



COURSE SYLLABUS

Basic Course Information: Aviation Maintenance Technician Program

Course Number(s): AMT15 and AMT16

Section Number(s): 6115 and 6116

Class rooms: ATB-203 LEC. ATB-207 LAB.

Class hours: (4:45 – 8:10) and (8:10 – 10:25)

Title: Propeller and Powerplant Systems

Instructor's name: Mr. Kasbar Mirkhanian

Office: ATB-215

Office hours: Monday – Thursday (4:00 pm - 4:30 pm)

Phone number: (310) 287-7281

E-mail address: mirkhak@wlaac.edu

Students with disabilities who believe they may need accommodations in this class are encouraged to contact Disabled Students Programs and Services located in Heldman Learning Resources Center (HRLC) 119, phone number 310-287-4450, as soon as possible to better ensure such accommodations are implemented in a timely fashion.

Prerequisite/Co-Requisite:

Prerequisite: Aviation Maintenance Technician 01 thru 14 recommended.

Co-requisite: AMT15 and AMT16 must be taken concurrently.

Required textbooks:

<u>Textbook</u>	<u>Author or Publisher</u>
FAA-H-8083-30; FAA-H-8083-31; FAA-H-8083-32 (or equivalent textbooks and workbooks, as are currently available)	Department of Transportation, Federal Aviation Administration
A.C. 43.13-1B 14 CFR Part 43	Department of Transportation, Federal Aviation Administration
Federal Aviation Regulations for Aviation Maintenance Technicians	Department of Transportation, Federal Aviation Administration
A & P Technician Powerplant Textbook and Workbook	Jeppesen

--	--

Recommended materials/equipment:

Propeller and Powerplant Systems

Aircraft Propellers, fixed pitch, constant speed, feathering type, two position, wood and aluminum alloy.	Propellers aluminum alloy, wood, steel. School aircraft reciprocating and turbine powered.
School aircraft reciprocating and turbine powered. Aircraft manuals and computers.	School manuals, school computers, aircraft maintenance manuals.
Aircraft fire detection mock-ups and reciprocating and turbine engines.	School mock-ups, school aircraft, school engines.
Air intakes, engine thrust reversers, engine lubrication systems and components.	School thrust reverser mock-up, and aircraft air intakes.
Oil filters, air filters, and oil coolers.	School materials and oil pumps, and oil filters, oil coolers and lubrication system components.
Engine exhaust systems, reciprocating and turbine.	Engine exhaust systems, JT9D-7A, and various other school equipment.

Course(s) description overview:

Lecture:

Propeller introduction and theory. The following subjects will be covered: propeller installation procedures, propeller blade angle settings, types of propellers, controllable pitch, automatic pitch changing propellers, two position propellers, constant speed propeller systems, feathering propellers, reversing propellers and propeller auxiliary systems, engine cooling systems, reciprocating and turbine engines, engine exhaust and reverser systems, induction and airflow systems, reciprocating engine systems, turbojet, turbofan and turboprop compressor inlets, engine fire protection systems, reciprocating and turbine engine fire detection systems and fire extinguishing agents.

Laboratory:

PROPELLERS. The following projects will be assigned: locate and record propeller operating limits on assigned aircraft, inspect and install fixed-pitch propeller, checking balance, track, blade angles, inspect, troubleshoot, and repair propeller systems, inspect systems, troubleshoot, and repair automatic pitch-changing propeller, inspect, troubleshoot, and repair constant speed propeller systems, inspect, troubleshoot, and repair two-position propeller systems, inspect, troubleshoot, and repair feathering propeller systems, inspect, troubleshoot, and repair reversing propeller systems.

LUBRICATION SYSTEMS:

The following subjects will be assigned: Identify and select propeller lubricants, trace and explain reciprocating engine lubrication systems and components, trace and explain turbine engine lubrication systems and components, inspect, check, service, troubleshoot, and repair reciprocating engine lubrication systems, inspect, check, service, troubleshoot, and repair turbine engine lubrication systems.

ENGINE COOLING SYSTEMS: The following subjects will be assigned: Repair engine cooling system components, inspect, check, service, troubleshoot, and repair engine cooling systems.

ENGINE EXHAUST AND REVERSER SYSTEMS: The following subjects will be assigned: Repair engine exhaust system components, inspect, check, service, troubleshoot, and repair engine exhaust system, inspect, check, service, troubleshoot, and repair thrust reverser.

ENGINE INDUCTION AND AIRFLOW SYSTEMS: The following subjects will be assigned: Inspect, check, service, troubleshoot, and repair carburetor air intake and induction manifolds, inspect, check, service, troubleshoot, and repair carburetor air intake and induction manifolds.

ENGINE FIRE PROTECTION SYSTEMS: The following subjects will be assigned: Inspect, check, service, troubleshoot, and repair powerplant fire detection and extinguishing systems, inspect, check, service, troubleshoot, and repair smoke and carbon monoxide detection systems.

Course(s) learning goals/objectives: This course will help students achieve the following institutional Student Learning Outcomes:

Inspect, check, service, and repair propeller synchronizing and ice control systems, identify and select propeller lubricants, balance propellers, repair propeller control system components, inspect, check, service, and repair fixed pitch, constant speed and feathering propellers, and propeller governing systems, install, troubleshoot, and remove propellers, repair aluminum alloy propeller blades, repair engine cooling system components, inspect, check, troubleshoot, service, and repair engine cooling systems, repair engine exhaust system components, inspect, check, troubleshoot, service, and repair engine exhaust systems, troubleshoot and repair engine thrust reverser systems and related components, inspect, check, troubleshoot, service, and repair engine ice and rain control systems, inspect, check, service, troubleshoot, and repair heat exchangers, superchargers, and turbine engine airflow and temperature control systems, inspect, check, service, and repair carburetor air intake and induction manifolds, inspect, check, service, troubleshoot, and repair engine fire detection and extinguishing systems.

Tentative Schedule: June 12, 2017 – August 6, 2017

Week 1:

- Introduction and Student Orientation
- Course Objectives
- Aircraft Propeller Introduction

Week 2:

- Propeller Systems
- Blade Inspection and Repair
- Propeller Blade Removal and Installation

Week 3:

- Propeller Systems (continued)
- Propeller Constant Speed Overhaul

Week 4:

- Propeller Lubrication
- Turbine Engine Lubrication
- Reciprocating Engine Lubrication

Week 5:

- Engine Cooling Systems
- Cooling System Inspection/Repair

Week 6:

- Engine Exhaust Systems
- Exhaust Inspection/Repair

Week 7:

- Engine Fire Detection Systems
- Fire Detection Inspection
- Fire Detection Troubleshooting and Repair

Week 8:

- Engine Extinguishing Systems
- Power Point Presentations
- Aviation Department Clean up
- Final Test

Instructional Methods:

This course is taught using a variety of methods: lecture, class discussion, small group work, electronic discussion, and group presentations that will be part of your final exam.

Lecture and Class Participation:

Reading assignments are given in class. Lecture and class discussions will follow the order in the book being used. You are requested and encouraged to participate in the lecture classes. Participation is important and can make a difference in your grade.

Lab and Participation:

You are required to complete all lab assignments assigned to you to receive a passing grade in lab. Lab projects may consist of, but are not limited to, the following projects: assigned workbook assignments, group or individual lab projects (assigned aircraft/components).

Grading System: A grade of "C" or better is required for FAA credit (14 CFR Part 147)

Lecture grade – All lecture subject areas tests (4) total of 60%; final exam scores (20%), power point presentation (5%), and attendance (5%), class participation (10%).

Lab grade – To receive a grade in lab you must have the **minimum tools required** from the tool list. You must also have the instructor sign you off for tools. All lab projects include an oral examination. (See grade rating scale.)

Grade rating scale:

1. A 90-100%
2. B 80-89%
3. C 70-79%
4. D 60-69%
5. F 59% or less

Policies

Attendance Policy: Students will sign in upon arrival on a daily class attendance sheet provided by the instructor for each class, and the instructor will hold a roll call to verify the presence of each student (at the start of the class, after lunch and at end of the class).

There is a strong correlation between attendance and grades. Poor attendance goes along with poor grades.

You are responsible for information, exams, date changes etc. presented in class whether you are present or not.

Minimum hours required by CFR 147.21(b) (1) (2) (3) are 400 hours for General Subjects, CFR 147.21 (C) 750 hours for Airframe Subjects and CFR 147 (D) 750 hours for Powerplant Subjects, totaling 1900 hours. (WLAC: Gen – 420, AF – 866, PP – 874)

To meet the code of Federal Regulation (**14 CFR Part 147**) related to attendance a student may be absent without make-up time as long as the total instruction hours meet the minimum hours required by 14CFR Part 147.21 General Curriculum Requirements (b)(1)(2)(3). **Note:** All lost time for General Curriculum Subjects Appendix B to Part 147 will require make-up time.

**** Attend the 1st class section or risk losing your seat.** Whether you enroll before or after the first day of the semester, failure to be present for the first day of classes may result in your seat being given to another student.

When a student's absences or tardiness total **FIVE (5) DAYS** or more, the instructor has the right to exclude the student from class at his/her discretion.

Time can be made up but it is at the sole discretion of the instructor, and the instructor **is not required** to allow you to make up (absences or tardiness) time.

Add slips must be completed and processed with admissions by the end of the first week of class. If you fail to do so you will be excluded from the class.

Safety Rules

Eye protection is required by each student and must be worn at all times in labs.

Loose clothing may not be worn in the labs as it constitutes a safety hazard.

Appropriate shoes must be worn in all lab classes. Sandals and open toe shoes are not acceptable in labs.

Recommendations for Student Success

1. Be in class every day, on time, and stay for the entire time.
2. Be prepared to work, and have your tools with you.
3. Learn to be organized.
4. Study and review for each day.
5. Keep up in the workbooks and do not fall behind.
6. Find someone in the class you can call if you miss a class so you know what is happening with the class.
7. If you do not know, ask. Remember the only stupid question is the one you did not ask! Keep in mind that nobody knows everything, so ask your question because the person sitting next to you may not know!

The West LA College faculty, staff and administrators are dedicated to maintaining an optimal learning environment and will not tolerate any disruptive behavior in or outside of the classroom or any academic dishonesty. These standards apply to all students.

Disruptive, disrespectful, or obstructive behavior will be dealt with in accordance with the LACCD Standard of Student Conduct. Disciplinary action can be taken if student behavior interferes with instruction. (Please refer to the Spring 2016 Schedule of Classes.

- Warning—A verbal or written notice, given to the student by the instructor.
- Removal by the Instructor—An instructor may remove a student from class for the day, on the day of the incident, and from the next class meeting. During the period of removal, the student shall not return to the class from which he or she was removed without the permission of the Vice President of Student Services.

*** Standards of Student Conduct - Things to know on code of conduct ***

STANDARDS OF CONDUCT. A student enrolling in one of the Los Angeles Community Colleges may rightfully expect that the faculty and administrators of the Colleges will maintain an environment in which there is freedom to learn. This requires that there be appropriate conditions and opportunities in the classroom and on the campus. As members of the college community, students should be encouraged to develop the capacity for critical judgment, to engage in the sustained and independent search for truth, and to exercise their rights to free inquiry and free speech in a responsible, non-violent manner. In the furtherance of the students' interest in free inquiry and the search for truth, it is also important that students be able to hear the views of non-students and engage in the free exchange of ideas with non-students.

All persons shall respect and obey civil and criminal law, and shall be subject to legal penalties for violation of laws of the city, county, state and nation. All persons shall respect and obey the rules, regulations and policies of the Los Angeles Community College District. A record will be kept of all persons who use the facilities or grounds of the college.

Conduct in all of the Los Angeles Community Colleges must conform to District and college rules and regulations. Violations of such rules and regulations may result in disciplinary action depending on the individual's status as student, faculty, staff or visitor. Violations of such rules and regulations include, but are not limited to, the following:

1. Willful Disobedience. Willful disobedience to directions of college officials acting in the performance of their duties.
2. Violation of College Rules and Regulations. Violation of college rules and regulations, including those concerning student organizations, the use of college facilities, or the time, place and manner of public expression or distribution of materials.
3. Dishonesty. Dishonesty, such as cheating or knowingly furnishing false information to the colleges.
4. Unauthorized Entry. Unauthorized entry to or use of the college facilities.
5. College Documents. Forgery, alteration or misuse of college documents, records or identification.

6. Disruption of Classes or College Activities. Obstruction or disruption of classes, administration, disciplinary procedures or authorized college activities.

7. Theft of or Damage to Property. Theft of or damage to property belonging to the college, a member of the college community or a campus visitor.

8. Interference with Peace of College. The malicious or willful disturbance of the peace or quiet of any of the Los Angeles Community Colleges by loud or unusual noise or any threat, challenge to fight, fight, or violation of any rules of conduct as set forth in this Article. Any person whose conduct violates this section shall be considered to have interfered with the peaceful conduct of the activities of the college where such acts are committed.

9. Assault or Battery. Assault or battery, abuse or any threat of force or violence directed toward any member of the college community or campus visitor engaged in authorized activities.

10. Alcohol and Drugs. Any possession of controlled substances which would constitute a violation of Health and Safety Code section 11350 or Business and Professions Code section 4230, any use of controlled substances the possession of which are prohibited by the same, or any possession or use of alcoholic beverages while on any property owned or used by the District or colleges of the District or while participating in any District or college-sponsored function or field trip. "Controlled substances," as used in this section, include but are not limited to the following drugs and narcotics:

- a) opiates, opium and opium derivatives
- b) mescaline
- c) hallucinogenic substances
- d) peyote
- e) marijuana
- f) stimulants and depressants

11. Lethal Weapons. Possession, while on a college campus or at a college-sponsored function, of any object that might be used as a lethal weapon is forbidden by all persons except sworn peace officers, police officers and other governmental employees charged with policing responsibilities.

12. Discriminatory Behavior. Behavior while on a college campus or at a college-sponsored function, inconsistent with the District's Nondiscrimination Policy, which requires that all programs and activities of the Los Angeles Community College District be operated in a manner which is free of "Prohibited Discrimination," defined as discrimination or harassment in violation of state or federal law on the basis of actual or perceived ethnic group identification, race, color, national origin, ancestry, religion, creed, sex (including gender-based sexual harassment), pregnancy, marital status, cancer-related medical condition of an employee, sexual orientation, age, physical or mental disability, or veteran status.

13. Unlawful Assembly. Any assemblage of two or more persons to 1) do an unlawful act, or 2) do a lawful act in a violent, boisterous or tumultuous manner.

14. Conspiring to Perform Illegal Acts. Any agreement between two or more persons to perform illegal acts.

15. Threatening Behavior. A direct or implied expression of intent to inflict physical or mental /emotional harm and/or actions, such as stalking, which a reasonable person would perceive as a threat to personal safety or property. Threats may include verbal statements, written statements, telephone threats or physical threats.

16. Disorderly Conduct. Conduct which may be considered disorderly includes; lewd or indecent attire or behavior that disrupts classes or college activities; breach of the peace of the college; aiding, or inciting another person to breach the peace of college premises or functions.

17. Theft or Abuse of Computer Resources. Theft or abuse of computer resources including but not limited to:

- a. Unauthorized entry into a file to use, read, or change the contents, or for any other purpose.
- b. Unauthorized transfer of a file.
- c. Unauthorized use of another individual's identification and password.
- d. Use of computing facilities to interfere with the work of a student faculty member or college official, or to alter college or district records.
- e. Use of unlicensed software.
- f. Unauthorized copying of software.
- g. Use of computing facilities to access, send or engage in messages which are obscene, threatening, defamatory, present a clear and present danger, violate a lawful regulation and/or substantially disrupt the orderly operation of a college campus.
- h. Use of computing facilities to interfere with the regular operation of the college or district computing system.

18. Performance of an Illegal Act. Conduct while present on a college campus or at a location operated and/or controlled by the District or at a District-sponsored event, which is prohibited by local, State, or federal law.

19. Academic Dishonesty. Violations of Academic Integrity include, but are not limited to, the following actions: cheating on an exam, plagiarism, working together on an assignment, paper or project when the instructor has specifically stated students should not do so, submitting the same term paper to more than one instructor, or allowing another individual to assume one's identity for the purpose of enhancing one's grade.

20. INTERFERENCE WITH CLASSES. Every person who, by physical force, willfully obstructs, or attempts to obstruct, any student or teacher seeking to attend or instruct classes at any of the campuses or facilities owned, controlled or administered by the Board of Trustees of the Los Angeles Community College District, is punishable by a fine not exceeding five hundred dollars (\$500) or imprisonment in a county jail not to exceed one year, or by both such fine and imprisonment. As used in this section, "physical force" includes, but is not limited to, use of one's person, individually or in concert with others, to impede access to or movement within or otherwise to obstruct the students or teachers of the classes to which the premises are devoted.

21. INTERFERENCE WITH PERFORMANCE OF DUTIES BY EMPLOYEES. Every person who attempts to cause, or causes, any officer or employee of any of the Los Angeles Community Colleges or any public officer or employee to do or refrain from doing, any act in the performance of his/her duties, by means of a threat to inflict any injury upon any person or property, is guilty of a public offense.

22. Assault or Abuse of Instructor. Every parent, guardian, or other person who assaults or abuses any instructor employed by the District in the presence or hearing of a community college student or in the presence of other community college personnel or students and at a place which is on District premises or public sidewalks, streets, or other public ways adjacent to school premises, or at some other place where the instructor is required to be in connection with assigned college activities is guilty of a misdemeanor instructor is required to be in connection with assigned college activities is guilty of a misdemeanor.

23. UNSAFE CONDUCT. Conduct which poses a threat of harm to the individual and/or to others. This includes, but is not limited to, the following types of conduct:

- a. Unsafe conduct in connection with a Health Services Program (e.g., Nursing, Dental Hygiene, etc.);
- b. Failure to follow safety directions of District and/or College staff;
- c. Willful disregard of safety rules as adopted by the District and/or College; and/or
- d. Negligent behavior which creates an unsafe environment.

Standards of Student Conduct West Los Angeles College "Standards of Student Conduct" (pp. 134-15 Spring 2016 Schedule). This includes information on plagiarism, classroom disruption, cell-phone noise, or other issues.

Cell Phones and Lap Tops

Cell phones must be on vibrate, as a courtesy to your classmates and your professor. It is not acceptable to take phone calls or text in class. If you have to answer an emergency phone call, please step out of the classroom. You may take notes in class on your laptop, but do not let that be a distraction to participating in class.

Electronic Mail

E-mail is the official method of communicating with you. Every WLAC student has an e-mail address. Check your Student.LACCD@Edu account daily/weekly. To access your account visit www.wlac.edu, and click on the Student Email button. To log in use your student ID # and your birthday and month. Your Student.LACCD@Edu email can be forwarded to any other personal email account.

Dropping the Course

According to college policy, you will be excluded for excessive absences or for not following the Standards of Student Conduct (printed in the Schedule of Classes). If you drop the course, be sure to do so at the Admissions and Business Offices and keep your receipt. Pay attention to drop dates in the Schedule of Classes. See below for the important date:

Spring 2017: 8 Week Session #1	
LAST DAY TO	
Drop a class w/o a Fee – June 19	
Drop a class w/o a W – June 19	
Drop a class w/a W – July 21	
File Pass / No Pass – June 19	

Classroom and Campus Cleanliness

Please help us keep the classroom and campus grounds clean. No food or beverages, except for water, is permitted inside instructional classrooms /labs. Please use the receptacles to dispose of trash.

Instructional Support and Monitoring

For instructional support and assistance with research projects, visit the Learning Skills Center and Library in HLRC.

- Monitor your academic progress online at www.wlac.edu. Click "Counseling, Assessment and Orientation," then on the DegreeWorks icon, or visit the Counseling Office.

Required tooling list

File "8"	Hammer soft face/ Ball peen 8 oz	Socket set 1/4" drive 12 point
Ratchet, 1/4" and 3/8" drive	Breaker bar 1/4" and 3/8" drive	Universal joint 1/4" and 3/8" drive
Extensions 3" to 6" 1/4" drive	Diagonal wire cutters	Pliers needle nose and duckbill
Set of Pin Punches	Scale 6", 64 th and 100ths	Common screw driver 6"
Screwdriver Philip # 2 tip	Combination square 12" or 6"	Combination wrenches 5/16" – 1"
Magnifying glass 4 to 10 power	Allen wrenches set	Inspection swivel mirror
Magnet pencil type	Flex mechanical fingers	Flashlight
Eye protection	Box end wrenches 5/16-1"	Leather gloves

Student Acknowledgment, Spring 2016 AMT 15 & AMT 16

(Please return this sheet to the instructor)

"I _____, have completely read this syllabus and understand and agree to the course requirements."

Please indicate below, any special needs or circumstances that may have some impact on your work in this class, and for which you may require special accommodations, including but not limited to physical or mental disabilities, inability to arrive in class on time or need to leave class early, and observance of religious holidays.

Special needs or circumstances:
