MASTER COURSE OUTLINE
Prepared By: D Berry-Guerin/K Dannenberg Date: January 2018

COURSE TITLE
Aircraft Electrical Fundamentals

GENERAL COURSE INFORMATION

Dept.: AVIO	Course Num: 101	(Formerly:)
CIP Code: 47.0609	Intent Code: 21	Program Code: 660
Credits: 8		
Total Contact Hrs Per Qtr.: 121		
Lecture Hrs: 55	Lab Hrs: 66	Other Hrs:
Distribution Designation: General Elective (GE)		

COURSE DESCRIPTION (as it will appear in the catalog)
Fundamentals, troubleshooting, and experiments of aircraft electrical circuits; safety practices; electrostatic devices; metric notation; voltage, current, resistors and measurements, switches, fuses, and circuit breakers; tools for troubleshooting, including multimeters and oscilloscopes; magnetism and electromagnetic principles and calculations; relays and meters; Ohm's and Kirchhoff's Laws; circuits; electrical generators, inductors, filters, and capacitors; resistance and reactance; transformers; batteries; motors.

PREREQUISITES
None

TEXTBOOK GUIDELINES
Avionics text as decided by AMT/AVIO Faculty

COURSE LEARNING OUTCOMES
Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills:

1. Demonstrate knowledge of electrical safety practices
2. Describe Electrostatic Sensitive Devices and identify static-producing materials in the industry setting.
3. Demonstrate correct metric conversions.
4. Identify fundamentals of voltage and current.
5. Identify and define concepts related to resistors, switches, fuses, and circuit breakers.
6. Identify and correctly use tools for electronic troubleshooting, including schematic diagrams, multimeters, and oscilloscopes.
7. Define principles of magnetism and electromagnetism and calculate magnetic forces.
8. Define and correctly use Ohm's and Kirchhoff's laws.
9. Identify, calculate measurements, and troubleshoot electrical circuits, including series, parallel, series-parallel, voltage divider, bridge, RL series, RC series, and LCR circuits.
10. Identify, calculate measurements, and troubleshoot electrical inductors, capacitors, filters, and transformers.
11. Identify fundamentals of AC and DC currents.
12. Identify, calculate measurements, and troubleshoot AC, DC, and function generators and component systems.

INSTITUTIONAL OUTCOMES

IO3 **Human Relations/Workplace Skills**: Students will be able to demonstrate teamwork, ethics, appropriate safety awareness and/or workplace specific skills

COURSE CONTENT OUTLINE

- Safety practices
- Electrostatic sensitive devices
- Metric conversions
- Voltage and currents
- Resistors, switches, fuses, and circuit breakers
- Magnetism
- Ohm's and Kirchhoff's laws
- Electrical circuits
- Electrical inductors, capacitors, filters, and transformers
- AC and DC currents
- Electronic troubleshooting

DEPARTMENTAL GUIDELINES *(optional)*

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DIVISION CHAIR APPROVAL **DATE**