

**WEST LOS ANGELES COLLEGE**  
**AVIATION MAINTENANCE TECHNOLOGY**

**COURSE TITLE: Reciprocating Powerplant Overhaul**

**COURSE NUMBER(S): AMT 19 & 20**

**SECTION NUMBER(S): 6119/6120**

**CLASS HOURS: 4:45-8:10, 8:10-10:25**

**CLASS ROOMS: AT B 120, AT B 203**

**INSTRUCTOR: Martin Nee**

**OFFICE: ATB 124**

**OFFICE HOURS: Monday – Thursday 3:45 – 4:45**

**PHONE NUMBER: 310 287 4345**

**EMAIL: [neem@wlaac.edu](mailto:neem@wlaac.edu)**

**Disabled Students Programs & Services**

DSP&S opens doors for students with special physical, communication or learning needs. DSP&S students may qualify for: priority registration assistance, special parking permits, sign language, interpreters and assistive technology.

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 119, phone number 310 287 4450 as soon as possible to better ensure such accommodations are implemented in a timely fashion.

Prerequisites/Co-requisites: None

**Course Description:** Instruction is offered in maintenance, publications, basic engine theory and overhaul procedures of reciprocating engines.

**Course Objectives:** Students will be able to inspect, check, service, repair, overhaul, and troubleshoot reciprocating engines.

### **TEXTBOOKS AND INFORMATION RESOURCES**

The following texts are considered necessary reference for student technical and laboratory work.

Textbook: Author or Publisher

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A.C.65-12 (or equivalent textbooks and workbooks, as are currently available):  
Department of Transportation/Federal Aviation Administration

A.C.43.13-1B: Department of Transportation/ Federal Aviation Administration

14 CFR Part 43 Federal Aviation Regulations for Aviation Maintenance Technicians:  
Department of Transportation/ Federal Aviation Administration

### **EQUIPMENT AND MATERIALS**

Reciprocating Engines

- Complete Aircraft Reciprocating Engines
- Aircraft Reciprocating Engine Components
- Reciprocating Engine Overhaul Tools
- Reciprocating Engine Inspection Tools
- Reciprocating Engine Overhaul Tools
- Complete Aircraft or Aircraft Mockup with Reciprocating Engine Installation
- Aircraft Maintenance Manuals
- Engine Maintenance and Overhaul Manuals

A tool list will be provided at the beginning of each class

## TEACHING SEGMENTS

Subject	Title
1. Reciprocating Engines	Reciprocating Engine Principles
2. Reciprocating Engines	Reciprocating Engine Nomenclature
3. Reciprocating Engines Formulas	Reciprocating Engine Mathematical
4. Reciprocating Engines	General Overhaul Procedures
5. Reciprocating Engines	Torquing Procedures and Stud Codes
6. Reciprocating Engines	Use of Precision Tools
7. Reciprocating Engines	Non Destructive testing Methods
8. Reciprocating Engines Design	Reciprocating Engine Construction and
9. Reciprocating Engines	Crankshafts and Connecting Rods
10. Reciprocating Engines	Pistons and Rings
11. Reciprocating Engines	Cylinder Numbering and Firing orders
12. Reciprocating Engines	Cylinder Assemblies
13. Reciprocating Engines	Valve and Timing Formulas
14. Reciprocating Engines	Valve Operating Mechanisms
15. Reciprocating Engines	Valve Maintenance
16. Reciprocating Engines	Bearings
17. Reciprocating Engines	Reduction Gear Theory and Formulas
18. Reciprocating Engines	Accessory and Propeller Drives
19. Reciprocating Engines	Accessory Overhaul Practices
20. Reciprocating Engines	Ignition System External Inspection
21. Reciprocating Engines	Engine Overhaul Practices
22. Reciprocating Engines	Engine Overhaul Equipment
23. Reciprocating Engines	Engine Inspection
24. Reciprocating Engines	Engine Storage and Mounting
25. Reciprocating Engines Procedures	Engine Removal and Pre-installation
26. Reciprocating Engines	Propeller Installation
27. Reciprocating Engines	Pre-oiling
28. Reciprocating Engines	Rigging Controls and Electrical Installation
29. Reciprocating Engines	Engine Instruments
30. Reciprocating Engines	Reading Operating Curves
31. Reciprocating Engines	Service and Starting Procedures
32. Reciprocating Engines	Troubleshooting

## LAB PROJECT SEGMENTS

Subject	Title
1. Reciprocating Engines	Inspect and Repair a Radial Engine
2. Reciprocating Engines	Overhaul a Reciprocating Engine
3. Reciprocating Engines Reciprocating Engines and Engine Installations	Inspect, Check, Service and Repair
4. Reciprocating Engines Reciprocating Engines	Install, Troubleshoot and Remove

### Instructional Methods:

Lectures, video presentation, powerpoint presentation, handouts and class discussion.

FAA required lab projects to be completed using aircraft manuals and procedure sheets.

### METHOD OF EVALUATION

Standardised Tests, Observation Record of Student Performances, Quizzes, Problem-Solving Exercises, Skills Demonstration, Class Participation, Final Exam.

### GRADE PROCEDURE

100-90=A

89-80=B

79-70=C

69-60=D

59 AND BELOW = FAIL

A GRADE OF "C" OR BETTER IS REQUIRED FOR FAA CREDIT.

A GRADE OF "D" OR BETTER GETS YOU COLLEGE CREDIT.

## **ATTENDANCE POLICY**

ROLL WILL BE TAKEN

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.

TO MEET THE CODE OF FEDERAL REGULATIONS (14 PART 147) RELATED TO ATTENDANCE A STUDENT CAN NOT MISS MORE THAN **THREE (3) DAYS** OUT OF LECTURE OR LAB. ANY TIME BEYOND, WERE THE TOTAL ATTENDANCE ADDS UP TO MORE THAN THREE DAYS, WILL HAVE TO BE MADE UP. ANY TIME BEYOND **FIVE (5) DAYS** THE INSTRUCTOR HAS THE RIGHT TO EXCLUDE A STUDENT FROM THE CLASS AT HIS OR HER DISCRETION. THIS LAST ITEM MEETS WEST LOS ANGELES COLLEGE CATALOG ON ATTENDANCE.

TIME CAN BE MADE UP BUT IT IS AT THE SOLE DISCRETION OF THE INSTRUCTOR, AND THE INSTRUCTOR IS NOT REQUIRED TO ALLOW YOU MAKE UP TIME. IF THE INSTRUCTOR HAS AGREED UPON GIVING YOU AN INCOMPLETE (I), IN ORDER FOR MAKE UP, THE STUDENT SHALL READ THE RULE GOVERNING INCOMPLETE GRADES IN THE COLLEGE CATALOG.

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 TERMINATED FROM THE CLASS.

## **INCOMPLETE GRADE**

WHEN COURSE REQUIREMENTS BY THE CLASS HAS NOT BEEN MEET THE INSTRUCTOR AT HIS OR HER DISCRETION MAY ISSUE AN INCOMPLETE GRADE AT THE END OF THE CLASS. THE STUDENT UPON FINDING OUT THAT AN INCOMPLETE HAS BEEN ISSUED **SHALL** READ THE COLLAGE CATALOG GOVERNING THE REMOVAL OF AN INCOMPLETE GRADE.

## **WITHDRAWAL FROM CLASS**

IT IS THE STUDENTS RESPONSIBILITY TO KEEP THEIR ENROLLMENT STATUS CURRENT WITH THE ADMISSIONS OFFICE. IF YOU STOP ATTENDING A CLASS YOU MUST FILE A WITHDRAWAL WITH THE ADMISSIONS OFFICE FAILURE TO DO SO WILL RESULT IN AN AF@ GRADE IN YOUR RECORDS.

## **CHEATING--ACADEMIC DISHONESTY**

EACH STUDENT IS EXPECTED TO DO HIS/HER OWN WORK. A STUDENT CAUGHT CHEATING WILL RECEIVE A GRADE OF F ON THAT ASSIGNMENT, AND REPORTED TO THE DEAN OF STUDENTS WHO MAY WANT TO TAKE FURTHER ACTION. A SECOND OFFENSE WILL RESULT IN DISCIPLINARY ACTION BY THE INSTRUCTOR WHICH CAN INCLUDE FAILURE IN THE COURSE AND/OR DISMISSAL FROM THE COLLEGE.

#### SAFETY RULES

Eye protection is required by each student and must be worn at all times in lab when working on any project/operating machinery.

Loose clothing may not be worn in 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!!!!!!

