San José State University
College of Engineering
Department of Aviation and Technology
Avia 042, Aircraft Systems
Section 01 (lec) & 11&12 (labs) Fall 2017

Instructor:		Daniel L. Neal
Office Location:		Reid Hillview Campus – RHV-110
Telephone:		(408) 924- 6598
		(408)930-5041 cell
Email:		daniel.neal@sjsu.edu
Office Hours:		At RHV Prior to, and after Lab sections, and Reference the Flash Appointment System for additional hours at Main Campus
Class Days/Times:		Section 1 (lecture) Mon/Wed 1:30pm to 2:20pm
		Section 11 (lab) Mondays 6pm to 8:45pm at RHV 120 Section 12 (lab) Tuesdays 9am to 11:45am at RHV 120
Classroom:		Lectures are in IS-216 Labs are at the Reid Hillview facility (RHV 120)
Prerequisites:		Avia 2, Phys 2A, Phys 2B (Phys 2B can be taken concurrently)

Canvas

Copies of the course materials such as the syllabus, major assignment handouts, etc. may be found on SJSU's Canvas system.

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 on the Canvas shell entitled FA16: AVIA-42 Sec 01 - Aircraft Systems

Other Readings

1. FAR/AIM Federal Aviation Regulations (2017 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

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 section at http://info.sjsu.edu/static/catalog/policies.html. Add/drop deadlines can be found on the current academic calendar web page located at http://www.sjsu.edu/academic_programs/calendars/academic_calendar/. The Late Drop 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 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

	Points	**Percentage**
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

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/"

Key dates

9/6/17 – last day to drop courses without entry onto the student's permanent record.
9/13/17– last day to add a course for the Fall 2016 term.
12/18/17 – Final exam for this class - Monday December 18 at 12:15 - 2:30

Avia 42 / Aircraft Systems, Fall 2017, Lecture Plan

AVIATION 42			
Lecture Schedule			
FALL-2017, Sec. #1 Monday/Wednesday 1:30pm through 2:20pm			
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.			
Week	**DATE**	**TOPICS**	**TEXT ASSIGNMENT**
1	8/23	Introduction	Greensheet
		FARs	FARs part 1, 21,43,91
2	8/28-8/30	Complete FARs, Start Weight and Balance	General Ch. 3
3	9/4	Labor Day Holiday - No Class	
	9/6	Weight and Balance + Adverse Loading	General Ch. 3
4	9/11-9/13	Corrosion	
5	9/18-9/20	Wheels, Tires, and Brakes (Lecture 5)	Airframe Ch. 9
		Aircraft Logbooks, Midterm Review	
6	9/25-9/27	Start Landing Gear	
		Midterm #1	Airframe Ch. 9
7	10/2-10/4	Landing Gear - Rrequirements and Designs	Class notes
		Hydraulic Systems	Airframe Ch. 8
		Hydraulic Landing Gear Systems	Airframe Ch. 9
8	10/9-10/11	Electro-mechanical landing gear systems	Airframe Ch. 9
		Oxygen Systems	Airframe Ch. 14
		Pressurization Systems	Airframe Ch. 14
9	10/16-10/18	Flight Control Systems	Airframe Ch. 2
10	10/23-10/25	Air Conditioning	Airframe Ch. 14
11	10/30	Heaters/Heating Systems	Airframe Ch. 14
	11/1	***Midterm 2**	
12	11/6-11/8	Review Midterm #2 Fuel Systems - Start	General Ch. 4 & 5 General Ch. 8 & 9
13	11/14-11/16	Fuel Systems	
14	11/20	Electrical Systems	
	11/22	Non-instructional day - no lecture	
15	11/27-11/29	Instrumentation, Vacuum Systems, Installed Equipment, Fire Protection	
16	12/4-12/6	Instrumentation, Vacuum Systems, Installed Equipment, Fire Protection	
17	12/11	Last day of instruction Final Exam Review	
	12/18	Final Exam	
FINAL EXAMINATION: Monday December 18 at 12:15 - 2:30			