Instructor: Jack Little, (909)652-6867; e-mail: jack.little@chaffey.edu

Office Information: Hours: Tuesday, Wednesday, Thursday 6:45-7:15 AM; 3:45-5:00 PM; or by appointment.

Course Title:
AMT 36 – Airframe Primary Systems – Section 87681
AMT 38B – Airframe Lab – Section 87686 (M-Th 2:15-4:00)
AMT 38B - Airframe Lab-Section 88350 (Friday)
AMT 28C - Powerplant Lab – Section 87676 (Friday)

AMT 28C is used in conjunction with the syllabus for AMT 27

You may only attend sections you are enrolled in

Location: Aero – 1K

Course Description: This 8 week course is designed to provide the student with an understanding of airframe primary systems. Subjects covered in this course are airframe electrical systems, airframe hydraulic systems, landing gear systems, and airframe fuel systems.

Textbooks:
A&P Technician Airframe Textbook, Jeppesen Sanderson (Required)
A&P Technician Airframe Test Guide With Oral and Practical Study Guide, Jeppesen Sanderson (Required)
Instructor’s Powerpoint Slides (Required)-Stocked in Bookstore
Pioneer Mechanics in Aviation (Required)
Airframe Handbook FAA-H-8083-31, (Optional)

REQUIRED MEANS YOU NEED TO HAVE TEXTBOOKS AT THE FIRST LECTURE MEETING, AND BRING THEM TO EVERY CLASS. YOU WILL BE ASKED TO LEAVE CLASS AND RETURN WHEN YOU HAVE YOUR BOOKS. PERIODIC TEXTBOOK CHECKS WILL BE CONDUCTED. NOT HAVING BOOKS WILL AFFECT YOUR GRADE BY A LOSS OF 25 POINTS PER TEXTBOOK CHECK.

Lecture Schedule: Tuesday, Wednesday, Thursday 7:15 – 10:45. Break from 9:00 to 9:30.

Do not be late when returning from break!!! You may not be allowed to reenter the class if you arrive late. If the door is closed and locked after break, please do not knock. You will be required to make up any missed lecture material.

Classroom Policy: Please ensure all watches and cell phones are silent. Text messaging is NOT ALLOWED in class. If caught, or I even suspect you are using your phone, you may be asked to leave the classroom. Food and drink are not allowed in classrooms per school policy, with the exception of water in a travel mug. Please respect other persons and their property. Any disrespect to instructors or other students will result in the student being formally written up and being asked to leave up to two days.
Teaching Methods: Lecture will consist of computer projected information, handouts, video tapes/DVD, class work projects, and physical examples. Classroom questions and discussions are encouraged; disruptive behavior is not acceptable.

Tests: Tests will be multiple choice questions. Approximately 50% of the questions come from the Airframe Test Guide, the remainder will be from lecture material. Each test is worth 100 points. There will be NO makeups for tests, either missed or failed. Use of unapproved materials (or any form of cheating) during a test will result in a zero on that test and a written reprimand. A comprehensive final exam will be given (150 questions), at the end of the course. The final exam will be given on 03/03/2016, from 7:15 to 10:45 AM. There will be no make-ups for the final exam.

Quizzes: There will be approximately 4 quizzes this 8 week term (one per chapter). The questions will come from the required reading material pertaining to the chapter from the textbook. The quizzes will be unannounced, and at the beginning of lecture. Therefore, you must read the material on a daily basis (and pay attention during lecture). Each quiz is worth 25 points. There will be no makeups for the quizzes.

Presentation: One research presentation on a subject of interest related to the topics of this course will be required. The length of the presentation should be approximately 10 minutes. All presentation times will be given by the instructor. This is worth 100 points.

Class Participation: Each student is expected to participate in class by being involved in class discussions, taking tests/quizzes, etc. Absences, tardiness, and sleeping in class will be considered non-participation. You may stand in the back of class if you feel tired. Sleeping in class will result in a loss of lecture time and participation points, and WILL AFFECT YOUR GRADE. If a student misses more than 15% (approximately 12 hours) of any class section, the student may be dropped (not meeting FAA/program requirements). Due to newly implemented state regulations regarding repeatability of classes, if a student misses more than 15% of any class section, the student may be dropped from that section, or receive a failing grade (not meeting FAA/program requirements). In addition, if a student has received a letter grade of a “C” or better, that section cannot be repeated. Therefore, keep in mind total hours required.

Field Trip: There will be a field trip to United Airlines during the term at a date to be later announced. If you don’t attend the field trip, you may stay in lab for the remainder of the day.

Lab Projects: Lab project sheets can be found in the file cabinet in the airframe lab. Each student should take ONE COPY of each project sheet. These project sheets are the student’s responsibility. If they are lost, the student must find a way to get another copy. If you find a file with only a few copies of the project sheet remaining, please give one to the tool crib attendant to make additional copies. DO NOT TAKE THE LAST COPY.
the project sheets first that pertain to the subjects that are being covered in lecture. Some projects may have more than one person assigned to them. Each student will be graded on an individual basis for group projects. It is important that each student fully understands the project for credit. If a project states it must be completed individually, do the project alone. Read all information on the project sheets and follow the instructions. Ensure the project is complete and you have a full understanding of the system or component before being quizzed on it. If there are questions on the project sheet, ensure all are answered using the reference material and page number where the answer was found. Failure to meet any of the criteria of the project sheet will result in a lower grade for the project. A short simulated logbook entry may be required at the completion of each project to reinforce to proper information required in a logbook entry that you will be performing in the field.

Lab Portion Breakdown: You will be required to complete the following projects if you are enrolled full time: AA29a, AA29b, AA29c, AA29d, AA29e, AB30a, AB30b, AB30c, AB30d, AB30e, AB30f, AB30g, AB30h (hydr. pump and motor are separate projects), AB30j, AB31, AB32a, AB32b, AB32c, AB32d, AF44a, AF44b, AF44c, AF44d, AF47, AG48a, AG48a(1), AG48b, AG48c, AG48d, AG48e, AG48f, AG49, AG50a1, AG50a2, and AG50a3. If you work on any other projects, you must have instructor approval first. Your lab grade portion of the term will be based on the number of lab project hours completed. Each lab project hour is assigned a point value. The number of project hours completed is multiplied by that value. If all assigned projects are completed, the student will earn the maximum point value (150 points) for that term.

Additional Labs: The grade for AMT 38B (late and Friday) will be calculated by determining the number of project hours completed and multiplied by the point value for each hour (50% of grade). The remaining 50% will be calculated by the number of hours attended and multiplied by the point value for each hour. You will be allowed to work on other projects and special projects should you complete all this sessions projects early, which will be assigned by the instructor. You will not be allowed to sit idle in lab. This would not be tolerated in a work environment either. In addition, lab time will not be used to study for exams. When the cleanup whistle blows, students are expected to clean their assigned areas. Five points will be removed from their lab grade for each day they are observed not cleaning.

Toolboxes: Students are required to bring their tools to class every lab session. You are required to have all tools on the General Tool List. Additionally, you will be required to have specific tools for Airframe:

**Inspection mirror**  
**Flashlight** (Any will work, but a 2 or 3 D-cell maglight I have found is best, approximately $30.00 including minimag – 2 AA-cell light).
Safety glasses (should be worn any time in the lab, they are for your own safety). I will deduct 5 points from your project grade each time you are found not wearing safety glasses.

An unannounced toolbox check will be conducted approximately the 5th week of lab and will account for 20% of your lab grade. An employer expects you to have your tools every day, and so do we!!

NOTE: LEAVING THE AMT BUILDING (OTHER THAN BREAK, LUNCH, OR FOR THE DAY), IS NOT ALLOWED WITHOUT NOTIFING OR RECEIVING PERMISSION FROM AN INSTRUCTOR.

NOTE: IF YOU MISS A LECTURE SESSION, IT IS YOUR RESPONSIBILITY TO FIND OUT WHAT INFORMATION WAS MISSED (EXAMPLE: TEST DATE ANNOUNCED, HOMEWORK DUE, ETC.)

NOTE: IT IS THE STUDENTS RESPONSIBILITY TO DROP A SECTION IF THEY FEEL THEY NEED TO. THE INSTRUCTOR WILL NOT DO ANY DROPS OTHER THAN CENSUS DROPS THE FIRST WEEK, UNLESS THERE IS EVIDENCE OF LACK OF ACADEMIC PROGRESS (EXCESSIVE ABSENCES)

Projects will be graded based on the following:

- Knowledge of system or component is worth 75% of your grade. Professional conduct is worth 25% of the grade, and includes the following:
  - **Safety**: Do you follow safety procedures and use common sense (safety glasses)?
  - **Horseplay**: Zero tolerance is in effect in the lab. You may be asked to leave if horseplay is observed.
  - **Cleanliness**: Do you practice a FOD free environment.
  - Does the project completed in a timely manner?
  - Do you waste time in the lab/sleep/play computer games?
  - Were the reference materials used?
  - Can I read your writing (**I am tough on penmanship!!!!)**
  - Were the proper tools used?
**LECTURE PORTION BREAKDOWN**

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Value each</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject Tests</td>
<td>3</td>
<td>100 points ea.</td>
<td>300</td>
</tr>
<tr>
<td>Quizzes</td>
<td>4</td>
<td>25 points</td>
<td>100</td>
</tr>
<tr>
<td>Presentation</td>
<td>1</td>
<td>100 points</td>
<td>100</td>
</tr>
<tr>
<td>Final Exam</td>
<td>1</td>
<td>100 points</td>
<td>100</td>
</tr>
<tr>
<td>Participation</td>
<td></td>
<td>250 points</td>
<td>250</td>
</tr>
<tr>
<td>Lab Projects</td>
<td></td>
<td>150 points</td>
<td>150</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>1000</strong></td>
</tr>
</tbody>
</table>

**Grading:** Total points achieved – 900-1000=A; 800-900=B; 700-800=C; 600-700=D; <600=F

**Lecture Subject and Test Schedule:**

<table>
<thead>
<tr>
<th>Date</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/12</td>
<td><strong>CHAPTER 7:</strong> Generators; Theory; DC Gen. construction; Ratings; Regulation</td>
</tr>
<tr>
<td>01/13</td>
<td>Ch. 7 (con’t.): DC gen. service/maintenance; Gen. systems; Alternators; Alternator controls; Alternator service/maintenance; AC alternators</td>
</tr>
<tr>
<td>01/14</td>
<td>Ch. 7 (con’t.): Batteries; Battery ratings; Installation; Electrical circuits (battery, generator)</td>
</tr>
<tr>
<td>01/19</td>
<td>Ch. 7 (con’t.): Electrical circuits (alternator, external power, starter, avionics power, landing gear); Small multi engine aircraft circuits (paralleling circuits); Large multi engine aircraft; Instrumentation and controls</td>
</tr>
<tr>
<td>01/20</td>
<td>Ch. 7 (con’t.): Automated AC power systems; Wiring installation; Terminals; Junction boxes; Bonding; Coaxial cable</td>
</tr>
<tr>
<td>01/21</td>
<td>Ch. 7 (con’t.): Electrical system components; Switches; Current limiting devices; Lights; Motors</td>
</tr>
<tr>
<td>01/26</td>
<td>Ch. 7 (con’t.): Motors, AC motors; <strong>CHAPTER 7 REVIEW</strong></td>
</tr>
<tr>
<td>01/27</td>
<td><strong>CHAPTER 8:</strong> Hydraulic and Pneumatic Systems; Principles; Components and design; Hydraulic fluids; Basic hydraulic systems; Hydraulic power systems;</td>
</tr>
<tr>
<td>01/28</td>
<td>Ch. 8 (con’t.): Special hydraulic systems; System components</td>
</tr>
<tr>
<td>02/02</td>
<td><strong>TEST CH. 7 TEXT/CH 20-PIONEER MECHANICS IN AVIATION;</strong> Ch. 8 (con’t.): System components</td>
</tr>
<tr>
<td>02/03</td>
<td>Ch. 8 (con’t.): System components; Seals; Large aircraft hydraulic systems; Pneumatic systems; High/medium/low pressure systems</td>
</tr>
<tr>
<td>02/04</td>
<td>Ch. 8 (con’t.): Pneumatic system components; Emergency systems; <strong>CHAPTER 8 REVIEW</strong></td>
</tr>
<tr>
<td>02/09</td>
<td><strong>TEST CH. 8 TEXT/CH.21-PIONEER MECHANICS IN AVIATION;</strong> <strong>CHAPTER 9:</strong> Landing Gear Systems; Types; Wheels; Nosewheel steering systems; Alignment, support, retraction</td>
</tr>
<tr>
<td>02/10</td>
<td>Ch. 9 (con’t.): Retraction systems; Safety devices; Rigging and adjustment; Brakes; Brake actuating systems</td>
</tr>
<tr>
<td>02/11</td>
<td>Ch. 9 (con’t.): Brake inspection and service; Malfunctions and damage; Anti-skid</td>
</tr>
</tbody>
</table>
systems

02/16  Ch. 9 (con’t.): Tires and tubes; Inspection; Repair; Storage; Tubes; Operation and handling (taxiing, braking, pivoting); **CHAPTER 9 REVIEW**

02/17  **CHAPTER 15**: Fuel Systems; Characteristics; Recip. Engine fuel; Turbine engine fuel; System requirements; System operation; Small single engine systems

02/18  **TEST CHAPTER 9 TEXT/CH.22-PIONEER MECHANICS IN AVIATION**; Ch. 15 (con’t.); Small multi engine systems; Large aircraft systems; Helicopter systems; Components;

02/23  Ch. 15 (con’t.); Components, Repair, Testing, and servicing; Tank repair; Fire hazards; Fuel contamination and control; Defueling

02/24  **FINAL EXAM REVIEW; OPEN**

02/25  **OPEN**

03/01  **PRESENTATIONS**

03/02  **PRESENTATIONS**

03/03  **FINAL EXAM**

**USE OF THE COMPUTER LAB**

Computers are for assigned projects that are aviation related only (AD research, projects requiring use of electronic maintenance manuals/parts catalogs). If the computers are misused, you may be banned from the computer room, written up for discipline, or suspended/expelled from the AMT Program, depending on the severity of the misuse. Computer misuse ranges from wasting lab time to ‘surfing’/downloading anything other than aviation related items, playing computer games, or downloading/using test studying software not installed on the computers. Loud talking and music will not be tolerated. If you are completing an interactive lab with sound, headphones/earphones are required but not provided. Please be respectful of other students.

**PERSONAL CELL PHONE/IPOD USE IN LAB**

Personal cell phone use should be kept to a minimum. Excluding emergencies, incoming callers should be advised to call back during break or lunch. Cell phone use is a privilege, not a constitutional right. Misuse will be cause for loss of FAA time.

IPODs, radios, music players, or cell phones with music capabilities may be used in the lab with one earbud only. One must remain loose. This is only applicable in the computer lab or while doing paperwork in the lab. If you are working with equipment, no music listening devices will be used for safety reasons. If this rule is not adhered to, the following will be the consequences:

1st Warning: Asked to put it away.
2nd Warning: Written reprimand put in students file. Kept in Aeronautics Department.
3rd Warning: Written reprimand sent to student discipline to be handled accordingly.

NOTE: At the instructor’s discretion, you may lose FAA time and/or be asked to leave for the day if there are repetitive offenses.

AMT 36 Student Learning Outcomes

Students successfully completing AMT 36 (grade "C" or higher) will have mastered the information required by the Federal Aviation Administration in the area of: Aircraft electrical systems

Students successfully completing AMT 36 (grade "C" or higher) will have mastered the information required by the Federal Aviation Administration in the area of: Aircraft Landing Gear Systems

Students successfully completing AMT 36 (grade "C" or higher) will have mastered the information required by the Federal Aviation Administration in the area of: Aircraft Hydraulic and Pneumatic Systems

AMT 38B Student Learning Outcomes

Students successfully completing AMT 38B (grade "C" or higher) will have mastered the information and have safely completed individual lab projects required by the Federal Aviation Administration in the areas of: Hydraulic Actuating Cylinders

Students successfully completing AMT 38B (grade "C" or higher) will have mastered the information and have safely completed individual lab projects required by the Federal Aviation Administration in the areas of: hydraulic master cylinder.

Students successfully completing AMT 38B (grade "C" or higher) will have mastered the information and have safely completed individual lab projects required by the Federal Aviation Administration in the area of: hydraulic gear pump.