AMT A151: GENERAL ELECTRICITY - FAA

Item	Value
Curriculum Committee Approval Date	12/08/2021
Top Code	095000 - Aeronautical and Aviation Technology
Units	3 Total Units
Hours	108 Total Hours (Lecture Hours 36; Lab Hours 72)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	Yes
Basic Skills	Not Basic Skills (N)
Repeatable	No
Grading Policy	Standard Letter (S)

Course Description

Aircraft basic electricity, basic troubleshooting, and aircraft batteries. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Measure, calculate and troubleshoot AC and DC circuits.
2. Check, service and troubleshoot lead acid and nickel cadmium batteries.

Course Objectives

- 1. Interpret aircraft electrical circuits.
- 2. Determine electrical loads in aircraft electrical circuits.
- 3. Demonstrate the use of a ohmmeter.
- 4. Demonstrate use of a voltmeter.
- 5. Demonstrate the use of an ammeter.
- 6. Inspect and service aircraft batteries.
- 7. Identify and explain aircraft electrical components.
- 8. Calculate voltage, current, and resistance in electrical circuits.
- 9. Measure voltage, current, and resistance in an aircraft electrical circuit.
- 10. Troubleshoot aircraft electrical short and open circuits.
- 11. Demonstrate and explain magnetism, electromagnetism, and induction.
- 12. Perform circuit continuity tests.
- 13. Calculate impedance of an ac electrical circuit.
- 14. Measure and calculate series and parallel capacitance.
- 15. Calculate series and parallel inductance.
- 16. Calculate impedance of an ac electrical circuit.
- 17. Explain the characteristics of alternating current.

Lecture Content

Matter Atoms Electron theory Static electricity How to use an ohmmeter and voltmeter Performing continuity tests Units of electricity Electromotive force, voltage Methods of producing voltage Current flow Resistance Electrical power Factors affecting resistance Magnetism Electromagnetism Ohms Law Series circuits Calculating and measuring voltage, current and resistance Short circuits Open circuits Parallel circuits Effects of short circuits Effects of open circuits Series-parallel circuits Open circuits Short circuits Electrical measuring instruments Circuit troubleshooting Aircraft circuit diagrams and symbols Principles of alternating current Inductance Inductive reactance Capacitance Capacitive reactance Impedance True/real power Apparent power Reactive power Applications in aircraft circuits Aircraft batteries General battery theory Lead-acid battery theory Lead-acid battery servicing Nickel-cadmium battery theory

Lab Content

Faculty input required.

Method(s) of Instruction

- Lecture (02)
- Lab (04)

Instructional Techniques

Classroom and laboratory demonstrations Lectures

Reading Assignments

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Writing Assignments

Written reports Applied math performance Lab demonstrations and explanations

Out-of-class Assignments

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Demonstration of Critical Thinking

Laboratory assignments Student performance demonstrations Written and oral exams

Required Writing, Problem Solving, Skills Demonstration

Written reports Applied math performance Lab demonstrations and explanations

Textbooks Resources

1. Required Jeppesen. AP Technician “GENERAL” Textbook, ed. Englewood: Jeppesen Sanderson, 2000 Rationale: latest 2. Required Jeppesen. AP Technician “GENERAL” Study Guide, ed. Englewood: Jeppesen Sanderson, 2007