AMT 27 Syllabus
Spring 2016 Term 1
Powerplant Systems and Components II

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Office Hours: Monday through Thursday, 0600-0715, 1415-1430 and by special appointment.

Class time and days: Monday, Tuesday, Wednesday and Thursday. 0715-1415. There is a total of 210 hours available for this class. The instructor will drop the student when 10 percent or 21 hours of absence has been accumulated. This is due to the lack of repeatability of classes per state rules and the FAA hour’s requirement for each class. Each student should be enrolled in a one unit additional lab in order to complete the program in two years. Each student needs to be attending 35 hours per week in order to complete the program in two years

: Powerplant Study Guide ASA (Latest revision)
: 43:13 Acceptable Techniques and Procedures
: Pioneer Mechanics in Aviation (PMA) - Giacinta Bradley Koontz
: Instructor issued handouts
: USB drive

Lecture schedule: Tuesday, Wednesday and Thursday 0715 to 1045. This is a combination lecture/ lab class and therefore we may deviate from this normal schedule as needed. A break will be from 0900 to 0930 and 1140 to 1220. Do not be late for class! You will be docked time and will be required to make up that same lecture time that was missed. You may not be allowed to enter the classroom if you arrive late.

Classroom Policies: Please silent all watches, pagers, cell phones and anything else that is annoying and will distract the class. Food and drinks are not allowed in the classroom per campus policy. Personal music listening devices and cell phones are not allowed in lab. School and personal computer use is limited to aviation class topics and assignments.

Teaching Methods: Lecture will be supported with overheads from the textbooks, videos, computer-based training, power point presentations, and practical hands on experience.
**Current Events Project:** Each student will bring in a current event article dealing with aviation and be prepared to discuss it in class. This will be worth 2.5 percent (50 Points). The last day to submit a current event is Tuesday March 2, 2016.

**Class Report:** Each student will prepare a fifteen minute PowerPoint presentation on a particular certified, military, homebuilt, kit plane or experimental aircraft. The student should include such topics as the aircraft’s design mission, performance figures, build time, cost to build, and powerplant performance and design specifics. The topic must be approved by the instructor. This will be worth 7.5 percent (150 Points). An additional 1 percent (20 Points) is available if you pick your subject topic by Thursday January 21, 2016. The last day to present your topic to the class is Wednesday March 3, 2016.

**Class Participation:** 5 percent (100 Points) will be based on your classroom performance. For example; do you stay alert in class and ask questions? Do you distract the class with non-related talking? Are you frequently late or absent?

**Quizzes:** Frequent quizzes will be given at the beginning of many classes. The questions will be based on the reading assignment for that class. They will be graded and returned that same day. Quizzes cannot be made up. The total of all quizzes will be worth 5 percent (100 Points).

**Reading Assignments:**
Chapter 6 Basic Fuel systems and Carburetors
1. Pages 129-144 up to Float Carburetors, Quiz
2. Pages 144-167, Quiz

Chapter 7 Fuel Injection Systems
3. Pages 169-189, Quiz

Chapter 20 Propeller Theory
4. Pages 581-589 up to Propeller Controls, Quiz
5. Pages 589-599 up to Hartzell constant speed Propellers, Quiz
6. Pages 599-613, Quiz

Chapter 22 Propeller Installation, Inspection and Maintenance
7. Pages 649-663, Quiz
8. Pages 664-681, Quiz

Chapter 21 Turboprop Propellers
9. Pages 615-631 up to Garrett TPE331, Quiz
10. Pages 631-648, No Quiz

Chapter 5 Induction, Superchargers, Cooling and Exhaust Systems
11. Pages 101-111 up to The Turbocharger, Quiz
12. Pages 111-127, Quiz
Chapter 13 Gas turbine Engine Fuel and Fuel Systems

13. Pages 349-364 up to Fuel controls for large Turbofan engines, Quiz
14. Pages 364-379, Quiz

Tests: Tests in most cases will consist of multiple choice questions directly from the FAA Powerplant question database. Some tests may include essay type questions. Specific subject tests will be given at the conclusion of each chapter or chapters and will be worth 5 percent each (100 Points). A comprehensive final will be given at the end of the course and will be worth 10 percent (200 Points). Tests will not be offered early and no makeup tests will be allowed for any reason. One hour will be allowed to take the chapter test. If you are 10 minutes late for the test than you only have 50 minutes to take the test.

Lecture Schedule: 1-11/ 1-21 Piston engine fuel metering systems.
Chapters 6 and 7
- Test, 5 percent (100 points) FAA? # 8645-8771 and
PMA Chapter 13
- 1-26/ 2-9 Aircraft propellers and controls Chapters 19, 20 & 21
- Test, 5 percent (100 points) FAA? # 8881-8996 and
PMA Chapter 14
- 2-10/ 2-16 Piston engine auxiliary systems. Chapter 5
- Test 5 percent (100 points) FAA? # 8772-8880 and
PMA Chapter 15
- 2-17/ 2-25 Turbine engine fuel systems. Chapter 12
- Test 5 percent (100 points) FAA? #8634- 8644 & 8760-8765 & PMA Chapter16
- 3-3 Thursday Comprehensive Final, 10 percent (200 Points)

Holidays: No class will be held on Monday 1-18 (MLK Holiday) and Friday 2-12 and Monday 2-15 (Presidents Holiday Weekend).

Lab Projects: All projects from S5A thru S8D must be completed successfully in order to receive a passing grade for the course due to lack of repeatability. Any student who does not complete all the projects will not receive a passing grade for the class. The total of all the lab project grades will be averaged (divided by 16) and then cut in half to account for 50 percent of the course grade.

Final Course Grade:
- Current event = 2.5% =50 points
- Class report = 7.5% =150 points
- Participation = 5% = 100 points
Quizzes = 5% = 100 points
Subject tests = 20% = 400 points
Final = 10% = 200 points
Total lecture section = 50% = 1000 points (This number will be cut in half and the last digit dropped to end up with a number from 1 to 50 to come up with your lecture grade percentage and will be added to the lab grade percentage).

Course percentage = Lab percentage + Lecture percentage

Grading: Total points achieved = 90-100=A, 80-90=B, 70-80=C, 60-70=D, <60=F.
An “F” grade will be given if a student’s absence exceeds 12 percent of the class time. Classes cannot be repeated if a student receives a C or better and therefore there is no way to make up FAA time. New state rules do not allow students to repeat classes if a grade of C or better has been earned in that class. For this reason student absences in excess of 12 percent or not completing all the projects required for lab will result in an F for that class. Per state rules students with 3 Ds, Fs or Ws, or any combination of those will not be allowed to register in any classes.

Reading Assignments: Read the chapters prior to their corresponding lecture dates throughout the term.

Lab Projects: You will be issued a workbook the first day of class which includes the following projects: S5A, S5B, S5C, S5D, S5E, S6A, S6B, S6C, S6D, S6E, S7A, S7B, S7C, S7D, S8A, S8B, S8C and S8D. It is your responsibility to make sure your workbook has all of these project sheets. It is also your responsibility to not lose your workbook pages. Failure to get all of the projects completed and graded prior to 3-3 will result in the student receiving an “F” or a “D” for the course. This is mandatory since classes can no longer be repeated.

Follow the instructions on the cover and project sheets. Answer all questions on the project sheet. Disassemble and inspect the project component. Be prepared to explain to the instructor how the component functions. Do not assemble the component until you have orally been quizzed on that component. Request an oral quiz from the instructor. Assemble the project and safety wire if required. Operationally test component if required. Have the instructor grade your projects at the completion of each one. Turn in your projects to the instructor at the completion of each one.

You will be allowed to work on other projects and special projects should you complete all this session’s projects early. You will not be allowed to sit and do nothing. The instructor must see progress or you will be dropped for lack of effort.
**Individual project grades will be based on the following:**

Applied knowledge of project is worth 75 percent of the project grade. Professional conduct consists of the following and will be worth 25 percent of your grade. I will ask myself some of the following questions at the completion of each project in order for me to determine if you get full or partial credit for each. Each item is worth 5 percent.

  - **Safety** - Do you follow common shop safety procedures? Do you wear your safety glasses and personal protective equipment? Do you use tooling safely?
  
  - **Horseplay** – A zero tolerance policy will be enforced in the lab. If you ever have to be reminded of this, even once, you will not receive the five percent credit it is worth. An additional five percent will be deducted if in the unlikelihood that you have to be reminded of this a second time. Did you complete the project on time or did you screw off? Do you waste time playing games on the computers. Do you fall asleep in lab?
  
  - **Record Keeping** – Do you code your time cards daily and correctly? Do you keep track of your hours and projects? Do you use reference material? Is your penmanship readable?
  
  - **Tools** – Do you have the required tools and keep them here? Have you broken any shop tooling or equipment? Unannounced toolbox checks will be done throughout the term. Do you borrow tools from other classmates? Tool boxes must have your name clearly marked on the front of them. Avoid rolling toolboxes with wheels across the new epoxy floors. Take your toolboxes home at the end of fall and spring semesters. The school is not responsible for lost, stolen or damaged tools and tool boxes.
  
  - **Cleanliness** – Do you keep your work area clean? Do you help clean up the entire shop at the end of the day? Do you practice FOD prevention? You will receive a clean up area assignment. It is your responsibility to keep everything in that area clean. This includes dusting, organizing, sweeping and wet mopping. Coordinate with others assigned to your area to avoid a duplication of efforts.

**These are common industry standards. Any future employer you have will expect the same.**

**Notes:**

1. This is the classroom and lab syllabus and is to be used in conjunction with the aeronautics department syllabus that contains department wide policies and practices.
2. All syllabi are subject to change.
3. Any student with a learning or physical disability are encourage to contact the
Disability Program Services at 909-652-6378
4. Plagiarism and Cheating will not be tolerated and will be dealt with according to the schools policies.
5. It is the student’s responsibility to drop the classes.
6. Absenteeism in excess of 10% will be cause for the instructor to drop you from any class.
7. Tool boxes will be stored in designated areas.
8. Stools in the lab are in short supply. Be considerate and nobody owns a chair or stool here. You are no longer allowed to bring your own chair to lab or lecture. Do not move stools around from area to area. They have been designated to certain areas and need to remain there. This is to keep the lab neat and uncluttered.
9. Keep cell phone use to a minimum usage and the use of all electronic devices are restricted to aviation class project use only. See General AMT syllabus for violation and abuse policy.
10. New state rules do not allow students to repeat classes if a grade of C or better has been earned in that class. For this reason student absences in excess of 10 percent or not completing all the projects required for lab will result in an F for that class. Per state rules students with 3 Ds, Fs or Ws, or any combination of those will not be allowed to register in any classes.

SLO’s for AMT 27
Students successfully completing AMT 27 (grade "C" or higher) will have mastered the information required by the Federal Aviation Administration in the area of: Aircraft Fuel Metering Systems Students successfully completing AMT 27 (grade "C" or higher) will have mastered the information required by the Federal Aviation Administration in the area of: aircraft propellers Students successfully completing AMT 27 (grade "C" or higher) will have mastered the information required by the Federal Aviation Administration in the area of: aircraft engine cooling and exhaust systems.