate is only used to protect the colored lens in a welding helmet.
14. T F Moisture can damage the flux coating on an electrode.
15. T F DC-EN is the same as DC reverse.
16. T F Safety glasses are required to be worn in the shop area.
17. T F E6010 and E6011 are deep penetrating electrodes.

FILL IN THE BLANK

1. Inline voltage to an industrial arc welding machine is generally 220V or _____ V.
2. When doing SMAW , a # _____ or _____ filter lens should be worn. Also _____ should be worn to protect your skin from ultraviolet rays and hot metal.
3. Each half of a multiple pass v-butt weld should be cut at _____ degree bevel.
4. The deepest part of a v-groove weld is the _____.
5. The _____ is the actual flow of the electricity regulated by a power supply.
6. What are the three basic electrode diameters? _____

7. _____ is used to mark metal for cutting.
8. The two methods to strike an arc are _____ and _____.
9. What are the three types of arc welders, _____,
_____, _____.
10. Voltage produced when no welding is being done is _____ circuit voltage.
11. Another name for constant potential is constant _____.
12. How many PSI are in a full oxygen cylinder? _____ psi.
13. How many PSI are in a full acetylene tank? _____ psi.
14. All arc welding should be done in the booth or behind shielded curtains to protect others from arc _____ or _____
_____ rays.
15. Do not touch an _____ electrode holder or GTAW torch with bare skin or wet gloves. A fatal shock may result.
16. Which of the following must be clean and tight to reduce electrical resistance? A. Booth curtains B. Electrode holder jaws C. Workpiece lead at the work D. Workpiece lead at the electrode holder E. Electrode lead at the machine and holder. _____