



**COWLEY COLLEGE
& Area Vocational Technical School**

COURSE PROCEDURE FOR

**GTAW (GAS TUNGSTEN ARC WELDING/STRUCTURAL)
WEL3623 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 3623 - GTAW (GAS TUNGSTEN ARC WELDING/STRUCTURAL) (3 hrs)

This course is designed to help the student gain the knowledge and skill to produce welds on both ferrous and non-ferrous base metals using the gas tungsten arc welding method.

Prerequisites:

None

Controlling Purpose:

Students in this class will gain an understanding of G.T.A.W. processes and become familiar with techniques used on various alloys of structural shaped metals.

Learner Outcomes:

Students in this course will prepare both ferrous and non-ferrous materials for welding with the Gas Tungsten Arc Welding Process. Students will demonstrate the use and care of equipment and are expected to demonstrate the ability to produce code quality welds with a variety of filler wires.

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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- 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: Welding Safety Review						
Outcomes: Upon completion of this unit, the students will be able to successfully demonstrate safety procedures for G.T.A.W. equipment.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Assess the potential hazards in G.T.A.W.
						Demonstrate the ability to set-up and operate G.T.A.W. safely.

UNIT 2: G.T.A.W. Electrode Classification And Chemical Analysis Of Filler Metals						
Outcomes: Upon completion of this unit, the students will be able to successfully show base filler metal requirements of various alloys and their perspective shielding gases for G.T.A.W.						
A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Associate G.T.A.W. filler wires according to base metal requirements.
						Classify filler wires for G.T.A.W. based on chemical analysis.

UNIT 3: Prepare Base Metal Specimens For G.T.A.W.

Outcomes: Upon completion of this unit, the students will be able to successfully prepare base metal specimens for G.T.A.W.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Compare methods of base metal preparation for G.T.A.W.
						Demonstrate preparation and fit-up of specimens for G.T.A.W.

UNIT 4: G.T.A.W. Using Mild Steel Electrodes

Outcomes: Upon completion of this unit, the students will be able to successfully make welds using mild steel filler wires.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Select and correctly match mild steel filler wires with carbon steel base metals.
						Demonstrate proper procedure for G.T.A.W. with mild steel filler wire.

UNIT 5: G.T.A.W. Using Stainless Steel Electrodes

Outcomes: Upon completion of this unit, the students will be able to successfully make welds using stainless steel filler wires.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Select and correctly match stainless alloy base metals.
						Demonstrate proper procedures for G.T.A.W. with stainless steel filler wires.

UNIT 6: G.T.A.W. Using Aluminum Electrodes

Outcomes: Upon completion of this unit, the students will be able to successfully make welds on aluminum using G.T.A.W.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Select and correctly match aluminum filler wires with aluminum alloy base metals.
						Demonstrate proper procedures for G.T.A.W. using aluminum filler wires.

UNIT 7: Certification Requirements For G.T.A.W.

Outcomes: Upon completion of this unit, the students will be able to successfully pass a qualification test on plate using G.T.A.W.

A	B	C	D	F	N	Specific Competencies
						Demonstrate the ability to:
						Assess the requirements for certification using the G.T.A.W. process.
						Prepare a procedure qualification document for G.T.A.W.

Projects Required:

As assigned.

Textbook:

Contact Bookstore for current textbook.

Materials/Equipment Required:

Personal safety equipment and 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

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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.