

AMNT260e Aircraft Electrical Systems Theory

Level: 2

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JAN

E-Learning: BLENDED - Learning is done MAINLY online using interactive study materials in Canvas. Students receive guidance and support from online instructors via discussion forums and emails. This is supplemented with SOME face-to-face sessions. If the course has an exam component, this will be administered on-campus.

Synopsis:

Students are provided an introduction to aircraft electrical systems. Discussions include a study of the principles and concepts of basic DC and AC electrical theory, magnetism, batteries, generators, motors, voltage regulators, circuit protection and electrical component installations (FAR Part 65).

Topics:

- Fundamentals of Electricity
- The Application of Ohm's and Kirchoff's Laws
- Alternating Current
- Electrical Circuit Components
- Solid State Devices
- Integrated Circuits
- Aircraft Batteries
- Electric Motors and Generators
- Aircraft Systems and Circuits

Learning Outcome:

- Understand and apply aircraft electrical components and flow application, including operation and maintenance.
- Apply the fundamental physics of electricity production as it relates to aircraft.
- Understand and work with series, parallel, and complex DC circuits with resistors using mathematical equations of Ohm's and Kirchoff's Laws.
- Understand and apply the theory, design, and construction of different types of aircraft batteries, their use, safety, and care.
- Apply some basic rules of AC circuits with resistance, capacitance, and inductance.
- Understand, describe and apply various types of aircraft protection devices.
- Apply the basic principles in the use of electrical measuring instruments for aircraft system indication, circuit analysis and troubleshooting.
- Comprehend and apply the basic fundamentals of AC and DC motors.
- Recognize and describe the various types of voltage controls for use in electrical systems.
- Understand and apply the basic principle of AC alternators and DC generators.
- Prepare to perform as a mechanic in regard to the certification, obligations, privileges and limitations of the mechanic during aircraft inspections.

Assessment Strategies (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	TUTOR-MARKED ASSIGNMENT 1	100
Total		100