

**San José State University
College of Engineering
Department of Aviation and Technology
Avia 042, Aircraft Systems
Section 01 (lec) & 11&12 (labs) Fall 2013**

Instructor:	Daniel L. Neal
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Office Hours:	MTW 1700 -1750 and by appointment
Class Days/Times:	Section 01 (lecture) Mondays 1800 to 1950 Section 11 (lab) Wednesdays 1800 to 2045 Section 12 (lab) Tuesdays 1800 to 2045
Classroom:	Lectures: Hugh Gillis Hall 124 Labs: RHV120
Prerequisites:	Phys 2A, Avia 02

Faculty Web Page and MYSJSU Messaging (Optional)

Copies of the course materials such as the syllabus, major assignment handouts, etc. may be found on my faculty FTP site at <http://www.engr.sjsu.edu/dneal/>

You are responsible for regularly checking with the messaging system through MySJSU (or other communication system as indicated by the instructor).

Course Description

Students will learn operational and analytical aspects of key aircraft systems such as flight control, electrical, and hydraulic systems, oxygen and pressurization systems, landing gear, instrumentation, and fire protection systems. Course content also covers

weight and balance. Particular attention will be paid to the Federal Aviation Regulations that apply to all of the systems and concepts addressed in this class. Course content includes reliability and maintainability concepts related to the design of aircraft systems. Emphasis is placed on general aviation aircraft.

Course Goals and Student Learning Objectives

Upon completion of the course, students will be able to:

- Inspect an aircraft structure for structural integrity
- Be able to inspect an aircraft and associated systems for airworthiness
- Understand the design, operation and maintenance of aircraft auxiliary systems: landing gear & associated systems, fuel systems, wheels, tires & brakes, cabin environmental control & oxygen systems, ice and rain protection, and fire protection & instrumentation.
- Be knowledgeable with the regulations governing aircraft systems and understand how to operate an aircraft within those regulations

Required Texts/Readings

There is no required text for this course. All course materials are posted sequentially at my faculty FTP site.

Other Readings

1. FAR/AIM Federal Aviation Regulations (2010 revision) (this publication is available at no cost online at the FAA website in .pdf format)
2. Airframe & Powerplant Mechanics Airframe Handbook AC 65-15A. FAA (this publication is available at no cost online at the FAA website in .pdf format)
3. Airframe & Powerplant Mechanics General Handbook AC 65-9A. FAA (this publication is also available at no cost online at the FAA website in .pdf format)

Other equipment / material requirements (optional)

Students are required to wear safety glasses while performing many of the laboratory activities. Accordingly, students must come equipped with individual safety glasses that meet the ANSI Z87.1-2003 specification. These are available at the Spartan Bookstore and at local hardware stores.

Classroom Protocol

Students are expected to refrain from cell phone use and text messaging while in class and lab.

Dropping and Adding

Students are responsible for understanding the policies and procedures about add/drop, grade forgiveness, etc. Refer to the current semester's [Catalog Policies](http://info.sjsu.edu/static/catalog/policies.html) section at <http://info.sjsu.edu/static/catalog/policies.html>. Add/drop deadlines can be found on the [current academic calendar](http://www.sjsu.edu/academic_programs/calendars/academic_calendar/) web page located at http://www.sjsu.edu/academic_programs/calendars/academic_calendar/. The [Late Drop Policy](http://www.sjsu.edu/aars/policies/latedrops/policy/) is available at <http://www.sjsu.edu/aars/policies/latedrops/policy/>. Students should be aware of the current deadlines and penalties for dropping classes.

Information about the latest changes and news is available at the [Advising Hub](http://www.sjsu.edu/advising/) at <http://www.sjsu.edu/advising/>.

Assignments and Grading Policy

Quizzes will typically be announced at the lecture prior; however, the instructor reserves the right to give quizzes without being announced.

Laboratory assignments will be provided with detailed procedures and evaluation criteria. The due date for each lab will be on the associated lab assignment form. There are usually nine lab assignments with required lab reports assigned during the semester.

Evaluation

	<u>Points</u>	<u>Percentage</u>
Quizzes & Problem sets	50	10%
Lab/Research Assignments	200	36%
2 Midterms exams	200	36%
Final exam	100	18%
TOTAL	550	100%

The first two midterm exams will cover the first and second thirds of the semester respectively and the final exam will be comprehensive.

Average	Grade
93-100	A
90-93	A-
87-90	B+
83-87	B
80-83	B-
77-80	C+

73-77	C
70-73	C-
60-70	D
below 60	F

University Policies

Academic integrity

Your commitment as a student to learning is evidenced by your enrollment at San Jose State University. The [University's Academic Integrity policy](http://www.sjsu.edu/senate/S07-2.htm), located at <http://www.sjsu.edu/senate/S07-2.htm>, requires you to be honest in all your academic course work. Faculty members are required to report all infractions to the office of Student Conduct and Ethical Development. The [Student Conduct and Ethical Development website](http://www.sjsu.edu/studentconduct/) is available at <http://www.sjsu.edu/studentconduct/>.

Instances of academic dishonesty will not be tolerated. Cheating on exams or plagiarism (presenting the work of another as your own, or the use of another person's ideas without giving proper credit) will result in a failing grade and sanctions by the University. For this class, all assignments are to be completed by the individual student unless otherwise specified. If you would like to include your assignment or any material you have submitted, or plan to submit for another class, please note that SJSU's Academic Policy S07-2 requires approval of instructors.

Campus Policy in Compliance with the American Disabilities Act

If you need course adaptations or accommodations because of a disability, or if you need to make special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities requesting accommodations must register with the [Disability Resource Center](http://www.drc.sjsu.edu/) (DRC) at <http://www.drc.sjsu.edu/> to establish a record of their disability.

Avia 042 / Aircraft Systems, F-2012 Tentative Lecture Schedule

Text:	Airframe and Powerplant Mechanics - Airframe Handbook (FAA AC65-15a)
	Airframe and Powerplant Mechanics - General Handbook (FAA AC65-9a)
	FAA/FARs - Obtain online

NOTE: Reading assignments and dates are subject to change due to topic coverage and activities.

MTG	DATE	TOPICS	TEXT ASSIGNMENT
1	8/26	Introduction	
		FARs (Lecture 1)	FARs part 1, 21,43,91
	9/2	No Class - Labor Day Holiday	
2	9/9	Weight and Balance	General Ch. 3
		Adverse Loading Lecture	General Ch. 3
3	9/16	Corrosion	
4	9/23	Wheels, Tires, and Brakes (Lecture 5)	General Ch. 6
		Aircraft Logbooks, Midterm Review	
5	9/30	Midterm #1	
		Start Landing Gear	Airframe Ch. 9
6	10/7	Landing Gear - Rrequirements and Designs	Class notes
		Hydraulic Systems	Airframe Ch. 8
		Hydraulic Landing Gear Systems	Airframe Ch. 9
7	10/14	Electro-mechanical landing gear systems	Airframe Ch. 9
		Oxygen Systems	Airframe Ch. 14
		Press. System	Airframe Ch. 14
8	10/21	Flight Control Systems	Airframe Ch. 2
9	10/28	Air Conditioning & Heaters	Airframe Ch. 14
		Prep for Midterm 2	
10	11/4	*Midterm 2	
		Fuel Systems - part 1	
	11/11	Veteran's Day (observed) No Class	
10	11/18	Review Midterm #2	
		Fuel Systems - part 2	General Ch. 4 & 5
11	11/18	Electrical Systems	General Ch. 8 & 9
12	11/25	Instrumentation	Airframe Ch. 12
		Vacuum Systems	General Ch. 4
13	12/2	Instrumentation	Airframe Ch. 12
		Installed Equipment	
14	12/9	Fire Protection	Airframe Ch. 10
		Review for Final Exam	
	12/17	Final Exam	
FINAL EXAMINATION: Dec. 16th , 2013 Time: 1715-1930			