COWLEY COLLEGE
& Area Vocational Technical School

COURSE PROCEDURE FOR

GAS WELDING PROCESSES
WEL3620 3 Credit Hours

Student Level:
This course is open to students on the college level in either the freshman or sophomore year and to area high school vocational students.

Catalog Description:

WEL 3620 - Gas Welding Processes (3 hrs)
This course is designed to introduce students to oxy-fuel soldering, brazing and welding techniques used to manufacture and repair weldments. Safety precautions and the use and care of equipment are stressed in this course. This course also serves as an introduction to the Gas Tungsten Arc Welding method because of its similarities.

Prerequisites:
None

Controlling Purpose:
Students in Gas Welding Processes should become proficient in use of oxy-acetylene cutting equipment for material preparation. Oxy-acetylene equipment will be used for various weldments with several fillers including silver solder, brass or brazing, and mild steel filler wires.

Learner Outcomes:
The student will study safety and equipment requirements in the gas welding processes used in the fabrication and repair of weldments and machinery. Students will also study and perform the requirements for making various weldments using alloys necessary in gas welding. This course is a sound introduction into the Gas Tungsten Arc Welding Process.

The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

Units Outcomes and Criterion Based Evaluation Key for Core Content:
The following defines the minimum core content not including the final examination period. Instructors may add other content as time allows.

Evaluation Key:

A = All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.

B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.

C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.

D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.

F = Failing, will be computed in GPA and hours attempted.

N = No instruction or training in this area.

UNIT 1: Safety

Outcomes: Upon completion of this unit, the student will be able to successfully pass a written test related to equipment used in this process.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Identify unsafe conditions and practices in oxy-fuel welding.
						Correct unsafe conditions.

UNIT 2: Equipment Set-Up

Outcomes: Upon completion of this unit, the student will be able to successfully demonstrate the use and care of oxy-acetylene equipment.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Explain proper equipment set-up of oxy-acetylene equipment.
						Test equipment for leaks and repair equipment as needed.

UNIT 3: Metallurgy Requirements Of Various Base Metals

Outcomes: Upon completion of this unit, the student will be able to successfully associate the filler metal requirements of various metal alloys with gas welding techniques.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Identify various base metals use in oxy-acetylene joining.
						Associate the required filler metals for various metal alloys.

UNIT 4: Oxy-Acetylene Welding

Outcomes: Upon completion of this unit, the students will be able to successfully join metals together using mild steel filler metal.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Prepare mild steel coupons for joining.
						Demonstrate the ability to join coupons in various positions and joint configurations with mild steel filler metals.

UNIT 5: Brazing Techniques And Fillers

Outcomes: Upon completion of this unit, the student will be able to successfully join metals together using brass alloys for filler metal.

A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Identify alloys that can be successfully joined by brazing.
						Explain methods required for sound brazed joints.
						Demonstrate the ability to braze various alloys in several positions and joint configurations.

UNIT 6: Silver Solder Techniques And Fillers Outcomes: Upon completion of this unit, the student will be able to successfully join metals together using silver solder for filler metal.						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Associate the alloys that can be joined using silver solder.
						Identify filler requirements for various alloys.
						Demonstrate ability to join alloys using silver solder fillers.

UNIT 7: Destructive Testing Methods Outcomes: Upon completion of this unit, the student will be able to successfully						
A	B	C	D	F	N	Specific Competencies Demonstrate the ability to:
						Compare several destructive test methods for welds (oxy-acetylene).
						Prepare specimens for testing with destructive methods.
						Identify specific code requirements for oxy-acetylene weld according to AWSD1.1.

Projects Required:
As assigned.

Textbook:
Contact Bookstore for current textbook.

Materials/Equipment Required:
Personal safety gear and hand tools.

Attendance Policy:
Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:
The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:

Based on classroom occupancy

Course Timeframe:

The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

402.00 Academic Code of Conduct
263.00 Student Appeal of Course Grades
403.00 Student Code of Conduct

Disability Services Program:

Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability, which may impact work in this class which requires accommodations, contact the Disability Services Coordinator.