

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

COURSE: AMT 2102 AIRCRAFT ELECTRICAL SYSTEMS

CREDITS: 6 CLASS HOURS PER WEEK: 27

PREREQUISITES: AMT - 1106

DESCRIPTION OF COURSE

Aircraft electrical system integrity is becoming such a major factor in the operation of complex aircraft today. The need for extensive understanding of the on-board power sources, distribution systems, and utilization equipment is essential to the technician. This course deals with complete DC and AC electrical systems overview including sources, distribution, utilization, control and monitoring systems. Troubleshooting, inspection and maintenance techniques related to these systems are put to practical use with a high level of expectation.

COURSE GOALS

- Airborne electrical power supply systems
- Aircraft electrical component installation, maintenance and troubleshooting
- Aircraft wiring installation, inspection and maintenance
- Aircraft electrical system inspection, maintenance and troubleshooting
- Critical Thinking
- Technological Competence

STUDENT LEARNING OUTCOMES

Use proper techniques to inspect, troubleshoot, and service aircraft DC generators and alternators

Use the correct procedures to inspect and service AC power supply systems

Demonstrate the ability to repair and inspect aircraft electrical system components

Demonstrate the ability to install, inspect and maintain aircraft wiring and wiring components

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:

- Scientific Literacy
- Technological Competence
- Communication Competence

COURSE MATERIALS REQUIRED

TI 30 Calculator or equivalent

Entire AMT Required Tool List

TEXTBOOKS—REQUIRED AND OPTIONAL READINGS

Airframe 8083-31 Vol 1
Airframe 8083-31 Vol 2
Airframe Workbook
A&P Airframe 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:

III-Q: Aircraft Electrical Systems

V-J: Engine Electrical 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		Lab Project	Pass	Fail
------------	--------	------------	--	-------------	------	------

		Earned			
Unit Tests	60%			DC Generators, Alternators, and Control	
Mid-Term	10%			AC Generators, CSD's, IDG's, and Control	
Final	15%			Aircraft Wiring and Termination	
Participation & Safety	10%			Aircraft Electrical Component Maintenance Practices	
Take-home Test	5%			Engine Electrical Systems	
Total	100%			Electrical Systems Maintenance & Inspection	
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 2102

ASSIGNMENT	LEARNING OBJECTIVES	ASSESSMENT METHODS	ASSIGNMENTS	
Assignment 1	AC & DC Theory Review	Worksheets	Read:	General Text Chapter 3
			Labs:	None

ASSIGNMENT	LEARNING OBJECTIVES	ASSESSMENT METHODS	ASSIGNMENTS	
			Test:	None
Assignment 2	Power Supply Systems	Test, Quizzes, Worksheets	Read:	Gen. Text Chapter 4 Sec. A & B AF Text Chap. 7 Sec A PP Text Chap. 8 Sec A & B
			Labs:	Generator and alternator lab sheets completed
			Test:	Test 1
Assignment 3	Motors and Starting Systems	Test, Quizzes, Worksheets	Read:	Gen. Text Chapter 4 Sec. C PP Text Chap. 8 Sec. C
			Labs:	Worksheets, completion of Lab
			Test:	Test 2
Assignment 4	Electrical System Components	Test, Quizzes, Worksheets	Read:	Gen. Text Chap. 3 Sec. A AF Text Chap. 7 Sec D PP Text Chap. 8 Sec D
			Labs:	Completion of lab worksheet
			Test:	None
Assignment 5	Aircraft Wiring Installation	Test, Quizzes, Worksheets	Read:	AF Text Chap. 7 Sec D PP Text Chap. 8 Sec D
			Labs:	Worksheet and completion of lab
			Test:	Test 3
Assignment 6	Electrical System Maintenance and Inspection	Test, Quizzes, Worksheets	Read:	AF Text Chap. 7 Sec B
			Labs:	Inspection and lab worksheet
			Test:	Test 4