



**COWLEY COLLEGE
& Area Vocational Technical School**

COURSE PROCEDURE FOR

**ADVANCED WELDING PROCESSES
WEL3640 3 Credit Hours**

Student Level:

This course is open to students on the college level in the sophomore year and to area high school second year vocational students.

Catalog Description:

WEL 3640 - ADVANCED WELDING PROCESSES (3 hrs)

This course is designed to allow students to gather skills necessary for repairing equipment, analyzing safety requirements in automated welding and the study of special welding processes.

Prerequisites:

None

Controlling Purpose:

Students in this course will be exposed to welding chemistry and metallurgy, automated welding systems and maintenance of equipment.

Learner Outcomes:

Upon completion of this course students will be able to compare information from base metal chemistry to metallurgical requirements of filler metals for automated welding processes. Students will also be able to troubleshoot and repair equipment.

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.

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DISCLAIMER: THIS INFORMATION IS SUBJECT TO CHANGE. FOR THE OFFICIAL COURSE PROCEDURE CONTACT ACADEMIC AFFAIRS.

- 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 In Automated Welding						
Outcomes: Upon completion of this unit, the students will be able to successfully prescribe a plan of safe conditions acceptable for automated welding.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Describe safe practices in automated welding.
						List safety equipment associated with automated processes.

UNIT 2: Electrical And Equipment Needs Of Automatic Welding						
Outcomes: upon completion of this unit the student will be able to successfully formulate the electrical and equipment requirements of automated welding processes.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Identify electrical components of automated processes.
						Describe the function f each component requirement to make an automated process.

UNIT 3: Identifying Processes For Automated Welding

Outcomes: Upon completion of this unit, the students will be able to successfully identify which welding process may be automated.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Identify what processes can be automated for industry.
						Differentiate the advantages of automation.

UNIT 4: Welding Metallurgy

Outcomes: Upon completion of this unit, the students will be able to successfully generalize metallurgical data for the selection of a welding process.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Analyze the elements that make-up various alloys.
						Determine what processes and procedures must be employed when working with alloys.

UNIT 5: Special Welding Processes

Outcomes: Upon completion of this unit, the students will be able to successfully identify which metals are most difficult to weld and prescribe a specific procedure.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Define which alloys are most difficult to weld.
						Compare the processes required to weld these alloys with other alloys of metal.

UNIT 6: Maintenance And Repair Of Welding Equipment

Outcomes: Upon completion of this unit, the students will be able to successfully evaluate troubleshooting and maintenance procedures for welding equipment.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Identify components of welding machinery.
						Prescribe methods of safely repairing machinery.
						Test repaired equipment and justify its use in service.

Projects Required:

As assigned.

Textbook:

Contact Bookstore for current textbook.

Materials/Equipment Required:

None

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.