

SYE 3803– Spring Semester 2015

Fundamentals of Avionics

Instructor: Tom Fallon
Office: Q249
Phone: (678) 915-7431
Email: tfallon@spsu.edu

Text:

Principles of Avionics, 8th Edition by Albert Helfrick, Avionics Communication, Inc.
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Course Objective:

The primary topics of this course are related to the understanding of the principles, theory, and technology of modern avionic systems. Various subsystems including, but not limited to, sensory, display, navigation, air data, autopilots, and flight management are examined individually and as an integrated whole. Both mathematical and conceptual approaches for these subsystem will be taught as well as key considerations, such as flight safety, which undergird their usage and functionality.

Pre-Requisite:

SYE 3801 - Aerodynamics

Course Outcomes

Students will be able to:

Objective 1: Demonstrate an understanding of the basic principles and concepts of modern avionics

Objective 2: Identify the purpose and primary characteristics all the key avionic subsystems found in a modern aircraft including: sensory, display, navigation, air data, autopilots, and flight management

Objective 3: Demonstrate an understanding of the mathematical and conceptual approaches used to solve the operational and physical aspects of the subsystems comprising a modern avionics system

Objective 4: Demonstrate an understanding of the requirements and principles related to integration all of the subsystems into a single avionics system

Objective 5: Demonstrate the capacity to design a simple avionics system which includes all major subsystems and their inter-relationships and dependencies

Objective 6: Understand the key principle of “flight safety critical” as it applies to each subsystem

Grading Policy: There will be no make-up quizzes

A \geq 90, 80 \leq B $<$ 90, 70 \leq C $<$ 80, 60 \leq D $<$ 70, F else

Final Average = .20*Hw + .15*Tx + .15*Ty + .15*Tz + .15*P +.20*F

Tx,y,z = highest 3 out of 4 test grades

Hw = Homework

P = Project

F = Final Exam

Professional Behavior: All students are expected to abide by the professional ethical behavior standards as contained under the Student Life Regulations of the Graduate Catalog of SPSU.

This includes all work being completed individually by the student registered for the course and all sources acknowledged within all written work and communications.

Academic dishonesty:

Some guidelines are listed below. Additional guidelines for individual assignments may be explained with the assignment. If you have any questions, please ask me!

- Students may not work together on the exam.
- Any resources used to complete the project (including significant help from fellow students) must be properly cited.

Incidents of academic dishonesty will be investigated by the instructor. The instructor will decide on appropriate actions depending on the severity of the infraction that can include the following: a grade of “0” for the assignment, failure in the course, or recommendation for dismissal from the program. All incidents will be documented in your departmental record. SPSU honor code is available at: www.spsu.edu/honorcode

Important Dates:

Monday, January 19th, MLK Jr. Holiday
 Thursday, February 19th, Mid-Term Grades Due
 Sunday, 3/1 – Saturday, 3/7, Spring Break
 Monday, April 27th, Last Day of Classes
 Wednesday, 4/29 – Tuesday, 5/5, Final Exams

ADA/504: Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the counselor working with disabilities at (678) 915-7244 as soon as possible to better ensure that such accommodations are implemented in a timely fashion.

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Week	Topic	Exams
1	Introduction	
2	Terrestrial Radio Navigation	
3	Terrestrial Radio Navigation	T1
4	Terrestrial Landing Aids	
5	Satellite Navigation	T2
6	Surveillance Systems	
7	Airborne Communication Systems	
8	Onboard Communications	T3
9	Onboard Communications	
10	Indicators	
11	Air Data Computers	
12	Flight Control Systems	T4
13	Complete Avionics System	
14	NextGen	
15	Review	