AE 15 – Air & Space Flight: Past, Present, and Future

Instructor	Sean Montgomery sean.montgomery@sjsu.edu or sean5montgomery@gmail.com
Office Hours:	Thursday noon-12:30 pm or by appointment
Office Location:	Engr. 272F

Credit	1 (one) unit
Class Days / Time	Thursday 11:00 – 11:50
Final Exam	Wednesday, May 18th 9:45 am to noon
Classroom	Engr. 164
Prerequisite	Interest in Aerospace Engineering
Textbook	Instructor Notes
Reference	Anderson, J.D., Introduction to Flight, McGraw-Hill
Course Website	SJSU Canvas <http://www.sjsu.edu/at/ec/canvas/>

Course Description

Introduction to the history, basic principles, current and future developments of the aerospace engineering field.

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Course Goals

To introduce students to:

- The historical context in which aeronautical and astronautical systems have been developed.
- The basic principles of atmospheric flight and aircraft design.
- The basic principles of space flight and spacecraft design.
- The current and future developments in the field of aerospace engineering, the aerospace engineering industry status and outlook.

Course Learning Objectives

By the end of the semester you should be able to:

1. Identify the major milestones in the history of atmospheric and space flight, explain the driving forces behind each milestone, and discuss the impact on society and globalization.
2. Explain how aerospace vehicles generate lift and calculate lift using approximate methods.
3. Explain how aerospace vehicles generate drag at various flight regimes and calculate drag using approximate methods.
4. Communicate and collaborate effectively with teammates (by setting goals, managing time, resolving conflicts, delegating tasks, making critical decisions, etc.) while working on aerospace engineering problems
5. Identify current and future development in aerospace engineering and discuss the challenges facing the aerospace industry in the 21st century

Grading

40% Participation
30% Quizzes/Homework
30% Project

Participation points will be awarded for asking or answering a question in class, or taking notes for the class. Participation grades will be curved at the end of the semester based on the average number of participation points per student. Short quizzes will be given roughly every other week at the beginning of class. Short homework assignments will be given regularly which require students to research a question related to the next week's topic and write a brief answer (for example: Why were early airplanes all biplanes?) The project will either be a group presentation on a historic aerospace vehicle, or a group design challenge. The project details will be determined later in the semester.

Grade Criteria:

A+ Depends on how much extra credit is offered (roughly >97%)
A ≥ 92%
A- 90% - 92%
B+ 88% - 90%
B 82% - 88%
B- 80% - 82%

C+ 78% - 80%
C 72% - 78%
C- 70% - 72%
D 60% - 70%
F < 60%

Approximate Weekly Schedule

Week	Topics
1	Introduction
2	WWI
3	Post WWI
4	WWII
5	1950s aircraft
6	1950s rockets
7	1960s aircraft
8	1960s spacecraft
9	1970s aircraft
10	1970s spacecraft
11	1980-2000 aircraft
12	1980-2000 spacecraft
13	Field Trip to the Hiller Aviation Museum in San Carlos
14	Post 2000 aircraft and spacecraft
15	In development aircraft and spacecraft
16	Future aircraft and spacecraft
Final	Projects

Policies

AE Department & SJSU Policies are posted at: <http://ae.sjsu.edu/program-policies>