# AMT A181: AIRFRAME COMMUNICATION AND NAVIGATION SYSTEMS - FAA

| Item | Value |
|---|---|
| Curriculum Committee Approval Date | 12/08/2021 |
| Top Code | 095040 - Aircraft Electronics (Avionics) |
| Units | 2 Total Units |
| Hours | 58.5 Total Hours (Lecture Hours 27; Lab Hours 31.5) |
| Total Outside of Class Hours | 0 |
| Course Credit Status | Credit: Degree Applicable (D) |
| Material Fee | No |
| Basic Skills | Not Basic Skills (N) |
| Repeatable | No |
| Open Entry/Open Exit | No |
| Grading Policy | Standard Letter (S) |

## Course Description

Survey of avionic systems used in navigation and communication and use of computer-based flight management systems, flight deck orientation, and theory of flight. ADVISORY: AMT A180. Transfer Credit: CSU.

## Course Level Student Learning Outcome(s)

1. Inspect, check, and troubleshoot autopilots systems, aircraft navigation and communication systems, flight management computers, enhanced ground proximity warning systems, aircraft antennas and static dischargers.

## Course Objectives

- 1. Describe nomenclature and acronyms of individual avionics systems.
- 2. Describe function and application of individual avionic systems.
- 3. Discuss the interrelationship between individual avionic systems.
- 4. Examine the individual avionic system component structure and component location.
- 5. Develop communication skills to discuss individual avionic systems at an industrial level.
- 6. Perform operational tests of various avionic systems.

## Lecture Content

Communications and Navigation Systems Inspect, check and troubleshoot auto pilot, servos, and approach control systems. Purpose and operating principles of auto pilots and approach control systems. Inspect, check, and service aircraft electronic communication and navigation systems, including VHF passenger address interphones, and static discharge devices, aircraft, VOR, ILS, LORAN, radar beacon transponders, flight management computers, and GPWS. Types and installation of aircraft electronic communication and navigation equipment. VHF passenger address interphones Very high frequency - Omni Range (VOR) Ramp testing of aircraft VOR equipment. Instrument Landing System (ILS) LORAN Radar beacon transponders Flight management computers (FMCS) Ground proximity warning system (GPWS) FCC regulations pertaining to two-way radio operation Inspect and repair antenna and electrical equipment installation Repair or replace aircraft antennas and related electronic equipment Identify and describe purpose of static dischargers

## Lab Content

Faculty input required.

## Method(s) of Instruction

- Lecture (02)
- Lab (04)

## Instructional Techniques

1. Detailed multimedia/lectures of each topic covered. 2. Student feedback during each lecture. 3. Detailed illustrative discussion of textbook examples. 4. Concentration on schematic reading and system operation fault diagnosis. 5  Practical troubleshooting. 6. Laboratory exercises pertaining to subjects discussed during which students work individually or in small groups.

## Reading Assignments

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## Writing Assignments

Complete all laboratory tasks as required by the Federal Aviation Administration certification guidelines.

## Out-of-class Assignments

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## Demonstration of Critical Thinking

Interview, list, multiple choice exams, and short answer.

## Required Writing, Problem Solving, Skills Demonstration

Complete all laboratory tasks as required by the Federal Aviation Administration certification guidelines.

## Textbooks Resources

1. Required Eismin, Thomas R. . Aircraft Electricity Electronic, 5th ed. New York: Glencoe/McGraw-Hill, 1994 Rationale: latest 2. Required Jeppensen. AP Technician ?AIRFRAME? Textbook, ed. Englewood: Jeppesen Sanderson, 2007 3. Required interAct. Aircraft Electronic Communication and Navigation Systems, 1st ed. Irvine: Integrated Logistical International, 0 Rationale: - 4. Required interAct. Autopilot Servos and Approach Coupling Systems, 1st ed. Irvine: Integrated Logistical International, 0 Rationale: -