

**NEOSHO COUNTY COMMUNITY COLLEGE
MASTER COURSE SYLLABUS**

COURSE IDENTIFICATION

Course Code/Number: MFGT 126

Course Title: Advanced Gas Metal Arc Welding

KRSN: N/A
(Kansas Regents Shared Number)

Please visit the Kansas Board of Regents website for more information.

Division: Applied Science (AS) Liberal Arts (LA) Workforce Development (WD)
 Health Care (HC) Lifetime Learning (LL) Nursing Developmental

Credit Hour(s): Four (4)

Effective Date: Spring 2016

Assessment Goal Per Outcome: 75 %

COURSE DESCRIPTION

Through classroom and/or shop/lab learning and assessment activities, students in this course will: explain gas metal arc welding process (GMAW); demonstrate the safe and correct set up of the GMAW workstation.; correlate GMAW electrode classifications with base metals and joint criteria; demonstrate proper electrode selection and use based on metal types and thicknesses; build pads of weld beads with selected electrodes in the vertical position; build pads of weld beads with selected electrodes in the overhead position; produce basic GMAW welds on selected weld joints; and conduct visual inspection of GMAW welds.

MINIMUM REQUIREMENTS/PREREQUISITES AND/OR COREQUISITES

MFGT 120 Gas Metal Arc Welding.

TEXTS

The official list of textbooks and materials for this course is found on [myNeosho](http://www.neosho.edu/myNeosho).

<http://www.neosho.edu/ProspectiveStudents/Registration/CourseSyllabi.aspx>

GENERAL EDUCATION OUTCOMES

1. Practice Responsible Citizenship through:
 - identifying rights and responsibilities of citizenship,
 - identifying how human values and perceptions affect and are affected by social diversity,
 - identifying and interpreting artistic expression.
2. Live a healthy lifestyle (physical, intellectual, social) through:
 - listing factors associated with a healthy lifestyle and lifetime fitness,
 - identifying the importance of lifetime learning,
 - demonstrating self-discipline, respect for others, and the ability to work collaboratively as a team.
3. Communicate effectively through:
 - developing effective written communication skills,
 - developing effective oral communication and listening skills.
4. Think analytically through:
 - utilizing quantitative information in problem solving,
 - utilizing the principles of systematic inquiry,
 - utilizing various information resources including technology for research and data collection.

COURSE OUTCOMES/COMPETENCIES (as Required)

1. Explain gas metal arc welding process (GMAW).
Properties
Domain: Cognitive Level: Synthesis
 - a. You will demonstrate your competence:
 - i. through an instructor-provided written or oral evaluation tool
 - b. Your performance will be successful when:
 - i. you describe different modes of transfer
 - ii. you differentiate between types and uses of current
 - iii. you identify the advantages and disadvantages of GMAW
 - iv. you identify types of welding power sources
 - v. you identify different components of a GMAW station
 - vi. you describe basic electrical safety
2. Demonstrate the safe and correct set up of the GMAW workstation.
Properties
Domain: Cognitive Level: Synthesis
 - a. You will demonstrate your competence:
 - i. in the lab or shop setting
 - ii. using a GMAW workstation
 - b. Your performance will be successful when:
 - i. you demonstrate proper inspection of equipment
 - ii. you demonstrate proper use of PPE
 - iii. you demonstrate proper placement of workpiece connection
 - iv. you check for proper setup of equipment
 - v. you inspect area for potential hazards/safety issues
 - vi. you troubleshoot the GMAW equipment and perform minor maintenance

3. Correlate GMAW electrode classifications with base metals and joint criteria
Properties

Domain: Cognitive Level: Synthesis

- a. You will demonstrate your competence:
 - i. through a written or oral instructor-provided evaluation tool
- b. Your performance will be successful when:
 - i. you explain the AWS electrode nomenclature
 - ii. you determine proper electrode for given joint based on material and position of weld
 - iii. you determine proper type of electrodes to be used in a variety of industry applications
 - iv. you identify proper electrode storage and handling
 - v. you identify consumables

4. Demonstrate proper electrode selection and use based on metal types and thicknesses
Properties

Domain: Cognitive Level: Synthesis

- a. You will demonstrate your competence:
 - i. in the lab or shop setting
 - ii. using GMAW equipment
- b. Your performance will be successful when:
 - i. you identify consumables for various electrode sizes
 - ii. you select the proper electrode type and size relative to metal size, type and thickness
 - iii. you select the proper electrode type and size based on material specifications

5. Build pads of weld beads with selected electrodes in the vertical position
Properties

Domain: Cognitive Level: Synthesis

- a. You will demonstrate your competence:
 - i. in the lab or shop setting
 - ii. using GMAW equipment
- b. Your performance will be successful when:
 - i. you implement safety procedures and PPE
 - ii. you implement proper equipment setup
 - iii. you use the proper metal transfer
 - iv. you create a pad of beads using GMAW
 - v. your weld exhibits proper uniformity and profile

6. Build pads of weld beads with selected electrodes in the overhead position
Properties

Domain: Cognitive Level: Synthesis

- a. You will demonstrate your competence:
 - i. in the lab or shop setting
 - ii. using GMAW equipment
- b. Your performance will be successful when:
 - i. you implement safety procedures and PPE
 - ii. you implement proper equipment setup
 - iii. you use the proper metal transfer
 - iv. you create a pad of beads using GMAW

- v. your weld exhibits proper uniformity and profile
- 7. Produce basic GMAW welds on selected weld joints.
Properties
Domain: Cognitive Level: Synthesis
 - a. You will demonstrate your competence:
 - i. in the lab or shop setting
 - ii. using GMAW welding equipment
 - iii. using appropriate tools
 - b. Your performance will be successful when:
 - i. you implement safety procedures and PPE
 - ii. you implement proper equipment setup
 - iii. you perform fillet weld in a vertical position
 - iv. you perform a fillet weld in an overhead position
 - v. you perform a groove weld in a vertical position
 - vi. you perform a groove weld in an overhead position
 - vii. you use tools appropriate for the task

- 8. Conduct visual inspection of GMAW welds
Properties
Domain: Cognitive Level: Synthesis
 - a. You will demonstrate your competence:
 - i. in the lab or shop setting
 - ii. using appropriate inspection tools
 - b. Your performance will be successful when:
 - i. you identify common visual discontinuities and defects on welds
 - ii. you determine causes of discontinuities and defects of welds
 - iii. you inspect welds for pass/fail ratings according to industry standards
 - iv. you use appropriate tools for inspection

MINIMUM COURSE CONTENT

Minimum course content is reflected in the competencies under each outcome. Additional content may be added.

STUDENT REQUIREMENTS AND METHOD OF EVALUATION

INSTRUCTIONAL METHODS

1. Lecture
2. Audio-Visual aids
3. Example and demonstration
4. Lab practice
5. Class discussions
6. Field trips and guest speakers
7. Tests (written)
8. Skills tests (performance-based)

Evaluation of student performance is determined primarily from results of written and performance tests to validate mastery of course competencies. Due to the nature of the class, student participation, teamwork, courtesy, honesty, and adherence to safety policies are required. Students are required to take the 3rd party testing examination. Boots will be required to work in the lab.

Grade evaluation will be broken up into four parts, each worth 25% of final grade. These four parts are as follows:

1. Lab work, which includes all welds and cuts performed in the shop.
2. Classroom work, which includes all written assignments, exams and projects made from a blueprint.
3. Attendance.
4. Conduct, which includes: safety, work habits, attitude, being trustworthy and ethical.

Safety and Health examination must be passed at 100%

GRADING SCALE

On objective materials, the following scale is used:

90-100 %	A
80-89 %	B
70-79 %	C
60-69 %	D
0-59 %	F

Student competence is achieved by obtaining a minimum of 75% on written tests and by passing visual inspections.

American Welding Society standards will be applied when accessing lab work. Students must meet AWS levels of competence to pass the course.

ASSESSMENT OF STUDENT GAIN

Students will be assessed through written testing. Practical application will be assessed on the first attempt at the skill and again at the conclusion of the course. Comparison will determine the extent of student gain.

Attendance Policy

1. NCCC values interactive learning which promotes student engagement in the learning process. To be actively engaged, the student must be present in the learning environment.
2. Unless students are participating in a school activity or are excused by the instructor, they are expected to attend class. If a student's absences exceed one-eighth of the total course duration, (which equates to one hundred (100) minutes per credit hour in a face-to-face class) the instructor

has the right, but is not required, to withdraw a student from the course. Once the student has been dropped for excessive absences, the registrar's office will send a letter to the student, stating that he or she has been dropped. A student may petition the chief academic officer for reinstatement by submitting a letter stating valid reasons for the absences within one week of the registrar's notification. If the student is reinstated into the class, the instructor and the registrar will be notified. Please refer to the Student Handbook/Academic Policies for more information

3. Absences that occur due to students participating in official college activities are excused except in those cases where outside bodies, such as the State Board of Nursing, have requirements for minimum class minutes for each student. Students who are excused will be given reasonable opportunity to make up any missed work or receive substitute assignments from the instructor and should not be penalized for the absence. Proper procedure should be followed in notifying faculty in advance of the student's planned participation in the event. Ultimately it is the student's responsibility to notify the instructor in advance of the planned absence.

ACADEMIC INTEGRITY

NCCC expects every student to demonstrate ethical behavior with regard to academic pursuits. Academic integrity in coursework is a specific requirement. Definitions, examples, and possible consequences for violations of Academic Integrity, as well as the appeals process, can be found in the College Catalog, Student Handbook, and/or Code of Student Conduct and Discipline.

ELECTRONIC DEVICE POLICY

Student cell phones and other personal electronic devices not being used for class activities must not be accessed during class times unless the instructor chooses to waive this policy.

NOTE

Information and statements in this document are subject to change at the discretion of NCCC. Students will be notified of changes and where to find the most current approved documents.

ACCOMMODATIONS

If you are a student with a disability who may need accommodation(s), in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, please notify the Dean of Student Services in the Student Services Office, Sanders Hall, 620-432-0304, on the Chanutte Campus, or the Dean for the Ottawa and Online Campuses, 785-248-2798, on the Ottawa Campus as soon as possible. You will need to bring your documentation for review in order to determine reasonable accommodations, and then we can assist you in arranging any necessary accommodations.

NON-DISCRIMINATION POLICY

The following link provides information related to the non-discrimination policy of NCCC, including persons with disabilities. Students are urged to review this policy.

<http://www.neosho.edu/Departments/NonDiscrimination.aspx>

SEXUAL MISCONDUCT POLICY (TITLE IX)

At NCCC, it is the responsibility of an instructor to help create a safe learning environment in the classroom, including both physical and virtual classrooms. All instructors are considered mandatory reporters at NCCC, therefore any information regarding sexual misconduct that is shared by a student in one-on-one meetings with the instructor must be reported to appropriate personnel at the College. Instructors will keep the information private to the greatest extent possible, but it is not confidential. Generally, climate surveys, classroom writing assignments or discussions, human subjects research, or events such as Take Back the Night events do not provide notice that must be reported to the Coordinator by employees, unless the reporting party clearly indicates that they wish a report to be made.

The following link provides information related to the sexual misconduct policy of NCCC, including resources, reporting options, and student rights. Students are urged to review this policy.

<http://www.neosho.edu/TitleIX.aspx>

COURSE NOTES