



Southwestern Illinois College
Course Syllabus
Aircraft Systems and Components — AVIA 122
Summer 2021

GENERAL INFORMATION:

Instructor: Eric T. Stake
Class time: 7 - 8:50 p.m. Monday & Wednesday
Semester Hours: 2cr
Class Location: LA 1204 **Campus:** Belleville
Phone: (all 618) 632-9663 (home) / 530-1961 (cell) / 229-8597 (work)
Toll Free in Illinois: 1-800-222-5131
Office Hours: By appointment
E-mail: eric.stake@swic.edu
Website: www.swic.edu or www.stakenet.com

COURSE DESCRIPTION:

An In-depth study of the systems installed on single engine general aviation aircraft under F.A.R Part 23. Subjects include aircraft certification, construction, flight controls, engine design and operation, fuel systems, basic hydraulics, electrical systems, instruments and landing gear. This course is designed to provide flight students and certified pilots a thorough understanding of systems and prepares the individual for advanced AVIA 222 Transport Aircraft Systems Course.

COURSE OBJECTIVES:

The course is designed to educate pilots on aircraft systems, certifications, and maintenance functions. It will provide the student with a working knowledge of the certification process of small aircraft designed, tested and certified under FAR Part 23 Title 14 Code of the Federal Register. The course also provides the student with a working knowledge of the design and structure of aircraft and their major components and systems used in the operation of the aircraft. The systems and aircraft teaching aids are primarily designed and presented for the Cessna 172 aircraft.

PREREQUISITES:

AVIA 101 or consent of the coordinator.

TEXTBOOK:

Aircraft Systems for Pilots, Dale De Remer, ASA Publishing, ASA-ACSYS-P

COLLEGE-WIDE CORE COMPETENCIES

Students who complete a degree from SWIC will gain competency in skills related to communication, reasoning, and citizenship. In this class, students will develop skills or be exposed to the following competencies:

Citizenship Skills		Communication Skills		Reasoning Skills	
Civic & Social Accountability	<input type="checkbox"/>	Computer Literacy	<input type="checkbox"/>	Critical Thinking	XX
Personal Accountability	<input type="checkbox"/>	Oral Communication	<input type="checkbox"/>	Quantitative Literacy	XX
		Writing	<input type="checkbox"/>		

GRADING PROCEDURE:

Homework assignments are due at the beginning of each class. Assignments and due dates are listed in the Course Schedule/ Assignments section. Assignments will not be accepted if they are late.

Letter Grade Points

A	90% and above
B	80% to 89%
C	70% to 79%
D	60% to 69%
F	59% and below

Points for Homework Assignments and Examinations

Task	Value
Quiz # 1	15%
Mid Term Exam	30%
Quiz # 2	15%
Final Exam	30%
Class Participation and Attendance	10%
Total grade:	100%

EXTRA CREDIT:

Extra credit can be earned by bringing in aviation-related news items. Be prepared to present the article and discuss it in class.

It is *highly recommended* that you read each chapter prior to class. This will help you to understand subject material, prepare you to discuss the material in class, and help the instructor to answer any questions and clear up any misconceptions you might have.

ATTENDANCE POLICY:

College Policy: You are expected to be present for all assigned classes, lectures or laboratory sessions. If you are absent, you must show your instructor that your absence has been for a good cause. If you are absent more times during the semester than the number of times the class meets per week, you may be dropped from the course at the discretion of the instructor. When a student is dropped by an instructor with an effective date before the midterm date of the class a "W" will be recorded. When a student is dropped for non-attendance by an instructor with an effective date after the midterm date, the instructor will have the prerogative to assign a grade of "F" or "W".

Attendance is taken for each class. The instructor is available by appointment for additional instruction.

EMERGENCY CLOSURE STATEMENT

In case of emergency closure, students must log into Blackboard, <https://blackboard.swic.edu/> for specific assignments/instructions. At the Blackboard log in, enter your User Name and SWIC password - choose your course(s) from the My Course menu. Your instructor will notify you where in the course shell specific assignments/instructions are located.

Posting of assignments/instructions during college closure are provided to prevent disruption in the planned course schedule. Some labs may have students complete assignments on alternate dates/times when the college is open. Your instructor must notify you of the practices within that program/discipline.

DISABILITY & ACCESS CENTER

Students with disabilities who believe that they may need accommodations are encouraged to contact the Disability & Access Center at 618-222-5368 or 618-234-3347 (TDD) to ensure that such accommodations are implemented in a timely fashion.

STUDENT LEARNING OUTCOMES

The assessment of student learning is an integral part of the educational experience at Southwestern Illinois College. To this end, the faculty continually assess student learning to improve student success. Occasionally you will be requested to participate in college-wide and/or discipline specific assessment activities. Please take these assessments seriously. The data that is collected will provide valuable information to faculty and will be used to improve student learning at SWIC.

ETHICAL CONDUCT – Academic Dishonesty

Academic Dishonesty-College Policy – Academic misconduct includes, but is not limited to cheating, plagiarism and forgery, failure or refusal to follow clinical practice standards, and soliciting, aiding, abetting, concealing, or attempting such acts. Plagiarism is defined as the act of representing the work of another as one's own. Plagiarism may consist of copying, paraphrasing, or otherwise using written or oral work of another without proper acknowledgment of the source or presenting oral or written material prepared by another as one's own. Refer to the Student Handbook or College Catalog for more details.

ACADEMIC RIGOR STATEMENT

You are enrolled in an academically rigorous college course. Your success in this course will require a significant investment of time outside of the class. According to the Administrative Rules of the Illinois Community College Board (section 1501.309), it is assumed that the student will invest two hours of outside study time for each hour of classroom lecture time and one hour of outside study time for each two hour laboratory session.

Phones in Classroom – All cell phones and electronic devices should be turned off or silenced prior to entering the classroom. Any permission for usage should be obtained prior to the start of class and is at the discretion of the instructor.

Policy for Inclement Weather Conditions – During times of inclement weather, Southwestern Illinois College has three options for dealing with the situation: cancel classes and cease all business, exercise the delayed-start option, or keep the college open. If the college chooses to use the delayed-start option rather than close, the college will open at 10 a.m. The decision to cancel classes or exercise the delayed-start option will be posted on the home page of Southwestern's Web site at swic.edu as well as broadcast on FOX 2 (KTVI), KMOV-TV Channel 4, KSDK-TV Channel 5, and radio stations KMOX-AM 1120 and WIL-FM 92.3.

SWIC Alert – This free emergency alert system sends text messages and/or emails to students and employees. Text messaging is an opt-in notification system where a text message can be received on your mobile phone. SWIC does not charge for this service; however, the only cost is what the cell phone carrier charges to receive text messages. You may choose to receive text messages or emails for a specific campus or all campuses. Once enrolled, your account is active for one year. You will receive notice 30-days before your enrollment will expire.

How to Register

1. Log in to eSTORM at estorm.swic.edu
2. Click Main Menu in the upper left
3. Scroll over SWIC Alert and choose SWIC Alert Signup

Emergency Procedures – General information about the emergency response and evacuation procedures for Southwestern are publicized each year as part of the institution's Clery Act compliance efforts and that information is available on the Southwestern Public Safety website. Emergency Response Guides and Plans are available on the Public Safety website at SWIC.edu.

Official Communication – Your student e-mail account is the official method to communicate between you and your instructor. Official communication will not be sent to your personal e-mail (yahoo, wildblue, gmail etc.).

TOPICAL OUTLINE/COURSE SCHEDULE/HOMEWORK ASSIGNMENTS:

Date	Course Schedule
7 Jun 2020	Course Overview/Introductions Certification & Maintenance Requirements of Aircraft Under CFR 23 Homework: Read Chapter 2, pages 15-20
9 Jun 2020	Aircraft Engine Types and Construction (Chapter 2, Pages 15-20) Homework: Read Chapter 2, Pages 21-36
14 Jun 2020	Reciprocating Engine Design and Construction (Chapter 2, Pages 21-36) Homework: Read Chapter 3, Pages 39 – 50
16 Jun 2020	Reciprocating Engine Theory of Operation, (Chapter 3, Pages 39 – 50) Homework: Read Chapter 4, Pages 53 – 62
21 Jun 2020	<u>QUIZ # 1</u> Engine Lubrication and Cooling (Chapter 4, Pages 53 – 62) Homework: Read Chapter 5, Pages 65 – 82
23 Jun 2020	Propellers and Governors (Chapter 5, Pages 65 – 82) Homework: Read Chapter 6, pages 85 – 116
28 Jun 2020	Fuel and Fuel Systems (Chapter 6, Pages 85 – 116) Homework: Read Chapter 11, Pages 179 – 207
30 Jun 2020	<u>Mid-Term Exam</u> Electrical Components (Chapter 11, Pages 179 – 207) Homework: Read Chapter 12, Pages 209 – 232

**TOPICAL OUTLINE/COURSE SCHEDULE/HOMEWORK ASSIGNMENTS:
(Continued)**

Date	Course Schedule
5 Jul 2020	4th of July Holiday Observed (school closed)
7 Jul 2020	Aircraft Electrical Systems (Chapter 12, Pages 209 – 232) Homework: Read Chapter 13, Pages, 235 – 251
12 Jul 2020	Hydraulic Systems (Chapter 13, Pages 235 – 251) Homework: Read Chapter 13, Pages 261 – 284 and: Chapter 9, Pages 137 – 157
14 Jul 2020	Aircraft Landing Gear (Chapter 13, Pages 261 – 284)
19 Jul 2020	<u>QUIZ # 2</u> Aircraft Pressurization and Pneumatic Systems (Chapter 9, Pages 137 – 157) Homework: Read Chapter 15, Pages 303 – 336
21 Jul 2020	Aircraft Structures and Flight Controls / Weight & Balance (Chapter 15, Pages 303 – 336) Homework: Read Chapter 16, Pages 341 – 380 Homework: Read Chapter 17, Pages 381 – 427
26 Jul 2020	Inspections & Pilot Maintenance / Aircraft Instrument Systems (Ch. 16, Pgs 341 – 380) / (Chapter 17, Pages 381 – 427) Homework: None Review for Final Exam Your chance to clear up <i>any</i> lingering questions . . .
28 Jul 2020	<u>AVIA 122 Final Exam</u>