COURSE SYLLABUS
AVT-110 Aircraft Structures
Fall 2015

Instructor: Thomas Roy
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Office Hours: Tuesday – 9:00am – 11:00am
Wednesday – 1:00pm – 3:00pm
Thursday – 9:00am – 11:00am

TEXTBOOKS AND OTHER MATERIALS:
• *FAA-H-8083-31 Aviation Maintenance Technician Handbook – Airframe
• *AC 43.13-1B/-2B Acceptable Methods, Techniques, and Practices
• ASA Fast Track Test Guide - Airframe or ASA Prep-ware - Airframe
• The tools required for this class should be part of the student’s basic tool kit

*Available electronically on-line or in paper-back hard-copy

COURSE DESCRIPTION:
Students will be able to identify and select materials employed in aircraft construction. Using appropriate FAR’s, they will demonstrate competence in repair of honeycomb, fiberglass, welded, wood, or fabric aircraft members. The student will inspect aircraft members for defects and, if necessary, inspect completed repairs for airworthy condition.

COURSE OBJECTIVES:
Upon course completion, the student will have a thorough understanding of aircraft structural construction methods, practices and terminology. The student will be able to inspect, evaluate, and if necessary, repair wood, welded truss, fabric, transparent plastic and composite structural components in accordance with manufacturer and Federal Aviation Administration requirements. Further, the student will possess the skills to apply aircraft-grade finishes to fabric, aluminum and composite aircraft surfaces.
LECTURE TOPICS:

1. Aircraft structures terminology
2. Composites in aircraft
   a. Core material
   b. Facing material
   c. Core repairs
   d. Facing repairs
   e. Sandwich construction inspection
   f. Special considerations in sandwich construction repair
3. Transparent plastics
   a. Thermoplastics and thermal setting plastics
   b. Scratch removal and damage repair
4. Dope and fabric aircraft
   a. Structural preparation
   b. Choosing the fabric
   c. Applying the fabric
   d. Fabric attachment
   e. Dopes
5. Wood
   a. Types and characteristics
   b. Selection of woods
   c. Inspection (defects permitted and not permitted)
   d. Repairs
6. Welding
   a. Types of equipment
   b. Welding techniques for various metals, including aluminum, magnesium, titanium and stainless steel.
   c. Soldering techniques for various metals.
   d. Brazing
   e. Fabrication of tubular structures.
   f. Welding repairs
   g. Inspection of welded parts
7. Painting
   a. Types of paints
   b. Types of spray equipment
   c. Types of primers
d. Special purpose paints  
e. “N” number size requirement

LABORATORY PROJECTS:

1. Fabricate a composite structure  
2. Inspect for defects, using the coin tap method, a composite structure  
3. Repair a composite structure  
4. Select, install and remove special fasteners in metallic, bonded and composite structures  
5. Acrylic plastic repair  
6. Inspect, check, and service a window, doors, and interior furnishings  
7. Inspect, test and repair fabric covering  
8. Select and apply fabric covering  
9. Identify and select aircraft finishing materials  
10. Apply finishing materials  
11. Inspect finishes and identify defects  
12. Solder, braze, gas-weld, and arc-weld steel  
13. Inspect and check welded structure

GRADING:

The grade, for this class, is made up of three components: lecture, lab, and the final exam. Each of these count as one third of the course grade. You must have at least a 70% overall average to pass the course.

Lecture: The lecture grade is based on class participation, scheduled tests, and unscheduled quizzes.

Lab: Lab grade will be 50% Subjective and 50% Lab Projects. For the subjective grade, you will start each lab with 5 points. Throughout each lab, inappropriate behavior such as tardiness, excessive breaks, sleeping, improper lab attire or not possessing required tools and/or technical manuals will result in losing points.

Final Exam: A final exam will be given that will cover the information covered during the lecture and lab portions of the class. Appropriate manuals, computer access and other necessary materials will be provided in support of the exam.
Per University policy, a grade of “Incomplete” or “INC” is assigned only when for reasons beyond their control, a student engaged in passing work, is unable to complete all class assignments and/or laboratory projects. The “INC” will be changed to a completed grade within the time period specified by the instructor but will not exceed one year from the close of the term in which the course was taken. Should a student fail to complete all course requirements within the time period designated, the “INC” will be converted to a grade of “F.”

Grade Scale:

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Grade</th>
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<tbody>
<tr>
<td>100 - 90%</td>
<td>A</td>
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<tr>
<td>89 - 80%</td>
<td>B</td>
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<tr>
<td>79 - 70%</td>
<td>C</td>
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<tr>
<td>69 - 60%</td>
<td>D</td>
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<tr>
<td>59% and less</td>
<td>F</td>
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</tbody>
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ATTENDANCE POLICY:

Attendance is mandatory. As an FAA certified Airframe and Powerplant Mechanic Training Program, we must abide by the FAA’s attendance policy. Instructors are required to take roll each class period. It is the student’s responsibility to contact the instructor in advance of absences whenever possible or immediately thereafter to arrange make-up time where appropriate and to obtain handouts or other material from classes missed.

Students are expected to be in class and lab on time. Three late arrivals will be counted against the student as one unexcused absence. Unexcused absences or habitual tardiness will result in a cumulative reduction of the student’s final grade point average: First unexcused absence results in a one-point reduction of the final grade (0-100 scale). Second absence results in a two-point reduction. Third absence results in a four-point reduction. Fourth absence results in an eight-point reduction. Fifth absence results in a sixteen-point reduction. After the fifth unexcused absence the cumulative grade reduction would be 31 points, making it impossible to receive a passing grade for the course.

Make up time may be granted at the discretion of the instructor. Final determination as to whether or not an absence is "excused" rests with the instructor. Performance of make-up time does not reinstate points lost due to unexcused absences.

CLASSROOM CONDUCT:

Appropriate classroom conduct at the university level includes being on time and prepared for class. It also includes respectful conduct towards other students and course instructors at all times. Disrespectful behaviors are beneath these standards, and may result in your being excused from class.
Cell phones will be placed on silent mode for the duration of lecture and lab periods and no phone calls, text messages, or other non-emergency communications will be allowed. Tablet use during lectures and lab periods will be limited to AVT-110 related subject matter and material.

SAFETY/PERSONAL PROTECTIVE EQUIPMENT:

Safety is of the utmost importance at all times. **Closed toe shoes and eye protection meeting ANSI Z87 standards will be worn at all times while in the lab.** Remember--Safety First!

Emergency Procedure Statement

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on the BERT website at [www.bert.siu.edu](http://www.bert.siu.edu), Department of Public Safety’s website at [www.dps.siu.edu](http://www.dps.siu.edu) (disaster drop down) and in Emergency Response Guidelines pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to you instructor in evacuating the building or sheltering within the facility.
IMPORTANT DATES *
Semester Class Begins ................................................................. 08/24/2015
Last day to add a class (without instructor permission): .................... 08/30/2015
Last day to withdraw completely and receive a 100% refund: .............. 09/06/2015
Last day to drop a course using SalukiNet .................................. 11/01/2015
Last day to drop a course using Saas (application for name to appear in Commencement program): ................................................................. 09/18/2015
Final examinations ......................................................................... 12/14-12/18/2015
Note: For outreach, internships, and short course drop/final dates, visit Registrar’s Academic release at: http://registrar.siu.edu/

FALL SEASONAL HOLIDAYS
Labor Day Holiday 08/07/2015
Fall Break 10/20—10/23/2015
Veterans Day Holiday 11/11/2015
Thanksgiving Vacation 11/25—11/26/2015

WITHDRAWAL POLICY - Undergraduate only
Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit http://registrar.siu.edu/pdf/ugradcatalog/1314.pdf

INCOMPLETE POLICY - Undergraduate only
An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken, or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken, or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student’s grade point average. For more information please visit: http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY
An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A, B, C, D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. See full policy at http://registrar.siu.edu/pdf/ugradcatalog/1314.pdf

GRADUATE POLICIES
Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit: http://gradschool.siu.edu/about-us/grad-catalog/index.html

DISABILITY POLICY
Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. Additional information at: http://disabilityservices.siu.edu/

PLAGIARISM CODE

MORRIS LIBRARY HOURS
http://www.lib.siu.edu/about

SAFETY AWARENESS FACTS AND EDUCATION
Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For information on Saluki Cares: (618) 453-5714, or siucares@siu.edu, http://salukicares.siu.edu/index.html

EMERGENCY PROCEDURES
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. We ask that you become familiar with the SIU Emergency Response Plan and Building Emergency Response Team (BERT) programs. Please reference the Building Emergency Response Protocols for Salukis attachments on the following pages. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.

INCLUSIVE EXCELLENCE
SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well an essential preparation for any career. For more information please visit: http://www.inclusivexcelsiui.edu/

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:
Tutoring: http://tutoring.siu.edu/
Math Labs: http://tutoring.siu.edu/math_tutoring/index.html

WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY
Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:
SALUKINET: https://salukinet.siu.edu/cp/home/displaylogin
ADVISEMENT: http://advisement.siu.edu/
SIU ONLINE: http://online.siu.edu/

Fall 2015 RCY Rourke