

Aviation Technology- Maintenance  
Standard Course Outline

AVTG 1064 - BASIC ELECTRICITY

Catalog Description: A thorough introduction to AC and DC electricity. Students learn to calculate and measure volts, amperes, and ohms; to build and analyze circuits; and to use electrical schematics.

Clock hours: 56 lecture, 40 shop

Prerequisite: AVTG 1001

Credit hours/ Contact hours/ Load hours: 4/96/6 hours per day for 16 days

Target Audience & Transferability:

This course is designed for students seeking a Certificate of Proficiency, Technical Certificates in Airframe and Powerplant, an AAS in Aviation Maintenance Technology, or an AS in Aviation Maintenance Management. Individual AVT courses or Certificates may be transferable to other FAA Certified Aviation Maintenance Technician schools under Federal Regulations.

Student Outcomes/ Course Topics:

REFERENCES: JSGT; AEE; AMT-G.

FAA Standard: *FAA-S-8081-26* 1-1, Changes 2 (9/24/03) & 3 (6/21/04)

**By the end of the course, students will:**

1. Exhibit knowledge of at least two of the following—
  - a. sources and/or effects of capacitance in a circuit.
  - b. uses of capacitance in a circuit.
  - c. sources and/or effects of inductance in a circuit.
  - d. uses of inductance in a circuit.
  - e. operation of basic AC and/or DC electrical circuits.
  - f. Ohm's law.
  - g. Kirchoff's law(s).
  - h. procedures used in the measurement of voltage, current, and/or resistance.
  - i. determining power used in simple circuits.
  - j. troubleshooting, and/or repair or alteration using electrical circuit diagrams.
  - k. common types of defects that may occur in an installed battery system.
  - l. aircraft battery theory/operation.
  - m. servicing aircraft batteries.
  
2. \*Demonstrate the ability to perform both of the following—
  - a. use measuring equipment to measure in a circuit or circuit component(s), at least one of the following: voltage, current, resistance, or continuity. (Level 3)
  - b. determine the appropriateness of measurement(s) according to instructions/specifications. (Level 2)

\*Core competency element.
  
3. Demonstrate the ability to perform at least one of the following—
  - a. read and interpret one or more electrical circuit diagrams. (Level 2)
  - b. troubleshoot an electrical circuit. (Level 3)
  - c. calculate voltage, current, and resistance using Ohm's Law. (Level 2)

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- d. inspect a battery and installed battery system. (Level 3)
- e. accomplish a battery state-of-charge (hydrometer) and/or electrical leak (cell imbalance) test. (Level 3)
- f. accomplish removal and/or installation of a battery in an aircraft. (Level 3)
- a. set-up and connect a charger to one or more batteries for constant current and/or constant voltage charging. (Level 3)

Required Text(s):

General Textbook (ASA)	ISBN # 1-56027-550-3
General Test Study Guide (ASA)	ISBN # 1-56027-570-7
FAR Handbook for AMT (ASA)	ISBN # 1-56027-563-4
AC43.13-1B Acceptable Methods, Practices, & Techniques (ASA)	ISBN # 1-56027-488-3

Optional Text(s):

Technician General Textbook (Jeppesen)	ISBN # 0-88487-203-3
Technician General Workbook (Jeppesen)	ISBN # 0-88487-212-2
AC65-9A Aircraft Mechanics Handbook General (FAA)	ISBN # 1-56027-064-0

Supporting Reference(s)

O&P Study Guide (ASA)	ISBN # 1-56027-406-9
Maintenance Handbook (ASA)	ISBN # 1-56027-518-9
Dictionary of Aeronautical Terms (ASA)	ISBN # 1-56027-587-2

The workbooks and test study guides may be used to aid the instructor and students to reinforce the textbook information. Other Textbooks may be issued depending upon availability.

Required Methods of Instruction:

Classes are taught off-campus in a full time day or night format, requiring maximum attendance. Attendance is taken every hour. Missed time must be made up outside of regular scheduled class time before moving to the next subject.

Required Forms of Assessment:

Periodic exams will be performed by FAA approved instructors as required to insure progress. Students must pass this course with a 70% or better to qualify for an FAA approved Certificate of Completion in the General Section.