



**Alabama**  
**Department of**  
**Postsecondary Education**

**Representing Alabama's Public Two-Year College System**

**AMT 115**  
**Fixed Wing and Rotorcraft Systems IV**  
**Plan of Instruction**

**Effective Date: 2022**

**Version Number: Base Document**

**AMT 115 Fixed Wing and Rotorcraft Systems IV**

135 Hours Theory 45 Laboratory 90

**COURSE DESCRIPTION:** This course introduces aircraft structural assembly and rigging, helicopters, and required inspections. Emphasis is placed on skills required to inspect, service, maintain, and troubleshoot airframes, airframe systems, and components, and assemble and rig aircraft structures. Upon completion, students should be able to inspect, repair, troubleshoot, assemble and rig aircraft structures and determine the condition of airframes, airframe systems, and components. This is a **CORE** course.

**CONTACT/CREDIT HOURS** (applicable if entire course is taught in a career/technical education degree or non-degree program)

Theory Contact/Credit Hours	3/3 hours	45 hours (1:1)
Lab Contact/Credit Hours	6/2 hours	90 hours (3:1)
Total Contact/Credit Hours	9/5 hours	135 hours

NOTE: Colleges may schedule lab hours as manipulative (3:1) or experimental (2:1). Adjustments in contact hours must be made accordingly.

**PREREQUISITE COURSES** (applicable if entire course is taught in a career/technical education degree or non-degree program)

Determined by college unless stated otherwise.

**CO-REQUISITE COURSES** (applicable if entire course is taught in a career/technical education degree or non-degree program)

Determined by college unless stated otherwise.

**INDUSTRY COMPETENCIES**

**AM.II.C Flight Controls**

- AM.II.C.K1 - 13 Knowledge of aircraft Flight Controls
- AM.II.C.R1 - 5 Ability to identify, assess, and mitigate risks associated with Flight Controls
- AM.II.C.S1 - 13 Ability to demonstrate SKILLS associated with aircraft Flight Controls

**AM.II.D Airframe Inspection**

- AM.II.D.K1 - 9 Knowledge of Airframe Inspections
- AM.II.D.R1 - 5 Ability to identify, assess, and mitigate risks associated with airframe Inspections
- AM.II.D.S1 - 7 Ability to demonstrate SKILLS associated with Airframe Inspections

**AM.II.N Rotorcraft Fundamentals**

- AM.II.N.K1 - 9 Knowledge of Rotorcraft Fundamentals
- AM.II.N.R1- 4 Ability to identify, assess, and mitigate risks associated with Rotorcraft Fundamentals
- AM.II.N.S1- 4 Ability to demonstrate SKILLS associated with Rotorcraft Fundamentals

**COURSE OBJECTIVES**

The cognitive objective of this course is for each student to comprehend foundational knowledge needed to perform stated entry-level industry competencies. The performance objective of this course is for each student to apply foundational knowledge and risk management to problems and exercises encountered in class.

**COURSE CONTENT OUTLINE FAA AUTHORITY 147**

**AM.II.C Flight Controls**

- AM.II.C.K1 Control cables.
- AM.II.C.K2 Control cable maintenance.
- AM.II.C.K3 Cable connectors.
- AM.II.C.K4 Cable guides.
- AM.II.C.K5 Control stops.
- AM.II.C.K6 Push-pull tubes.
- AM.II.C.K7 Torque tubes.
- AM.II.C.K8 Bellcranks.
- AM.II.C.K9 Flutter and flight control balance.
- AM.II.C.K10 Rigging of aircraft flight controls.
- AM.II.C.K11 Aircraft flight controls and stabilizer systems.
- AM.II.C.K12 Other aerodynamic wing features.
- AM.II.C.K13 Secondary and auxiliary control surfaces.
  
- AM.II.C.R1 Use of and interpretation of a cable tension chart.
- AM.II.C.R2 Rigging aircraft flight controls.

**115 AM.II.C Practical 1**

- AM.II.C.R3 Selection and use of lifting equipment used to move aircraft components into place for assembly.
- AM.II.C.R4 Maintaining a calibration schedule for cable tension meters and other rigging equipment.
- AM.II.C.R5 Use and interpretation of cable tensiometers.

**115 AM.II.C Practical 2**

- AM.II.C.S1 Identify fixed-wing aircraft rigging adjustment locations.
- AM.II.C.S2 Identify control surfaces that provide movement about an aircraft's axes.
- AM.II.C.S3 Inspect a primary and secondary flight control surface.
- AM.II.C.S4 Remove and reinstall a primary flight control surface.
- AM.II.C.S5 Inspect primary control cables.
- AM.II.C.S6 Adjust and secure a primary flight control cable.

**115 AM.II.C Practical 3**

- AM.II.C.S7 Adjust push-pull flight control systems.
- AM.II.C.S8 Check the balance of a flight control surface.
- AM.II.C.S9 Determine allowable axial play limits for a flight control bearing.
- AM.II.C.S10 Inspect a trim tab for freeplay, travel, and operation.
- AM.II.C.S11 Balance a control surface.

**115 AM.II.C Practical 4**

- AM.II.C.S12 Fabricate a primary flight control cable.

**115 AM.II.C Practical 5**

- AM.II.C.S13 Locate aircraft flight control travel limits.

**AMT115 Exam 1**

**AM.II.D Airframe Inspection**

- AM.II.D.K1 Inspection requirements under 14 CFR part 91.
- AM.II.D.K2 Maintenance recordkeeping requirements under 14 CFR part 43.
- AM.II.D.K3 Requirements for complying with ADs.
- AM.II.D.K4 Identification of life-limited parts and their replacement interval.
- AM.II.D.K5 Special inspections.
- AM.II.D.K6 Use of FAA-approved data.
- AM.II.D.K7 Compliance with service letters, service bulletins, instructions for continued airworthiness, or ADs.
- AM.II.D.K8 CFRs applicable to inspection and airworthiness.
- AM.II.D.K9 Corrosion types and identification.

**115 II.D Practical 1**

- AM.II.D.R1 Interpretation of inspection instructions, which can lead to over or under maintenance being performed.
- AM.II.D.R2 Visual inspection and where to apply it.
- AM.II.D.R3 Performing radiographic inspections.
- AM.II.D.R4 Selection and use of checklists and other maintenance publications.
- AM.II.D.R5 Maintenance record documentation.
- AM.II.D.S1 Perform an airframe inspection, including a records check.
- AM.II.D.S2 Perform a portion of a 100-hour inspection in accordance with 14 CFR part 43.
- AM.II.D.S3 Enter results of a 100-hour inspection in a maintenance record.
- AM.II.D.S4 Determine compliance with a specific AD.
- AM.II.D.S5 Provide a checklist for conducting a 100-hour inspection.

AM.II.D.S6 Determine if any additional inspections are required during a particular 100-hour inspection; (i.e., 300-hour filter replacement).

AM.II.D.S7 Inspect seat and seatbelt, including TSO markings.

**115 AM.II.D Practical 2**

**AMT115 Exam 2**

**AM.II.N Rotorcraft Fundamentals**

AM.II.N.K1 Rotorcraft aerodynamics.

AM.II.N.K2 Flight controls.

AM.II.N.K3 Transmissions.

AM.II.N.K4 Rigging requirements for rotary wing aircraft.

AM.II.N.K5 Design, type, and operation of rotor systems.

AM.II.N.K6 Helicopter skid shoe and tube inspection.

AM.II.N.K7 Rotor blade functions and construction.

AM.II.N.K8 Rotor vibrations, track, and balance.

AM.II.N.K9 Drive system vibrations and inspection.

AM.II.N.R1 Working around helicopter blades during ground operations.

AM.II.N.R2 Ground-handling procedures.

AM.II.N.R3 Ground operations and functional tests.

AM.II.N.R4 Maintenance and inspection of rotorcraft systems and components.

**115 AM.II.N Practical 1**

AM.II.N.S1 Locate components of a helicopter rotor system.

AM.II.N.S2 Locate helicopter rotor blade track and balance procedures.

AM.II.N.S3 Locate and explain procedures needed to rig helicopter controls.

AM.II.N.S4 Locate and explain procedures to track and balance a rotor system.

**115 AM.II.N Practical 2**

**AMT115 Exam 3**

**AMT115 Final Examination**