



Basic Course Information: Aviation Maintenance Technician Program

Course Number(s): AMT19 and AMT20

Section Number(s): 6119 and 6120

Class rooms: AT B120 and AT B203

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

Title: Reciprocating Powerplant Overhaul and Reciprocating Powerplant Overhaul Lab.

Instructor's name: Mr. Moy, J M

Office: AT B214

Office hours: Monday – Thursday (3:30 pm - 4:00 pm)

Phone number: (310) 287-4514

E-mail address: moyjm@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 15 thru 18.

Co-requisite: AMT19 and AMT20 must be taken concurrently. It is recommended that AMT 1 thru 8 be taken first as well.

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:Reciprocating Engines

Complete aircraft reciprocating engines	Aircraft reciprocating engine components
Reciprocating engine overhaul tools	Reciprocating engine inspection tools
Complete aircraft or aircraft mockup with reciprocating engine installation	Aircraft Maintenance Manuals
Engine Maintenance and Overhaul Manuals	

Course(s) description overview:

Lecture: Instruction is offered in the maintenance, maintenance publications, and basic engine theory and overhaul procedures of reciprocating engines.

Laboratory: Instruction and practice is offered in the use of maintenance publication records relative to overhaul procedures. Complete engine overhaul procedures, methods and practice are presented.

Course(s) learning goals/objectives:

This course will help students achieve the following institutional Student Learning Outcomes:

1. Student will know, understand, and apply facts, principles, theories, and concepts of reciprocating engines as well as the use reciprocating engine mathematical formulas.
2. Student will be able to disassemble, check, inspect, overhaul and reassemble an aircraft powerplant using current methods of inspection (Non-Destructive and dimensional) while overhauling the engine.
3. Student will understand how they relate to the total operation and maintenance of aircraft.
4. Student will be able to make independent and accurate airworthiness judgments.
5. Student will be able to perform all skill operations to return-to-service standard using appropriate data, tools, and equipment. Inspections are performed in accordance with acceptable or approved data.

Tentative Schedule: (June 15, 2015 – August 9, 2015)**Week 1:**

- Orientation
- Engine Construction & Design
- Engine nomenclature
- Crankshafts Rods
- Bearings & Maintenance

Week 2:

- Piston's Rings
- Cylinder Assemblies
- Valve operating Mechanisms
- Valve Maintenance & Valve Formulas

Week 3:

- Cylinder Numbering
- Reduction Gear's Theory & Formula
- Accessory & Propeller Drives
- Introduction to engine theory
- Cylinder Firing Orders

Week 4:

- Powerplant Formulas
- Horsepower Formulas
- Terms and Definitions
- Diesel Engine technology

Week 5:

- Engine Instruments and Reading Operating Curves
- Engine Inspection and Maintenance
- Engine Removal and Overhaul
- Torque Procedures – Stud Coding

Week 6:

- Use of Precision Tools
- Non-destructive Testing Methods
- Accessory Overhaul Practices
- Engine Control Rigging and Electrical Installation

Week 7:

- Ignition System External Inspection
- Service and Starting Procedures
- Troubleshooting

Week 8:

- Engine run-ups and Review

Instructional Methods:

Lecture with PowerPoint presentation, video presentation of subject matter, chalk (white) board and hand out materials.

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 to receive a passing grade in lab. Lab projects may consist but not limited to the following projects: assigned workbook assignments, group or individual lab project (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 total of 80%; final exam scores (10%); subject area(s) PowerPoint Presentation (5%) and attendance/class participation (5%).

Lab grade – all lab projects includes an oral (knowledge) examination (50%). (See grade rating scale)

Grade rating scale:

1. A (90-100%) demonstrates the ability to take accurate measurements.
2. B (80-89%) demonstrates competence in taking measurements.
3. C (70-79%) demonstrates understanding of the basic principles and procedures.
4. D (60-69%) demonstrates only partial basic understanding of correct procedure.
5. F (<70%) demonstrates no understanding of correct procedure. Incomplete lab assignments.

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.

West Los Angeles College "Standards of Student Conduct". This includes on plagiarism, classroom disruption, cell-phone noise, or other issues.

Safety Rules

Eye protection – is required by each student and must be worn at all time in labs when working on any project/operating any machinery may cause hazardous if is not worn.

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

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 seating next to you may not know!**

Standards of Student Conduct

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 2013 Schedule of Classes pages 113-114.)

- Warning—A verbal or written notice, given to the student by the instructor.
- Removal by the Instructor—an instructor may remove a student form the class for the day, on the day of the incident, and 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
 - g) cocaine

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 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 statement, 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 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.

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.

Cell Phones and Lap Tops

Cell phones must be set on vibrate mode 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:

Summer 2015: 8 Week Session #1 (Jun 9 – Aug 9)
LAST DAY TO
Drop a class with a refund/no fee owed – June 22
Drop a class w/o a W – June 22
Drop a class w/a W – June 22
File Pass / No Pass – June 22
Campus closed: Fourth of July, July 3-4

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

- Monitor your academic progress online at www.wlac.edu click "Counseling, Assessment and Orientation," then on the DegreeWorks icon, or visit the Counseling Office.
- For instructional support and assistance with research projects, visit the Learning Skills Center and Library in HLRC.

Required tooling list

File - 8" smooth cut	Hammer - soft face and Ball peen 8oz	Sockets set - 1/4" drive, 12 pts short and deep sockets
Ratchet - 1/4" and 3/8" drive	Breaker bar - 1/4" and 3/8" drive	Universal joints - 1/4" and 3/8" drive
Extension 1/4" drive - 3" and 6"	Pliers 6" slip joint and Diagonal 7"	Pliers needle nose and duckbill
Set of Pin Punches	Scale 6", 64 th and 100ths	Common screwdriver 6" and Philips #1 & #2 tip
Adapter (reducer) 3/8" to 1/4"	Combination square 12"	Combination wrench 5/16" – 1"
Magnifying glass 4 to 10 power	Allen wrenches set	Inspection mirror
Magnet pencil type	Flex mechanical fingers	Flashlight
Eye protection	Hearing protection	Leather gloves

Student Acknowledgment (Summer 2015 AMT 19 & AMT 20)

(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:
