

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

COURSE: AMT 2202 Turbine Engine Maintenance 2

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

DESCRIPTION OF COURSE This course deals with the study of electrical principles of turbine engine ignition systems, principles of operating turbine engine electrical and pneumatic starting systems, and the theory of operation of turbine engine fuel systems, fuel metering systems, and subsystems. A study of applied techniques to inspect, maintain, troubleshoot, repair and adjust the respective systems including airflow, temperature control, and thrust reverser systems will be undertaken. Principles of unducted fan systems will be examined as well.

COURSE GOALS

- Engine Ignition and Starter Systems
- Engine Auxiliary Systems
- Engine Fuel Metering Systems
- Turbine Engine Auxiliary Power Systems (APU)
- Engine Starting and Operational Procedures
- Troubleshoot Fuel, Ignition & Starting Systems
- Critical Thinking
- Technological Competence

STUDENT LEARNING OUTCOMES

The Student will demonstrate a knowledge of operational theory of ignition systems, plus electrical and pneumatic starting systems.

The Student will demonstrate a knowledge of Stall/surge devices, anti-ice / heat exchanger systems and thrust reversers.

The Student will demonstrate knowledge of fuel metering and related components and be able to service and adjust them.

The Student will demonstrate proper knowledge of operational principles of APU's

The student will be able to demonstrate Engine starting, operation, troubleshooting, adjusting the engine and related systems.

The Student will be able to troubleshoot diagnose and identify fuel, ignition and starting system anomalies

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
- 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

Powerplant 8083-32

Powerplant Workbook

A&P Powerplant Test Guide

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:

V-L: Ignition and Starting Systems

V-M: Fuel Metering Systems

V-S: Turbine Powered APU

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	60%			Engine Ignition and Starter Systems		
Quiz	0%			Engine Auxiliary Systems		
Final	20%			Engine Fuel Metering Systems		
Participation & Safety	10%			Engine Starting and Operational Procedures		
Use of own tools	10%			Troubleshoot Fuel, Ignition & Starting Systems		
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 2202

ASSIGNMENT	LEARNING OBJECTIVES/GOALS	ASSESSMENT METHODS	ASSIGNMENTS	
Assignment 1	Engine Ignition and Starter Systems	Test, Quizzes, Worksheets	Read:	Aviation Maintenance Technician vol.1 chapt 4-39-44 & chapt 5-8-18
			Labs:	Engine Ignition and Starter Systems worksheet
			Test:	Ignition & Starting System Test
Assignment 2	Engine Auxiliary Systems	Test, Quizzes, Worksheets	Read:	Instructors Handout
			Labs:	Engine Auxiliary Systems worksheet
			Test:	Engine Auxiliary Systems
Assignment 3	Engine Fuel Metering Systems	Test, Quizzes, Worksheets	Read:	Aviation Maintenance Technician vol.1 chapt 2-34-48
			Labs:	Engine Fuel Metering Systems Worksheet
			Test:	Engine Fuel Metering Systems Test
Assignment 4	Turbine Engine Auxiliary Power Systems (APU)	Test, Quizzes, Worksheets	Read:	Instructors Handout
			Labs:	None
			Test:	Turbine Engine Auxiliary Power Systems (APU)
Assignment 5	Engine Starting and Operational Procedures	Test, Quizzes, Worksheets	Read:	Aviation Maintenance Technician vol.2 chapt 10-58-60
			Labs:	Engine Starting and Operational Procedures worksheet
			Test:	None
Assignment 6	Troubleshoot Fuel, Ignition & Starting Systems	Test, Quizzes, Worksheets	Read:	Aviation Maintenance Technician vol.2 chapt 10-60-66
			Labs:	Troubleshoot Fuel, Ignition & Starting Systems worksheet

ASSIGNMENT	LEARNING OBJECTIVES/GOALS	ASSESSMENT METHODS	ASSIGNMENTS		
			Test:	Troubleshoot Fuel, Ignition & Starting Systems	