Alabama Department of Postsecondary Education

Representing Alabama's Public Two-Year College System

AMT 113
Airframe Systems II
Plan of Instruction

Effective Date: 2022 **Version Number: Base Document**

AMT113 Airframe Systems II 135 Hours Theory 45 Laboratory 90

COURSE DESCRIPTION: This course introduces aircraft inclement weather control, fire protection and fuel systems as well as cabin environmental control, and instrumentation. Emphasis is placed on theory and skills necessary to inspect, service, maintain and troubleshoot. Upon completion, students should be able to inspect, repair,troubleshoot and understand operating principles of ice and rain removal, fire protection,cabin environmental, instruments and fuel systems.
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	135/5 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.G Environmental Systems

AM.II.G.K1 - K10	Knowledge of aircraft Environmental Systems
AM.II.G.R1 - R6	Ability to identify, assess, and mitigate risks associated with aircraft Environmental Systems
AM.II.G.S1 - S15	Ability to perform maintenance on Environmental Systems

AM.II.H Aircraft Instrument Systems

AM.II.H.K1 - K24	Knowledge of aircraft Instrument Systems
AM.II.H.R1 - R5	Ability to identify, assess, and mitigate risks associated with aircraft Instrument Systems
AM.II.H.S1 - S14	Ability to perform maintenance on Instrument Systems

AM.II.J Aircraft Fuel Systems

AM.II.J.K1 - K9	Knowledge of aircraft Fuel Systems
AM.II.J.R1 - R5	Ability to identify, assess, and mitigate risks associated with aircraft Fuel Systems
AM.II.J.S1 - S18	Ability to perform maintenance on

AM.II.L Ice and Rain Control Systems

AM.II.L.K1 - K7	Knowledge of aircraft Ice and Rain control systems
AM.II.L.R1 - R3	Ability to identify, assess, and mitigate risks associated with aircraft Ice and Rain control systems
AM.II.L.S1 - S9	Ability to perform maintenance on aircraft Ice and Rain control systems

AM.II.M Airframe Fire Protection Systems

AM.II.M.K1 - K7	Knowledge of aircraft Fire Protection Systems
AM.II.M.R1 - R3	Ability to identify, assess, and mitigate risks associated with aircraft Fire Protection Systems
AM.II.L.S1 – S12	Ability to perform maintenance on aircraft Fire Protection Systems

AM.II.O Water and Waste Systems

AM.II.O.K1 - K3	Knowledge of aircraft Water and Waste Systems
AM.II.O.R1 - R1	Ability to identify, assess, and mitigate risks associated with aircraft Water and Waste Systems
AM.II.O.S1 - S2	Ability to perform maintenance on aircraft Water and Waste Systems

Course Objectives:

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

COURSE CONTENT OUTLINE FAA AUTHORITY 147

AM.II.G Environmental Systems

AM.II.G.K9 Types of oxygen systems and oxygen system component(s) operation(e.g., chemical generator, pressure cylinder).
AM.II.G.K10 Oxygen system maintenance and inspection procedures.
AM.II.G.R1 Oxygen system maintenance.
AM.II.G.R3 Handling or performing maintenance on, chemical oxygen generatingsystems.
AM.II.G.S1 Inspect an oxygen system.
AM.II.G.S2 Purge an oxygen system prior to servicing.
AM.II.G.S3 Service an oxygen system.
AM.II.G.S4 Clean and inspect a pilot emergency oxygen mask and supply hoses.

AM.II.G.S5 Inspect an oxygen system pressure regulator.
AM.II.G.S6 Inspect an oxygen system cylinder for serviceability.
AM.II.G.S7 Inspect a chemical oxygen generator for serviceability and safe handling
113 AM.II.G Practical 1

AM.II.G.K6 Vapor-cycle system and system component(s) operation, servicing, and inspection procedures.
AM.II.G.R4 Storage, handling, and use of compressed gas cylinder and high pressure systems.
AM.II.G.R5 Manufacturer's recommended servicing procedures, including refrigerant types.
AM.II.G.R2 Recovery of vapor-cycle refrigerant.
AM.II.G.S9 Locate the procedures for servicing a refrigerant (vapor-cycle) system.
113 AM.II.G Practical 2

AM.II.G.K3 Aircraft instrument cooling.
AM.II.G.K7 Air-cycle system and system component(s) operation and inspection procedures.
AM.II.G.S11 Locate the troubleshooting procedures for an air-cycle system.
AM.II.G.S12 Troubleshoot an air-cycle air conditioning system.
113 AM.II.G Practical 3

AM.II.G.K2 Bleed air heating.
AM.II.G.K4 Exhaust heat exchanger and system component(s) function, operation, andinspection procedures.
AM.II.G.K5 Combustion heater and system component(s) function, operation, and inspection procedures.
AM.II.G.R6 Maintenance of combustion heaters.
AM.II.G.S8 Locate the procedures to troubleshoot a combustion heater.
AM.II.G.S10 Inspect a combustion heater fuel system for leaks.
AM.II.G.S13 Inspect a cabin heater system equipped with an exhaust heat exchanger for cracks.
113 AM.II.G Practical 4

AM.II.G.K1 Pressurization systems.
AM.II.G.K8 Cabin pressurization and system component(s) operation and inspection procedures.
AM.II.G.S14 Clean and inspect an outflow valve for a pressurization system.
AM.II.G.S15 Locate troubleshooting procedures for a pressurization system.
113 AM.II.G Practical 5
AMT113 Exam 1

AM.II.H Aircraft Instrument Systems
AM.II.H.K1 Annunciator indicating systems and the meaning of warning, caution, and advisory lights.
AM.II.H.K4 Pressure indicating instruments.
AM.II.H.K11 Fuel quantity indicating systems.
AM.II.H.K12 Instrument range markings.
AM.II.H.K13 Electronic displays.
AM.II.H.K14 Electrostatic sensitive devices.
AM.II.H.K15 Built-in test equipment.
AM.II.H.K16 Electronic flight instrument system.
AM.II.H.K17 Engine indication and crew alerting system.
AM.II.H.K18 Head-up displays (HUDs).
AM.II.H.K19 14 CFR parts 43 and 91 requirements for static system leak checks.

AM.II.H.K20 Instrument limitations, conditions, and characteristics.
AM.II.H.K22 Takeoff and landing gear configuration warning systems.
AM.II.H.K23 Aircraft bonding and protection.
AM.II.H.K24 Instrument or instrument panel removal and installation.
AM.II.H.R1 Use of pressurized air and water during maintenance or cleaning of aircraft instrument systems.
AM.II.H.R2 Actions in response to a reported intermittent warning or cautionannunciator light illumination.
AM.II.H.R3 Performing maintenance on equipment identified as electrostatic-sensitive.
AM.II.H.R4 Handling of mechanical gyros or instruments containing mechanical gyros.
AM.II.H.S3 Install range marks on an instrument glass.
AM.II.H.S5 Check for proper range markings on an instrument.
113 AM.II.H Practical 1

AM.II.H.K2 Magnetic compass inspection and operation.
AM.II.H.K3 Magnetic compass swinging procedures.
AM.II.H.S6 Inspect a magnetic compass.
113 AM.II.H Practical 2

AM.II.H.K6 Position indication sensors and instruments.
AM.II.H.K7 Gyroscopic instruments.
AM.II.H.K8 Direction indicating instruments.
AM.II.H.K9 Instrument vacuum and pneumatic systems.
AM.II.H.K10 Pitot-static system.
AM.II.H.R5 Performing a pitot/static system test.
AM.II.H.S1 Perform a static system leak test.
AM.II.H.S2 Remove and install an instrument.
AM.II.H.S4 Determine barometric pressure using an altimeter.
AM.II.H.S7 Locate the procedures for troubleshooting a vacuum-operated instrument system.
AM.II.H.S8 Select proper altimeter for installation on a given aircraft.
AM.II.H.S10 Inspect a vacuum system filter for serviceability.
AM.II.H.S11 Adjust gyro/instrument air pressure/vacuum.
AM.II.H.S12 Inspect an aircraft's alternate air (static) source.
113 AM.II.H Practical 3
113 AM.II.H Practical 4
113 AM.II.H Practical 5

AM.II.H.K5 Temperature indicating instruments.
AM.II.H.S14 Inspect outside air temperature gauge for condition and operation.
113 AM.II.H Practical 6

AM.II.H.K21 Angle of attack and stall warning systems.
AM.II.H.S13 Locate and explain the adjustment procedures for a stall warningsystem.
113 AM.II.H Practical 7

AM.II.H.S9 Identify exhaust gas temperature system components.
113 AM.II.H Practical 8
AMT113 Exam 2

AM.II.J Aircraft Fuel Systems
AM.II.J.K1 Fuel system types.
AM.II.J.K2 Fuel system components, including filters and selector valves.
AM.II.J.K3 Aircraft fuel tanks/cells
AM.II.J.K7 Characteristics of fuel types.
AM.II.J.K8 Fuel system maintenance and inspection.
AM.II.J.K9 Fuel quantity indication.
AM.II.J.R1 Fuel system maintenance.
AM.II.J.R2 Fuel system contamination.
AM.II.J.R3 Fuel spills.
AM.II.J.R4 Fuel system maintenance requiring fuel tank entry.
AM.II.J.S1 Inspect, check, troubleshoot, or repair a fuel system.
AM.II.J.S2 Inspect a metal, bladder, or integral fuel tank.
AM.II.J.S3 Troubleshoot and repair aircraft fuel system.
AM.II.J.S4 Inspect a fuel selector valve.
AM.II.J.S6 Troubleshoot a fuel valve problem.
AM.II.J.S5 Inspect and check manually-operated fuel valves for properoperation and leaks.
113 AM.II.J Practical 1

AM.II.J.K4 Fuel flow.
AM.II.J.K5 Fuel transfer, fueling, and defueling.
AM.II.J.K6 Fuel jettisoning/dump systems.
AM.II.J.S7 Drain fuel system sump(s).
AM.II.J.S8 Service a fuel system strainer.
113 AM.II.J Practical 2

AM.II.J.R5 Defueling aircraft.
AM.II.J.S10 Locate fuel system operating instructions.
AM.II.J.S11 Locate fuel system inspection procedures.
AM.II.J.S12 Locate fuel system cross-feed procedures.
AM.II.J.S13 Locate fuel system required placards.
AM.II.J.S14 Locate fuel system defueling procedures.
113 AM.II.J Practical 3

AM.II.J.S15 Troubleshoot fuel pressure warning system.
113 AM.II.J Practical 4

AM.II.J.S16 Locate troubleshooting procedures for fuel temperature systems.
113 AM.II.J Practical 5

AM.II.J.S9 Inspect a fuel quantity indicating system.
AM.II.J.S17 Remove and install a fuel quantity transmitter.
AM.II.J.S18 Troubleshoot fuel quantity indicating system.
113 AM.II.J Practical 6
AMT113 Exam 3

AM.II.L Ice and Rain Control Systems

AM.II.L.K1 Aircraft icing causes/effects.
AM.II.L.K2 Ice detection systems.
AM.II.L.K3 Aircraft and powerplant anti-ice systems and components.
AM.II.L.K4 De-ice systems and components.
AM.II.L.K5 Wiper blade, chemical, and pneumatic bleed air rain control systems.
AM.II.L.K6 Anti-icing and de-icing system maintenance.
AM.II.L.K7 Environmental conditions that degrade vision.
AM.II.L.R1 System testing or maintenance.
AM.II.L.R2 Storage and handling of deicing fluids.
AM.II.L.R3 Selection and use of cleaning materials for heated windshields.
AM.II.L.S1 Inspect and operationally check pitot-static anti-ice system.
AM.II.L.S2 Inspect and operationally check deicer boot.
AM.II.L.S3 Clean a pneumatic deicer boot.
AM.II.L.S4 Troubleshoot an electrically-heated pitot system.
AM.II.L.S5 Inspect thermal anti-ice systems.
AM.II.L.S6 Inspect and operationally check an electrically-heated windshield.
AM.II.L.S7 Locate and explain the procedures for inspecting an electrically-operated windshield wiper system.
AM.II.L.S8 Locate and explain the procedures for replacing blades on a windshield wiper system.
AM.II.L.S9 Locate and explain the procedures for inspecting a pneumatic rain removal system.

113 AM.II.L Practical 1

AM.II.M Airframe Fire Protection Systems

AM.II.M.K1 Types of fires and aircraft fire zones.
AM.II.M.K2 Overheat and fire detection and warning systems.
AM.II.M.K3 Overheat and fire detection system maintenance and inspection.
AM.II.M.K4 Smoke and carbon monoxide detection systems.
AM.II.M.K5 Fire extinguishing agents.
AM.II.M.K6 Types of fire extinguishing systems.
AM.II.M.K7 Fire extinguishing system maintenance and inspection requirements.
AM.II.M.R1 Maintenance on circuits associated with fire bottle squibs.
AM.II.M.R2 Use of PPEs when working on or testing fire extinguishing systems.
AM.II.M.R3 Fire extinguishing agents.
AM.II.M.S1 Troubleshoot an aircraft fire detection or extinguishing system.
AM.II.M.S3 Identify maintenance procedures for fire detection and extinguishingsystem(s) and system component(s).
AM.II.M.S7 Locate and explain the procedures for inspecting an overheat detectionsystem.
AM.II.M.S9 Inspect fire detection/protection system.
AM.II.M.S10 Perform operational check of fire detection/protection system.
AM.II.M.S12 Inspect a continuous-loop type fire detection system.

113 AM.II.M Practical 1

AM.II.M.S4 Inspect a smoke and toxic gas detection system.
AM.II.M.S5 Inspect a carbon monoxide detector.
AM.II.M.S6 Locate and explain the procedures for checking a smoke detection system.

113 AM.II.M Practical 2

AM.II.M.S2 Determine proper container pressure for an installed fire extinguisher system.
AM.II.M.S8 Inspect fire protection system cylinders and check for hydrostatic test date.
AM.II.M.S11 Inspect fire extinguishing agent bottle discharge cartridge.
113 AM.II.M Practical 3

AM.II.O Water and Waste Systems
AM.II.O.K1 Potable water system components and operation.
AM.II.O.K2 Lavatory waste system components and operation.
AM.II.O.K3 Inspection and servicing requirements for water and waste systems.
AM.II.O.R1 Servicing lavatory waste systems, including use of safety equipment.
AM.II.O.S1 Locate and explain the procedures for servicing a lavatory waste system.
AM.II.O.S2 Locate and explain the procedures for servicing a potable water system.
113 AM.II.O Practical 1
AMT113 Exam 4

AMT113 Final Examination