

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

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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

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!!!!!!

