

**Columbus State Community College  
Engineering and Transportation Technologies  
Aviation Maintenance Technology**

**COURSE: AMT 2203 Reciprocating Engine Maintenance I**

**CREDITS: 5    CLASS HOURS PER WEEK: 24    PREREQUISITES: AMT 1103**

**DESCRIPTION OF COURSE**

The focus of this course is the horizontally opposed reciprocating aircraft engine. Areas studied include theory of operation, engine construction features, maintenance and overhaul. Radial engine design, inspection and repair are also addressed. Reciprocating engine lubrication system design and maintenance for both radial and opposed engine are examined. Students learn the proper techniques for ground operational checks of reciprocating engines

**COURSE GOALS**

- Engine operating principles
- Design and construction of reciprocating aircraft engines
- Engine overhaul
- Engine Removal, Installation and troubleshooting
- Critical Thinking
- Quantitative Skills

**STUDENT LEARNING OUTCOMES**

Student will demonstrate an ability to describe engine operating principles, calculate piston displacement, compression ratio and horsepower.

Student will demonstrate a knowledge of the design and construction features of the reciprocating aircraft engine.

Student will demonstrate the ability to perform basic functions related to the overhaul of reciprocating engines.

Student will demonstrate the ability to inspect, check, service, and repair reciprocating engines, engine installations, as well as install, troubleshoot, and remove reciprocating engines.

**INSTITUTIONAL LEARNING GOALS**

Columbus State Community College's Institutional Learning Goals are an integral part of the curriculum and central to the mission of the college. The faculty at Columbus State has identified the following institutional learning goals:

- Critical Thinking
- Quantitative Skills
- Scientific Literacy
- Technological Competence

**COURSE MATERIALS REQUIRED**

All tools on the Columbus State Community College Aviation Maintenance Technology Minimum Required Tool List are required.

**TEXTBOOKS—REQUIRED AND OPTIONAL READINGS**

**AVIATION MAINTENANCE TECHNOLOGY SYLLABUS STATEMENTS**

Aviation Maintenance Technology required College Syllabus Statements on **Assessment, Participation and Safety**, and **Attendance** can be found at <http://www.csc.edu/academics/departments/aviation-maintenance/requirements.shtml> or on the College website –Search ‘Aviation’; click on ‘Aviation Maintenance’; click on ‘Requirements’ tab.

**SPECIAL COURSE REQUIREMENTS**

Part 147 Para 147.21 (d) (3) and 147.31 (b) state that tests must be given in all subject areas and that the tests given must all be passed.

As students progress through the program, they will be given subject area tests relative to the course subject areas. Students must demonstrate a 70% minimum passing score on every subject test. If a subject area test is failed, the student will be given additional opportunities to pass the subject test. All subject tests must be passed before a certificate of program completion can be issued.

FAA Subject Area Test for this course:

- IV-A: Reciprocating Engines
- V-K: Lubrication Systems

To be awarded a Certificate of Program Completion, in addition to subject area testing, the student must also:

Successfully pass each course required for the certificate. Requirements for passing each course include:

A 70% average evaluation for graded course elements. Instructors determine the weights of course grading.

Successful completion of all required laboratory requirements of the course.

Attendance in compliance with the attendance policy.

Students can pass a course with a grade of “D”, however students must have a minimum overall Grade Point Average of 2.0 (out a possible 4.0) to be awarded a certificate of completion. Courses can be repeated to improve grades.

Grade Area	Weight	Percentage Earned		Lab Project	Pass	Fail
Unit Tests	40%			Overhaul Engine		
Quiz	10%			Lubrication Systems		

Final	20%			Engine Operational Checks		
Participation & Safety	10%			Engine Troubleshooting		
Other	20%					
Total	100%					
Course Letter Grade						

Student Resources, Rights, and Responsibilities: Columbus State Community College required College Syllabus Statements on College Policies and Student Support Services can be found at <https://www.csc.edu/academics/syllabus.shtml>.

**UNITS OF INSTRUCTION – AMT 2203**

<b>ASSIGNMENT</b>	<b>LEARNING OBJECTIVES/GOALS</b>	<b>ASSESSMENT METHODS</b>	<b>ASSIGNMENTS</b>	
<b>Assignment 1</b>	Reciprocating Aircraft Engine Design and Construction	Test, Quizzes, Worksheets	Read:	FAA-H-8083-32 Powerplant Handbook Chapter 1 pg 1-24
			Labs:	Engine Disassembly and Inspection
			Test:	Engine Construction Test
<b>Assignment 2</b>	Engine Overhaul Practices	Test, Quizzes, Worksheets	Read:	FAA-H-8083-32 Powerplant Handbook Chapter 10 pg 1-20
			Labs:	Engine Inspection and Assembly
			Test:	Engine Overhaul Practices
<b>Assignment 3</b>	Engine Operational Principles	Test, Quizzes, Worksheets	Read:	FAA-H-8083-32 Powerplant Handbook Chapter 1 pg 24-36
			Labs:	Displacement, Compression Ratio and Power worksheet
			Test:	Theory Test
<b>Assignment 4</b>	Reciprocating Engine Lubrication Systems	Test, Quizzes, Worksheets	Read:	FAA-H-8083-32 Powerplant Handbook Chapter 6 pg 1-19
			Labs:	Engine Lubrication Service
			Test:	Engine Lubrication
<b>Assignment 5</b>	Engine Removal and Installation	Test, Quizzes, Worksheets	Read:	FAA-H-8083-32 Powerplant Handbook Chapter 8 pg 1-15
			Labs:	Remove, Install and Test Engine
			Test:	None
<b>Assignment 6</b>	Engine Troubleshooting	Test, Quizzes, Worksheets	Read:	FAA-H-8083-32 Powerplant Handbook Chapter 10 pg 25-44
			Labs:	Troubleshoot Engine
			Test:	Installation, Operation and Troubleshooting