

**ENGINEERING AND TECHNOLOGY EDUCATION DEPT.
SEMESTER COURSE SYLLABUS
SPRING 2008**

AV 2190 - Aircraft Systems Lab

1 credits

Instructor: Charles B. Larsen/Leon Orton

I. Catalog Description

Laboratory application of principles and components studied in AV 2170.

II. Course Objective

This course is intended to provide the student with an understanding of the systems necessary, on present day aircraft, for the proper and safe operation procedures of those aircraft. Upon completion, each student will be able to achieve the level of proficiency indicated by the number in parenthesis.

Teaching Level

A. Aircraft Cabin Atmospheric Control Systems

- (1) 1. Physiology of Flight
- (1) 2. Aircraft Oxygen Systems
- (2) 3. Oxygen Systems and Components
- (2) 4. Oxygen System Servicing
- (1) 5. Aircraft Pressurization Systems
- (1) 6. Aircraft Heaters
- (1) 7. Aircraft Air Conditioning Systems

B. Aircraft Instrument Systems

- (1) 1. Classification of Instruments
- (1) 2. Engine Instruments

C. Communications and Navigation Systems

- (1) 1. The Place of Avionics in Aviation Maintenance
- (1) 2. A Brief History of Avionics
- (1) 3. Radio Communications
- (1) 4. Radio Navigation
- (1) 5. Automatic Flight Control

D. Position and Warning Systems

- (1) 1. Position Indication Systems
- (3) 2. Warning Systems

E. Aircraft Fuel Systems

- (1) 1. Importance of the Aircraft Fuel System
- (1) 2. Types of Aviation Fuel
- (2) 3. Aircraft Fuel Systems
- (2) 4. Aircraft Fuel System Components
- (3) 5. Fuel Tank Repair and Testing
- (3) 6. Fuel System Servicing

F. Ice and Rain Control Systems

- (2) 1. Ice Control Systems

G. Fire Protection Systems

- (1) 1. Principles of Fire Protection Systems
- (3) 2. Fire Detection Systems
- (2) 3. Fire Extinguishing Systems

Lab Projects

A. Cabin Atmosphere Control Systems

- (1) 1. Repair heating, cooling, air-conditioning, pressurization, and oxygen system components
- (1) 2. Inspect, check, troubleshoot, service, and repair heating, cooling, air-conditioning, and pressurization systems
- (2) 3. Inspect, check, troubleshoot, service and repair oxygen systems

B. Aircraft Instrument Systems

- (1) 1. Inspect, check, service, troubleshoot and repair heading, speed, altitude, time, attitude, temperature, pressure and position indicating systems
- (2) 2. Install instruments

C. Communication and Navigation Systems

- (1) 1. Inspection, check, and service auto-pilot and approach control systems
- (1) 2. Inspect, check and service aircraft electronic communication and navigation systems
- (2) 3. Inspect and repair antenna and electronic equipment installations

D. Aircraft Fuel Systems

- (1) 1. Check and service fuel dump systems
- (1) 2. Perform fuel management, transfer, and defueling
- (1) 3. Inspect, check, and repair pressure fueling systems
- (2) 4. Repair aircraft fuel systems components
- (2) 5. Inspect and repair fluid quantity indicating systems
- (2) 6. Troubleshoot, service, and repair fluid pressure and temperature warning systems.
- (3) 7. Inspect, check, service, troubleshoot, and repair aircraft fuel systems

E. Position and Warning Systems

- (1) 1. Inspect, check, and service speed and takeoff warning systems, electrical brake controls, and anti-skid systems
- (3) 2. Inspect, check, troubleshoot, service, and repair landing gear position indicating and warning systems

F. Ice and Rain Control Systems

- (2) 1. Inspect, check, troubleshoot, service and repair airframe ice and rain control systems.

G. Fire Protection Systems

- (1) 1. Inspect, check and service smoke and carbon monoxide detection systems
- (3) 2. Inspect, check, service, troubleshoot, and repair aircraft fire detection and Extinguishing systems

III. Text

Jeppesen A&P Technician Airframe Textbook
Jeppesen A&P Technician Airframe Workbook

References:

Aircraft Inspection & Repair, AC 43:13-1A, FAA
Federal Air Regulations FAR/AMT
Manufacturer's Manuals

IV. Course Fee

There is a \$20.00 course fee for materials and supplies.

V. Grades

Determined by the total points of examinations, quizzes, and lab assignments. At least two major exams will be given.

VI. Examination Schedule

Letter grades will be determined by:

Lab projects & assignments	500 pts
Test #1	100 pts
Test #2	100 pts
Final Exam	<u>300 pts</u>
Total:	1,000 pts

VII. Laboratory

Projects will be assigned to coincide with the material taught in AV 2170. Each student will complete all lab projects to the satisfaction of the instructor and to the level of instruction specified by FAR 147.

VIII. Attendance

Each student is expected to be in attendance for the full lecture and all lectures held. Students coming late or leaving early will be graded accordingly with all tardiness and absences recorded. Federal Aviation Certification requires full attendance. If an absence becomes necessary due to illness, etc., make-up arrangements should be made with the instructor immediately. A minimum of 50 clock hours is required in this course.

IX. Accommodation for Persons With Disabilities

If a student has a disability that will likely require some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center, preferably during the first week of the course. Any requests for special considerations relating to attendance, pedagogy, taking of examinations, etc., must be discuss with and approved by the instructor. In cooperation with the Disability Resource Center, course materials can be provided in alternative formats--large print, audio, diskette, or Braille.