

**NEOSHO COUNTY COMMUNITY COLLEGE
MASTER COURSE SYLLABUS**

COURSE IDENTIFICATION

Course Code/Number: AERO 120

Course Title: Aerostructures Assembly

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

Credit Hour(s): Three (3)

Effective Date: Fall 2013

Assessment Goal Per Outcome: 80%

COURSE DESCRIPTION

This course includes instruction and hands-on application of skills such as drilling holes, riveting, countersinking, and final product assessment.

MINIMUM REQUIREMENTS/PREREQUISITES AND/OR COREQUISITES

High school diploma or GED or ability to benefit

TEXTS

* The official list of textbooks and materials for this course is found on *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) The student will apply safety concepts in the laboratory.
 - a. Apply all shop safety standards.
- 2) The student will effectively utilize industry specific tools and materials.
 - a. Identify measurement tools.
 - b. Utilize measurement tools.
 - c. Effectively read measurement tools to the 10000th place.
 - d. Apply measurement tool readings to fabrication of aircraft part.
 - e. Identify fasteners used in aircraft.
 - f. Identify rivet specifications.
 - g. Select correct rivet based on engineering drawings.
 - h. Identify most common materials used in aircraft manufacturing such as sheetmetal.
 - i. Identify elements of drill used in aircraft assembly.
 - j. Identify elements of rivet gun used in aircraft assembly.
 - k. Identify special fasteners used in aircraft assembly.
- 3) The student will demonstrate layout techniques.
 - a. Apply blueprint reading skills to laboratory assignments.
 - b. Calculate parts (angle, nutplates, fasteners) locations based on engineering drawings.
 - c. Mark all rivet location points
 - d. Apply layout techniques to industry specific project
- 4) The student will demonstrate temporary assembly techniques.
 - a. Identify temporary assembly.
 - b. Identify function of temporary assembly.
 - c. Identify the tools used in temporary assembly (clecos and cleco pliers).
 - d. Demonstrate effective temporary assembly.
 - e. Demonstrate removal of temporary assembly.
- 5) The student will demonstrate drilling techniques.
 - a. Identify the three parts to drill bit (shank, body and heel).

- b. Identify drill bit diameter.
 - c. Determine drill bit diameter.
 - d. Identify drill bit material.
 - e. Utilize conversion chart.
 - f. Identify drill motor.
 - g. Identify the function of each part of the drill motor.
 - h. Determine drill bit length.
 - i. Demonstrate chucking the bit.
 - j. Demonstrate connecting air hose to drill motor.
 - k. Demonstrate a drill start.
 - l. Identify the importance of perpendicular hole.
 - m. Identify Drill cup and Drill Guide.
 - n. Utilize drill cup and drill guide.
 - o. Demonstrate drilling a perpendicular hole.
 - p. Identify the term de-burring.
 - q. Demonstrate de-burring techniques.
 - r. Identify when rivet must be drilled out.
 - s. Select correct pin punch.
 - t. Utilize pin punch.
 - u. Demonstrate drilling out universal rivet.
 - v. Demonstrate drilling out flush rivet.
- 6) The student will demonstrate riveting techniques.
- a. Identify rivets.
 - b. Identify Rivet sets.
 - c. Identify Retainer Spring.
 - d. Select rivet sets and retainer spring based on engineering drawing.
 - e. Identify the functions of each part of the rivet gun.
 - f. Install rivet set into a retainer spring.
 - g. Utilize rivet gun.
 - h. Demonstrate adjusting regulator for the selected rivet.
 - i. Identify bucking bar and its function.
 - j. Demonstrate effective riveting using bucking bar.
 - k. Discuss importance of being within tolerance.
 - l. Utilize rivet gauge to determine tolerance.
 - m. Identify term counter sink/flush rivets.
 - n. Identify function of counter sink/flush rivet.
 - o. Identify standards for counter sink/flush rivet.
 - p. Identify fastener code symbol for counter sink/flush rivet on engineering drawing.
 - q. Identify equipment used in counter sink/flush rivet.
 - r. Identify the parts of counter sink cutter.
 - s. Identify parts and functions of micro stop counter sink cutter.
 - t. Demonstrate assemble of micro stop cage and counter sink cutter.
 - u. Demonstrate setting the depth for counter sink rivet.
 - v. Install counter sunk rivet.
 - w. Demonstrate driving the counter sunk rivet.

- 7) The student will utilize special fasteners.
 - a. Identify hi-lok fastener
 - b. Identify the function of hi-lok fastener.
 - c. Identify the parts of hi-lok fastener.
 - d. Identify tools used for hi-lok fasteners.
 - e. Identify hole size for hi-lok.
 - f. Identify interference fit.
 - g. Utilize measurement tools (ball gauges and micrometer) to determine hole size.
 - h. Demonstrate hi-lok installation.

- 8) *The student will achieve an average of 3.0 on the Employability Skills Competency Profile.

MINIMUM COURSE CONTENT

The following topics must be included in this course. Additional topics may also be included.

- I. Safety concepts
- II. Industry specific tools and materials.
- III. Layout techniques.
- IV. Temporary assembly techniques.
- V. Drilling techniques.
- VI. Riveting techniques.
- VII. Special fasteners.

STUDENT REQUIREMENTS AND METHOD OF EVALUATION

INSTRUCTIONAL METHODS

1. Lecture
2. Lab
3. Review of student applications
4. Skills tests (performance-based)

STUDENT REQUIREMENTS

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, and adherence to policies are required. Students are required to take the 3rd party testing examination.

GRADE SCALE

- A = 90 to 100%
B = 80 to 89%
C = 70 to 79%
D = 60 to 69%
F = 59% and below

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 Chanute 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

I understand that I must pass the Aerostructures Assembly (lab) course at 80% competency or better to receive the official program certificate.

SIGNATURE

DATE

I understand that this course utilizes computer-based modules and each phase of the module must be successfully completed in order to progress to the next phase.

I understand that this course is one course in a series of courses in the Aerostructures Program. I must successfully complete this course and all other computer module courses in the program in order to advance into the Aerostructures Assembly (lab) course.

Additionally, I understand that I must pass the Aerostructures Assembly (lab) course at 80%