Aviation Maintenance Technician School Curriculum Manual

FAA Certificate #IAAT654K

Airframe and Powerplant

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Record of Revisions

Revision Number	Revision Date	Effective Pages	Revision Description
ORG	8/10/22	All	Original Issue
1	11/10/2022	All	Added Powerplant Forms, reindexed page numbers
2(RIE)	9/15/2025	All	Name change from International AeroTech Academy to A&P Mechanic Institute. Course revisions

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Manual Revisions

Copies of this manual are at the following locations in connection with the Aircraft Maintenance Technician School (AMTS) operated by A&P Mechanic Institute
Director of Maintenance Training
Each Classroom

The current revision date of each form will be indicated on the lower right corner of the form. Master electronic copies are kept by the Director of Maintenance Training and are available electronically at https://www.intaerotech.com/APMI-ops-manuals. The forms in this manual are for reference use and as a backup if the electronic copies become unavailable or destroyed. Instructors may print directly from this document if need be.

When revisions are made this manual in its entirety will be reprinted. And the revised document will have its revision date in the lower left corner changed and the revision table will be changed to reflect the new document revision.

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Purpose Statement

Purpose Statement for FAR Part 147 Aircraft Maintenance Technician Training School

Our Aircraft Maintenance Technician (AMT) Training School is dedicated to delivering a comprehensive and rigorous curriculum that aligns with the Mechanic Airman Certification Standards (FAA-S-ACS-1), as incorporated by reference in 14 CFR §147.17(b).

The program ensures full compliance with FAR Part 147 requirements through structured coursework, hands-on training, and assessments designed to meet or exceed regulatory standards. By integrating industry-relevant skills, safety practices, and technical proficiency, our curriculum prepares students to excel in FAA certification testing for Airframe and Powerplant licenses, equipping them for successful careers as competent and confident aviation maintenance professionals.

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Scope and Applicability

Scope and Applicability Statement for FAR Part 147 Aircraft Maintenance Technician Training School
Scope:
This Aircraft Maintenance Technician (AMT) Training School, operating under 14 CFR Part 147, provides a comprehensive curriculum for General, Airframe, and Powerplant training, designed to meet the requirements of the Mechanic Airman Certification Standards (FAA-S-ACS-1, incorporated by reference in §147.17(b)). The program consists of:

- **General Curriculum**: 360 hours of foundational aviation maintenance training, covering principles, regulations, and basic skills.
- **Airframe Curriculum**: 720 hours of specialized training focused on airframe systems, structures, and maintenance practices.
- **Powerplant Curriculum**: 720 hours of in-depth instruction on powerplant systems, operations, and maintenance procedures.

The curriculum prepares students for FAA certification testing for Airframe and Powerplant licenses through a combination of theoretical instruction, practical hands-on training, and assessments that ensure compliance with all applicable Part 147 standards.

Applicability:
This training program applies to individuals seeking certification as FAA-licensed Aircraft Maintenance Technicians.

Training is conducted at the following facilities:

- **Primary Training Facility**: 3033 Drane Field Road, Suite 9, Lakeland, FL 33811
- **Additional Training Location**: 3131 Flightline Drive, Lakeland, FL 33811

The primary training facility is equipped to deliver the full scope of General, Airframe, and Powerplant curricula in accordance with FAR Part 147, ensuring students receive consistent, high-quality instruction and practical experience necessary for certification and professional success in the aviation maintenance industry.

The additional training location will be utilized to perform aircraft engine run-ups and aircraft taxi operations.

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General Program Curriculum Overview

Program Overview

The Aviation Maintenance General (AMG) curriculum is designed to provide students with foundational knowledge and practical skills required for aircraft maintenance. This program covers critical areas such as mathematics, physics, aircraft systems, maintenance practices, regulations, and human factors. The curriculum includes a combination of theoretical lectures and hands-on laboratory work, ensuring students are well-prepared for industry certifications and practical applications. The total program comprises 360 contact hours, with 174 hours of lecture and 186 hours of lab work, culminating in a review and examination.

Program Objectives

- Develop proficiency in fundamental aviation maintenance concepts, including mathematics, physics, and electronics.
- Equip students with skills to interpret aircraft drawings, perform inspections, and apply maintenance procedures.
- Ensure understanding of regulatory requirements, safety protocols, and human factors in aviation maintenance.
- Prepare students for successful completion of the General Review and Exam (AMG-RE).

Course Structure

The curriculum consists of 13 courses, each with designated lecture and lab hours. The courses are sequenced to build foundational knowledge before progressing to specialized topics. Below is the detailed course list with descriptions, objectives, and contact hours.

Each course within the General program is identified with the prefix AMG such as AMG101 and will be assigned a 3-digit identifier that begins with the number 1.

Course Descriptions and Details

AMG101: Mathematics

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Introduces mathematical concepts critical to aviation maintenance, including algebra, geometry, and trigonometry. Emphasis is on practical applications in measurements, calculations, and problem-solving for aircraft systems.
Learning Objectives:

- Apply algebraic and trigonometric principles to solve aviation-related problems.
- Perform accurate measurements and calculations for maintenance tasks.
- Use mathematical tools to analyze aircraft system performance.

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AMG102: Physics for Aviation

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Covers fundamental physics principles relevant to aviation, such as mechanics, thermodynamics, and fluid dynamics. Lab work reinforces theoretical concepts through experiments.
Learning Objectives:

- Understand the principles of force, motion, and energy in aircraft operations.
- Apply physics concepts to analyze aircraft performance and systems.
- Conduct experiments to demonstrate physical principles in aviation contexts.

AMG103: Aircraft Drawings

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Focuses on interpreting and creating aircraft technical drawings, including blueprints, schematics, and diagrams. Emphasizes standard symbols and conventions.
Learning Objectives:

- Read and interpret aircraft technical drawings accurately.
- Create basic aircraft schematics following industry standards.
- Apply drawing knowledge to maintenance and repair tasks.

AMG104: Fundamentals of Electricity and Electronics

Contact Hours: 72 (24 Lecture, 48 Lab)
Description: Provides a comprehensive study of electrical and electronic systems in aircraft, including circuits, wiring, and troubleshooting. Extensive lab work develops practical skills.
Learning Objectives:

- Understand electrical principles and circuit theory.
- Troubleshoot and repair aircraft electrical systems.
- Apply safety protocols in working with electronic components.

AMG105: Aircraft Material Hardware and Processes

Contact Hours: 36 (12 Lecture, 24 Lab)
Description: Explores materials used in aircraft construction, including hardware, fasteners, and manufacturing processes. Lab work includes hands-on practice with materials.
Learning Objectives:

- Identify and select appropriate materials and hardware for aircraft maintenance.
- Understand manufacturing and repair processes for aircraft components.
- Perform material handling and installation tasks safely.

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AMG106: Cleaning and Corrosion Control

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Covers techniques for cleaning aircraft and preventing corrosion. Includes identification of corrosion types and application of protective coatings.
Learning Objectives:

- Implement proper cleaning procedures for aircraft surfaces.
- Identify and treat corrosion on aircraft components.
- Apply corrosion prevention techniques according to industry standards.

AMG107: Fluid Lines and Fittings

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Focuses on the installation, maintenance, and inspection of fluid lines and fittings in aircraft hydraulic and fuel systems.
Learning Objectives:

- Install and inspect fluid lines and fittings per regulatory standards.
- Identify and troubleshoot issues in hydraulic and fuel systems.
- Ensure leak-free connections in aircraft fluid systems.

AMG108: Inspection Concepts and Techniques

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Introduces inspection methods for aircraft maintenance, including visual, non-destructive testing, and documentation procedures.
Learning Objectives:

- Conduct thorough visual and non-destructive inspections.
- Document inspection findings accurately.
- Apply inspection standards to ensure airworthiness.

AMG109: Regulations, Maintenance Forms, Records, and Publications

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Covers aviation regulations, maintenance documentation, and use of technical publications. Emphasizes compliance with FAA and other regulatory standards.
Learning Objectives:

- Understand and apply aviation regulatory requirements.
- Complete maintenance forms and records accurately.
- Utilize technical publications for maintenance tasks.

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AMG110: Weight and Balance

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Teaches principles of aircraft weight and balance, including calculations and adjustments to ensure safe operation.
Learning Objectives:

- Perform weight and balance calculations for aircraft.
- Adjust aircraft loading to maintain balance and stability.
- Document weight and balance data accurately.

AMG111: Ground Operations and Servicing

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Covers ground handling, servicing, and safety procedures for aircraft operations, including towing, fueling, and pre-flight checks.
Learning Objectives:

- Execute safe ground handling and servicing procedures.
- Perform pre-flight and post-flight servicing tasks.
- Ensure compliance with ground operation safety protocols.

AMG112: Human Factors

Contact Hours: 12 (6 Lecture, 6 Lab)
Description: Examines human factors affecting aviation maintenance, including error prevention, teamwork, and situational awareness.
Learning Objectives:

- Recognize human factors that impact maintenance safety.
- Apply strategies to minimize errors in maintenance tasks.
- Foster effective communication and teamwork in maintenance operations.

AMG-RE: General Review and Exam

Contact Hours: 24 (24 Lecture, 0 Lab)
Description: Provides a comprehensive review of all AMG courses, preparing students for the final examination. Focuses on reinforcing key concepts and addressing knowledge gaps.
Learning Objectives:

- Synthesize knowledge from all AMG courses.
- Demonstrate mastery of aviation maintenance concepts.
- Successfully complete the program’s final examination.

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Course Sequence

To ensure a logical progression of learning, the courses should be taken in the following order:

1. AMG101: Mathematics
2. AMG102: Physics for Aviation
3. AMG103: Aircraft Drawings
4. AMG104: Fundamentals of Electricity and Electronics
5. AMG105: Aircraft Material Hardware and Processes
6. AMG106: Cleaning and Corrosion Control
7. AMG107: Fluid Lines and Fittings
8. AMG108: Inspection Concepts and Techniques
9. AMG109: Regulations, Maintenance Forms, Records, and Publications
10. AMG110: Weight and Balance
11. AMG111: Ground Operations and Servicing
12. AMG112: Human Factors
13. AMG-RE: General Review and Exam

Program Summary

- **Total Contact Hours**: 360
  - Lecture: 174 hours
  - Lab: 186 hours
- **Duration**: The day program duration is approximately 3 months. The night program duration is approximately 4.5 months.
- **Prerequisites**: Successful completion of the APMI ICAO Level 4 Technical Reading Assessment for Aircraft Mechanics at the 10th grade level and successful completion of the APMI Technical Mathematics Exam for Aircraft Mechanics at the 10^{th} grade level.
- **Assessment**: Each course includes assessments (quizzes, practical evaluations, or projects), with a final comprehensive exam in AMG-RE.

Additional Notes

- **Instructors**: Courses will be taught by qualified instructors with FAA Airframe and Powerplant certificates.
- **Facilities**: Labs require access to aircraft components, tools, and mock-ups for hands-on training.
- **Certification Alignment**: The curriculum aligns with FAA Part 147 requirements for Aviation Maintenance Technician training.
- **Resources**: Students will have access to FAA publications, technical manuals, and industry-standard tools.

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Airframe Program Curriculum Overview

Program Overview

The Airframe (AMA) curriculum is designed to provide students with comprehensive knowledge and hands-on skills in aircraft airframe systems and maintenance. This program covers metallic and non-metallic structures, flight controls, rotorcraft fundamentals, electrical and instrument systems, and specialized systems such as fuel, environmental, and landing gear. The curriculum includes 720 contact hours, with 234 hours of lecture and 486 hours of lab work, concluding with a review and examination. It prepares students for airframe maintenance certifications, such as those required under FAA Part 147.

Program Objectives

- Develop expertise in airframe construction, maintenance, and repair techniques.
- Equip students with skills to troubleshoot and maintain complex aircraft systems, including electrical, hydraulic, and environmental systems.
- Ensure proficiency in regulatory compliance and airframe inspection standards.
- Prepare students for the Airframe Review and Exam (AMA-RE).

Course Structure

The curriculum comprises 16 courses, each with designated lecture and lab hours. The courses are sequenced to progress from foundational structural knowledge to specialized systems and inspections. Below is the detailed course list with descriptions, objectives, and contact hours.

Each course within the Airframe program is identified with the prefix AMA such as AMA201.1 and will be assigned a 3-digit identifier that begins with the number 2. For scheduling purposes, the Airframe program is divided into Airframe 1 and Airframe 2. The courses embedded within Airframe 1 have a .1 identifier appended to the course identifier such as AMA201.1 and the courses embedded within Airframe 2 have a .2 identifier appended to the course identifier such as AMA207.2

Course Descriptions and Details

AMA201.1: Metallic Structures

Contact Hours: 84 (24 Lecture, 60 Lab)
Description: Covers the design, construction, and repair of metallic aircraft structures, including sheet metal, riveting, and welding techniques. Extensive lab work focuses on practical applications.
Learning Objectives:

- Understand the properties and applications of metallic materials in aircraft.
- Perform sheet metal repairs and riveting per industry standards.
- Apply welding techniques for aircraft structural repairs.

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AMA202.1: Non-Metallic Structures

Contact Hours: 84 (24 Lecture, 60 Lab)
Description: Explores non-metallic materials, such as composites and wood, used in aircraft construction. Lab work emphasizes repair and fabrication techniques.
Learning Objectives:

- Identify and work with composite and other non-metallic materials.
- Perform repairs on non-metallic aircraft structures.
- Apply bonding and finishing techniques for non-metallic components.

AMA203.1: Flight Controls

Contact Hours: 48 (12 Lecture, 36 Lab)
Description: Focuses on the design, operation, and maintenance of aircraft flight control systems, including primary and secondary controls.
Learning Objectives:

- Understand the function and rigging of flight control systems.
- Perform maintenance and adjustments on control surfaces.
- Troubleshoot flight control system issues.

AMA204.1: Rotorcraft Fundamentals

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Introduces the principles of rotorcraft design, operation, and maintenance, including rotor systems and their components.
Learning Objectives:

- Understand rotorcraft aerodynamics and systems.
- Perform basic maintenance on rotorcraft components.
- Identify common rotorcraft maintenance issues.

AMA205.1: Communication and Navigation Systems

Contact Hours: 36 (24 Lecture, 12 Lab)
Description: Covers the principles, installation, and maintenance of aircraft communication and navigation systems, including radios and GPS.
Learning Objectives:

- Install and test communication and navigation equipment.
- Troubleshoot system malfunctions.
- Ensure compliance with regulatory standards for avionics.

AMA206.1: Water and Waste Systems

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Contact Hours: 12 (6 Lecture, 6 Lab)
Description: Introduces the maintenance and operation of aircraft water and waste systems, including potable water and lavatory systems.
Learning Objectives:

- Maintain and inspect water and waste system components.
- Troubleshoot issues in water and waste systems.
- Ensure hygiene and regulatory compliance in system maintenance.

AMA207.1: Airframe Inspection

Contact Hours: 48 (12 Lecture, 36 Lab)
Description: Teaches advanced inspection techniques for airframe systems, including non-destructive testing and regulatory compliance.
Learning Objectives:

- Conduct thorough airframe inspections using various techniques.
- Document inspection findings accurately.
- Ensure airframe compliance with airworthiness standards.

AMA208.2: Aircraft Electrical Systems

Contact Hours: 48 (12 Lecture, 36 Lab)
Description: Covers the installation, maintenance, and troubleshooting of aircraft electrical systems, including wiring, power distribution, and lighting.
Learning Objectives:

- Install and repair aircraft electrical systems.
- Troubleshoot electrical faults using diagnostic tools.
- Apply safety protocols for electrical maintenance.

AMA209.2: Aircraft Instrument Systems

Contact Hours: 36 (12 Lecture, 24 Lab)
Description: Examines aircraft instrument systems, including flight, engine, and navigation instruments. Lab work focuses on installation and calibration.
Learning Objectives:

- Understand the operation of aircraft instrument systems.
- Install and calibrate flight and engine instruments.
- Troubleshoot instrument system malfunctions.

AMA210.2: Aircraft Fuel Systems

Contact Hours: 48 (24 Lecture, 24 Lab)
Description: Focuses on the design, maintenance, and inspection of aircraft fuel systems, including

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tanks, pumps, and lines.
Learning Objectives:

- Understand aircraft fuel system components and operation.
- Perform maintenance and inspections on fuel systems.
- Ensure fuel system integrity and safety.

AMA211.2: Ice and Rain Control Systems

Contact Hours: 24 (6 Lecture, 18 Lab)
Description: Explores systems for managing ice and rain on aircraft, including de-icing and anti-icing systems.
Learning Objectives:

- Understand the operation of ice and rain control systems.
- Perform maintenance on de-icing and anti-icing equipment.
- Ensure proper function of ice protection systems.

AMA212.2: Airframe Fire Protection Systems

Contact Hours: 12 (6 Lecture, 6 Lab)
Description: Covers the design and maintenance of fire detection and suppression systems in aircraft airframes.
Learning Objectives:

- Understand fire detection and suppression system components.
- Perform maintenance and testing of fire protection systems.
- Ensure compliance with fire safety regulations.

AMA213.2: Environmental Systems

Contact Hours: 60 (12 Lecture, 48 Lab)
Description: Covers aircraft environmental control systems, including heating, cooling, and pressurization systems.
Learning Objectives:

- Understand the operation of environmental control systems.
- Perform maintenance and troubleshooting on HVAC and pressurization systems.
- Ensure passenger and crew comfort through system maintenance.

AMA214.2: Hydraulic and Pneumatic Systems

Contact Hours: 60 (12 Lecture, 48 Lab)
Description: Focuses on the maintenance and repair of hydraulic and pneumatic systems used in aircraft

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Learning Objectives:

- Understand the principles of hydraulic and pneumatic systems.
- Perform maintenance and troubleshooting on system components.
- Ensure system reliability and safety.

AMA215.2: Landing Gear Systems

Contact Hours: 48 (12 Lecture, 36 Lab)
Description: Covers the design, maintenance, and inspection of aircraft landing gear systems, including wheels, brakes, and retraction mechanisms.
Learning Objectives:

- Perform maintenance and inspections on landing gear components.
- Troubleshoot landing gear system issues.
- Ensure safe operation of landing gear systems.

AMA-RE: Airframe Review and Exam

Contact Hours: 24 (24 Lecture, 0 Lab)
Description: Provides a comprehensive review of all AMA courses, preparing students for the final airframe examination. Focuses on reinforcing key concepts and addressing knowledge gaps.
Learning Objectives:

- Synthesize knowledge from all AMA courses.
- Demonstrate mastery of airframe maintenance concepts.
- Successfully complete the program’s final examination.

Course Sequence

To ensure a logical progression of learning, the courses should be taken in the following order:

1. AMA201.1: Metallic Structures
2. AMA202.1: Non-Metallic Structures
3. AMA203.1: Flight Controls
4. AMA204.1: Rotorcraft Fundamentals
5. AMA205.1: Communication and Navigation Systems
6. AMA206.1: Water and Waste Systems
7. AMA207.1: Airframe Inspection
8. AMA208.2: Aircraft Electrical Systems
9. AMA209.2: Aircraft Instrument Systems
10. AMA210.2: Aircraft Fuel Systems
11. AMA211.2: Ice and Rain Control Systems

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12. AMA212.2: Airframe Fire Protection Systems
13. AMA213.2: Environmental Systems
14. AMA214.2: Hydraulic and Pneumatic Systems
15. AMA215.2: Landing Gear Systems
16. AMA-RE: Airframe Review and Exam

Program Summary

- **Total Contact Hours**: 720
    - Lecture: 234 hours
    - Lab: 486 hours
- **Duration**: This program is divided into 2 parts, AFM 1 and AFM2. The day program duration for AFM 1 is approximately 3 months and the duration for AFM2 is approximately 3months. Total duration for the day AFM program is approximately 6 months. The night program duration for AFM 1 is approximately 4.5 months and the duration for AFM2 is approximately 4.5 months. Total duration for the night AFM program is approximately 9 months.
- **Prerequisites**: Completion of a General Aviation Maintenance program (e.g., AMG curriculum) or FAA Powerplant Mechanic certification is required.
- **Assessment**: Each course includes assessments (quizzes, practical evaluations, or projects), with a final comprehensive exam in AMA-RE.

Additional Notes

- **Instructors**: Courses will be taught by qualified instructors with FAA Airframe and Powerplant certificates.
- **Facilities**: Labs require access to aircraft components, tools, and mock-ups for hands-on training.
- **Certification Alignment**: The curriculum aligns with FAA Part 147 requirements for Aviation Maintenance Technician training.
- **Resources**: Students will have access to FAA publications, technical manuals, and industry-standard tools.

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Powerplant Program Curriculum Overview

Program Overview

The Powerplant (AMP) curriculum is designed to equip students with the knowledge and hands-on skills required for the maintenance, inspection, and repair of aircraft powerplant systems, including reciprocating and turbine engines, propellers, and associated systems. The program comprises 720 contact hours, with 240 hours of lecture and 480 hours of lab work, concluding with a comprehensive review and examination. It prepares students for powerplant maintenance certifications, such as those required under FAA Part 147.

Program Objectives

- Develop expertise in the operation, maintenance, and repair of aircraft engines and related systems.
- Equip students with skills to troubleshoot and maintain engine systems, including electrical, fuel, and lubrication systems.
- Ensure proficiency in regulatory compliance and engine inspection standards.
- Prepare students for the Powerplant Review and Exam (AMP-RE).

Course Structure

The curriculum consists of 14 courses, each with designated lecture and lab hours. The courses are sequenced to progress from core engine knowledge to specialized systems and inspections. Below is the detailed course list with descriptions, objectives, and contact hours.

Each course within the Powerplant program is identified with the prefix AMP such as AMP301.1 and will be assigned a 3-digit identifier that begins with the number 3. For scheduling purposes, the Powerplant program is divided into Powerplant 1 and Powerplant 2. The courses embedded within Powerplant 1 have a .1 identifier appended to the course identifier such as AMP301.1 and the courses embedded within Powerplant 2 have a .2 identifier appended to the course identifier such as AMP307.2

Course Descriptions and Details

AMP301.1: Reciprocating Engines

Contact Hours: 108 (36 Lecture, 72 Lab)
Description: Covers the design, operation, maintenance, and overhaul of reciprocating engines used in aircraft. Extensive lab work focuses on disassembly, inspection, and reassembly.
Learning Objectives:

- Understand the principles and operation of reciprocating engines.

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- Perform maintenance and overhaul procedures on reciprocating engines.
- Troubleshoot and repair reciprocating engine components.

AMP302.1: Engine Inspection

Contact Hours: 84 (12 Lecture, 72 Lab)
Description: Focuses on inspection techniques for aircraft engines, including visual, non-destructive testing, and documentation per regulatory standards.
Learning Objectives:

- Conduct thorough engine inspections using various techniques.
- Document inspection findings accurately and in compliance with regulations.
- Ensure engine airworthiness through proper inspection procedures.

AMP303.1: Engine Electrical Systems

Contact Hours: 48 (24 Lecture, 24 Lab)
Description: Explores the installation, maintenance, and troubleshooting of electrical systems specific to aircraft engines, including starters and generators.
Learning Objectives:

- Install and maintain engine electrical system components.
- Troubleshoot electrical faults in engine systems.
- Apply safety protocols for engine electrical maintenance.

AMP304.1: Turbine Engines

Contact Hours: 48 (24 Lecture, 24 Lab)
Description: Covers the design, operation, and maintenance of turbine engines, including turbojets, turbofans, and turboprops. Lab work includes component inspection and repair.
Learning Objectives:

- Understand the principles and operation of turbine engines.
- Perform maintenance and inspections on turbine engine components.
- Troubleshoot turbine engine malfunctions.

AMP305.1: Engine Fire Protection Systems

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Examines fire detection and suppression systems for aircraft engines, including maintenance and testing procedures.
Learning Objectives:

- Understand the operation of engine fire protection systems.
- Perform maintenance and testing of fire detection and suppression components.
- Ensure compliance with fire safety regulations.

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AMP306.1: Turbine Engine Air Systems

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Covers air systems in turbine engines, including bleed air, anti-icing, and cooling systems. Lab work focuses on system maintenance and inspection.
Learning Objectives:

- Understand the function of turbine engine air systems.
- Perform maintenance and inspections on air system components.
- Troubleshoot issues in turbine engine air systems.

AMP307.2: Engine Lubrication Systems

Contact Hours: 60 (12 Lecture, 48 Lab)
Description: Focuses on the design, maintenance, and troubleshooting of engine lubrication systems, including oil pumps, filters, and coolers.
Learning Objectives:

- Understand the operation of engine lubrication systems.
- Perform maintenance and inspections on lubrication system components.
- Troubleshoot and repair lubrication system issues.

AMP308.2: Reciprocating Engine Induction and Cooling Systems

Contact Hours: 36 (12 Lecture, 24 Lab)
Description: Covers the induction and cooling systems for reciprocating engines, including carburetors, fuel injection, and cooling mechanisms.
Learning Objectives:

- Understand the operation of induction and cooling systems.
- Perform maintenance and adjustments on system components.
- Troubleshoot issues in reciprocating engine induction and cooling systems.

AMP309.2: Ignition and Starting Systems

Contact Hours: 48 (12 Lecture, 36 Lab)
Description: Explores ignition and starting systems for aircraft engines, including magnetos, spark plugs, and starters. Lab work emphasizes troubleshooting and repair.
Learning Objectives:

- Understand the operation of ignition and starting systems.
- Perform maintenance and inspections on ignition and starting components.
- Troubleshoot and repair system malfunctions.

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AMP310.2: Engine Instrument Systems

Contact Hours: 24 (12 Lecture, 12 Lab)
Description: Covers the installation, calibration, and maintenance of engine instrument systems, including gauges and sensors.
Learning Objectives:

- Understand the operation of engine instrument systems.
- Install and calibrate engine instruments.
- Troubleshoot instrument system issues.

AMP311.2: Engine Fuel and Fuel Metering Systems

Contact Hours: 48 (12 Lecture, 36 Lab)
Description: Focuses on fuel systems for aircraft engines, including fuel pumps, injectors, and carburetors, with emphasis on maintenance and calibration.
Learning Objectives:

- Understand the operation of engine fuel and metering systems.
- Perform maintenance and calibration of fuel system components.
- Troubleshoot fuel system malfunctions.

AMP312.2: Engine Exhaust and Reverser Systems

Contact Hours: 36 (12 Lecture, 24 Lab)
Description: Covers the design, maintenance, and inspection of engine exhaust and thrust reverser systems for both reciprocating and turbine engines.
Learning Objectives:

- Understand the operation of exhaust and reverser systems.
- Perform maintenance and inspections on system components.
- Ensure proper function and safety of exhaust systems.

AMP313.2: Propellers

Contact Hours: 84 (24 Lecture, 60 Lab)
Description: Explores the design, maintenance, and repair of aircraft propellers, including fixed-pitch, constant-speed, and feathering systems.
Learning Objectives:

- Understand propeller design and operation.
- Perform maintenance, balancing, and inspections on propellers.
- Troubleshoot and repair propeller system issues.

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AMP-RE: Powerplant Review and Exam

Contact Hours: 24 (24 Lecture, 0 Lab)
Description: Provides a comprehensive review of all AMP courses, preparing students for the final powerplant examination. Focuses on reinforcing key concepts and addressing knowledge gaps.
Learning Objectives:

- Synthesize knowledge from all AMP courses.
- Demonstrate mastery of powerplant maintenance concepts.
- Successfully complete the program's final examination.

Course Sequence

To ensure a logical progression of learning, the courses should be taken in the following order:

1. AMP301.1: Reciprocating Engines
2. AMP302.1: Engine Inspection
3. AMP303.1: Engine Electrical Systems
4. AMP304.1: Turbine Engines
5. AMP305.1: Engine Fire Protection Systems
6. AMP306.1: Turbine Engine Air Systems
7. AMP307.2: Engine Lubrication Systems
8. AMP308.2: Reciprocating Engine Induction and Cooling Systems
9. AMP309.2: Ignition and Starting Systems
10. AMP310.2: Engine Instrument Systems
11. AMP311.2: Engine Fuel and Fuel Metering Systems
12. AMP312.2: Engine Exhaust and Reverser Systems
13. AMP313.2: Propellers
14. AMP-RE: Powerplant Review and Exam

Program Summary

- **Total Contact Hours**: 720
    - Lecture: 240 hours
    - Lab: 480 hours
- **Duration**: This program is divided into 2 parts, PPT 1 and PPT 2. The day program duration for PPT 1 is approximately 3 months and the duration for PPT 2 is approximately 3months. Total duration for the day PPT program is approximately 6 months. The night program duration for PPT 1 is approximately 4.5 months and the duration for PPT 2 is approximately 4.5 months. Total duration for the night PPT program is approximately 9 months.
- **Prerequisites**: Completion of a General Aviation Maintenance program (e.g., AMG curriculum) or FAA Airframe Mechanic certification is required
- **Assessment**: Each course includes assessments (quizzes, practical evaluations, or projects), with a final comprehensive exam in AMP-RE.

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Additional Notes

- **Instructors**: Courses will be taught by qualified instructors with FAA Airframe and Powerplant certificates.
- **Facilities**: Labs require access to aircraft components, tools, and mock-ups for hands-on training.
- **Certification Alignment**: The curriculum aligns with FAA Part 147 requirements for Aviation Maintenance Technician training.
- **Resources**: Students will have access to FAA publications, technical manuals, and industry-standard tools.

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General Program Curriculum Content

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AMG101: Mathematics in Aviation Maintenance

Course Overview

- Course Code: AMG101
- Course Title: Mathematics in Aviation Maintenance
- Total Hours: 24 (12 Lecture, 12 Lab)
- Prerequisite: High school-level mathematics or equivalent
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 3: Mathematics in Aviation Maintenance (FAA, 2023)

Description

This course introduces mathematical concepts critical to aviation maintenance, including algebra, geometry, and trigonometry. Emphasis is on practical applications in measurements, calculations, and problem-solving for aircraft systems.

Learning Objectives

- Apply algebraic and trigonometric principles to solve aviation-related problems.
- Perform accurate measurements and calculations for maintenance tasks.
- Use mathematical tools to analyze aircraft system performance.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L101.1, L101.2, L101.3, L101.4). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.

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AMG101 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 4 days to complete 24 hours.

Day 1: Foundations of Mathematics in Aviation

- Lecture (3 hours):
  - Basic mathematical functions: addition, subtraction, multiplication, division (AM.I.H.K13)
  - Use of positive and negative integers in mathematical operations (AM.I.H.K12, AM.I.H.R2)
  - Rounding numbers and associated risks (AM.I.H.K9, AM.I.H.R3)
- Lab (3 hours):
  - L101.1: Convert between fractional and decimal numbers (AM.I.H.S5)
    Given: An information sheet illustrating a scale of 1/32 inch graduations.
    Performance: The student will, without reference to charts or other aids, convert fractional scale graduations to decimal equivalents.
    Standard: The student will correctly convert each decimal equivalent to three decimal places (thousandths).

Day 2: Geometric Applications

- Lecture (3 hours):
  - Areas and volumes of various geometrical shapes (AM.I.H.K1, AM.I.H.K2)
  - Definitions and use of geometrical terms (polygon, pi, diameter, radius, hypotenuse) (AM.I.H.K3)
- Lab (3 hours):
  - L101.4: Compute the area of a wing (AM.I.H.S3)
    Given: An information sheet illustrating the shapes and dimensions of two aircraft wings and the formulas for determining the areas of various geometrical shapes.
    Performance: The student will apply the correct formula and compute the wing areas.
    Standard: The student will correctly compute the wing areas within acceptable tolerances.

Day 3: Ratios, Proportions, and Algebraic Operations

- Lecture (3 hours):
  - Ratio and proportion problems in aircraft maintenance (AM.I.H.K4, AM.I.H.K5)
  - Algebraic operations and their applications in aviation (AM.I.H.K6)
  - Precedence of operators in algebraic equations (AM.I.H.R1)
- Lab (3 hours):
  - L101.2: Compare numerical values using ratios and compute compression ratio (AM.I.H.S6, AM.I.H.S7)
    Given: An information sheet displaying three dimensioned diagrams or drawings of wing aspect ratio, finesse ratio, or streamlined shapes, major and minor axis, or an ellipse, etc. The formula for computing the volume of a cylinder and information specifying the

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bore, stroke, and number of cylinders in a typical aircraft engine.
Performance: The student will determine the ratio of one number or dimension to the other and calculate the percentage. The student will compute the compression ratio and piston displacement.
Standard: The student will correctly calculate the ratios and percentages on the illustrations. The computed value will be accurate to within one square inch of displacement.

Day 4: Advanced Calculations and Conversions

- Lecture (3 hours):
  - Scientific (exponential) notation, decimal notation, fractional notation, binary notation, and conversions (AM.I.H.K8)
  - Powers and special powers (AM.I.H.K10)
  - Measurement systems and metric conversions (AM.I.H.K7, AM.I.H.K11)
- Lab (3 hours):
  - L101.3: Determine the square root of given numbers (AM.I.H.S1)
    Given: Mathematical formulas that involve numbers raised to power, and appropriate mathematics text or information sheet.
    Performance: The student will determine the square root of numbers, recognize formulas that contain exponents, and apply the formula to solve the equation.
    Standard: The student will correctly apply the formulas and solve 70% of the equations.

Additional Skills Covered

- Compute the volume of a cylinder (AM.I.H.S2)
- Calculate the volume of a shape, such as a baggage compartment or fuel tank (AM.I.H.S4)
- Compute torque value conversions between inch-pounds and foot-pounds (AM.I.H.S8)

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AMG101 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours.

Day 1: Foundations of Mathematics in Aviation

- Lecture (2 hours):
  - Basic mathematical functions: addition, subtraction, multiplication, division (AM.I.H.K13)
  - Use of positive and negative integers in mathematical operations (AM.I.H.K12, AM.I.H.R2)
- Lab (2 hours):
  - L101.1: Convert between fractional and decimal numbers (AM.I.H.S5)
    Given: An information sheet illustrating a scale of 1/32 inch graduations.
    Performance: The student will, without reference to charts or other aids, convert fractional scale graduations to decimal equivalents.
    Standard: The student will correctly convert each decimal equivalent to three decimal places (thousandths).

Day 2: Foundations and Geometric Introduction

- Lecture (2 hours):
  - Rounding numbers and associated risks (AM.I.H.K9, AM.I.H.R3)
  - Introduction to areas of various geometrical shapes (AM.I.H.K1)
- Lab (2 hours):
  - L101.1 (continued): Convert between fractional and decimal numbers (AM.I.H.S5)
    Given: An information sheet illustrating a scale of 1/32 inch graduations.
    Performance: The student will continue practicing conversions to reinforce skills.
    Standard: The student will correctly convert each decimal equivalent to three decimal places (thousandths).

Day 3: Geometric Applications

- Lecture (2 hours):
  - Volumes of various geometrical shapes (AM.I.H.K2)
  - Definitions and use of geometrical terms (polygon, pi, diameter, radius, hypotenuse) (AM.I.H.K3)
- Lab (2 hours):
  - L101.4: Compute the area of a wing (AM.I.H.S3)
    Given: An information sheet illustrating the shapes and dimensions of two aircraft wings and the formulas for determining the areas of various geometrical shapes.
    Performance: The student will apply the correct formula and compute the wing areas.
    Standard: The student will correctly compute the wing areas within acceptable tolerances.

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Day 4: Ratios and Algebraic Operations

- Lecture (2 hours):
  - Ratio and proportion problems in aircraft maintenance (AM.I.H.K4, AM.I.H.K5)
  - Precedence of operators in algebraic equations (AM.I.H.R1)
- Lab (2 hours):
  - L101.2: Compare numerical values using ratios and compute compression ratio (AM.I.H.S6, AM.I.H.S7)
    Given: An information sheet displaying three dimensioned diagrams or drawings of wing aspect ratio, finesse ratio, or streamlined shapes, major and minor axis, or an ellipse, etc. The formula for computing the volume of a cylinder and information specifying the bore, stroke, and number of cylinders in a typical aircraft engine.
    Performance: The student will determine the ratio of one number or dimension to the other and calculate the percentage. The student will compute the compression ratio and piston displacement.
    Standard: The student will correctly calculate the ratios and percentages on the illustrations. The computed value will be accurate to within one square inch of displacement.

Day 5: Algebraic Operations and Conversions

- Lecture (2 hours):
  - Algebraic operations and their applications in aviation (AM.I.H.K6)
  - Scientific (exponential) notation, decimal notation, fractional notation, binary notation, and conversions (AM.I.H.K8)
- Lab (2 hours):
  - L101.2 (continued): Compute compression ratio (AM.I.H.S7)
    Given: The formula for computing the volume of a cylinder and information specifying the bore, stroke, and number of cylinders in a typical aircraft engine.
    Performance: The student will continue practicing compression ratio calculations.
    Standard: The computed value will be accurate to within one square inch of displacement.

Day 6: Advanced Calculations and Conversions

- Lecture (2 hours):
  - Powers and special powers (AM.I.H.K10)
  - Measurement systems and metric conversions (AM.I.H.K7, AM.I.H.K11)
- Lab (2 hours):
  - L101.3: Determine the square root of given numbers (AM.I.H.S1)
    Given: Mathematical formulas that involve numbers raised to power, and appropriate mathematics text or information sheet.
    Performance: The student will determine the square root of numbers, recognize formulas that contain exponents, and apply the formula to solve the equation.
    Standard: The student will correctly apply the formulas and solve 70% of the equations.

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Additional Skills Covered

- Compute the volume of a cylinder (AM.I.H.S2)
- Calculate the volume of a shape, such as a baggage compartment or fuel tank (AM.I.H.S4)
- Compute torque value conversions between inch-pounds and foot-pounds (AM.I.H.S8)

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AMG102: Physics for Aviation

Course Overview

- Course Code: AMG102
- Course Title: Physics for Aviation
- Total Hours: 24 (12 Lecture, 12 Lab)
- Prerequisite: High school-level mathematics or equivalent
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 5: Physics for Aviation (FAA, 2023)

Description

This course covers fundamental physics principles relevant to aviation, such as mechanics, thermodynamics, and fluid dynamics. Lab work reinforces theoretical concepts through experiments.

Learning Objectives

- Understand the principles of force, motion, and energy in aircraft operations.
- Apply physics concepts to analyze aircraft performance and systems.
- Conduct experiments to demonstrate physical principles in aviation contexts.
- Use mathematical tools to analyze aircraft system performance.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L102.1, L102.2, L102.3, L102.4, L102.5). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.

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AMG102 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 4 days to complete 24 hours.

Day 1: Foundations of Physics in Aviation

- Lecture (3 hours):
  - Matter and energy (AM.I.J.K1)
  - Work, power, force, and motion (AM.I.J.K2)
  - Simple machines and mechanics (AM.I.J.K3)
  - Risk management: Use of related units of measure (e.g., Celsius vs. Fahrenheit) (AM.I.J.R4)
- Lab (3 hours):
  - L102.3: Convert temperature units (e.g., from Celsius to Fahrenheit) (AM.I.J.S1)
    Given: Worksheet containing various problems regarding the conversion of temperatures from Fahrenheit to Celsius and Celsius to Fahrenheit.
    Performance: The student will apply the correct formulas to solve the temperature conversion problems.
    Standard: The student will correctly apply the formulas and solve 70% of the problems.

Day 2: Mechanics and Aerodynamics

- Lecture (3 hours):
  - Newton's Laws of Motion (AM.I.J.K6)
  - Theory of flight (aerodynamics) (AM.I.J.K8)
  - Primary and secondary aircraft flight controls (AM.I.J.K10)
  - Additional aerodynamic devices (vortex generators, wing fences, stall strips) (AM.I.J.K11)
  - Risk management: Effect a repair can have on a flight surface (AM.I.J.R2)
- Lab (3 hours):
  - L102.2: Demonstrate the mechanical advantage of various types of levers and design an inclined plane (AM.I.J.S5, AM.I.J.S6)
    Given: Worksheet containing various problems regarding the calculation of levers and mechanical advantages.
    Performance: The student will apply the correct formulas to solve the mechanical advantage problems and will draw an inclined plane and calculate the mechanical advantage.
    Standard: The student will correctly apply the formulas and solve 70% of the problems.

Day 3: Fluid Dynamics and Atmospheric Effects

- Lecture (3 hours):
  - Bernoulli's Principle (AM.I.J.K5)
  - Gas law and fluid mechanics (AM.I.J.K7)

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    - Standard atmosphere and factors affecting atmospheric conditions (AM.I.J.K9)
    - Risk management: Changes in aircraft and engine performance due to density altitude (AM.I.J.R1)
- Lab (3 hours):
    - L102.5: Identify changes in pressure and velocity as a fluid passes through a venturi (AM.I.J.S7)
      Given: Worksheet containing various diagrams of venturi tubes.
      Performance: The student will correctly identify the pressure and velocity changes as a fluid passes through the venturi tubes.
      Standard: The student will correctly apply the formulas and solve 70% of the problems.

Day 4: Thermodynamics and Performance Calculations

- Lecture (3 hours):
    - Heat and pressure (AM.I.J.K4)
    - Relationship between temperature, density, weight, and volume (AM.I.J.K12)
    - Force, area, or pressure in a specific application (AM.I.J.K13)
    - Risk management: Use of performance/testing data (AM.I.J.R3)
- Lab (3 hours):
    - L102.1: Calculate horsepower (AM.I.J.S8)
      Given: Worksheet containing various problems regarding horsepower calculation.
      Performance: The student will apply the correct formulas to solve the horsepower calculation problems.
      Standard: The student will correctly apply the formulas and solve 70% of the problems.
    - L102.4: Calculate force, area, or pressure in a specific application (AM.I.J.S4)
      Given: Worksheet containing various problems regarding the calculation of force and pressure within a cylinder.
      Performance: The student will apply the correct formulas to solve the pressure and force problems.
      Standard: The student will correctly apply the formulas and solve 70% of the problems.

Additional Skills Covered

- Determine density altitude (AM.I.J.S2)
- Determine pressure altitude (AM.I.J.S3)

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AMG102 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours.

Day 1: Foundations of Physics in Aviation

- Lecture (2 hours):
  - Matter and energy (AM.I.J.K1)
  - Work, power, force, and motion (AM.I.J.K2)
- Lab (2 hours):
  - L102.3: Convert temperature units (e.g., from Celsius to Fahrenheit) (AM.I.J.S1)
    Given: Worksheet containing various problems regarding the conversion of temperatures from Fahrenheit to Celsius and Celsius to Fahrenheit.
    Performance: The student will apply the correct formulas to solve the temperature conversion problems.
    Standard: The student will correctly apply the formulas and solve 70% of the problems.

Day 2: Mechanics and Simple Machines

- Lecture (2 hours):
  - Simple machines and mechanics (AM.I.J.K3)
  - Risk management: Use of related units of measure (e.g., Celsius vs. Fahrenheit) (AM.I.J.R4)
- Lab (2 hours):
  - L102.2: Demonstrate the mechanical advantage of various types of levers and design an inclined plane (AM.I.J.S5, AM.I.J.S6)
    Given: Worksheet containing various problems regarding the calculation of levers and mechanical advantages.
    Performance: The student will apply the correct formulas to solve the mechanical advantage problems and will draw an inclined plane and calculate the mechanical advantage.
    Standard: The student will correctly apply the formulas and solve 70% of the problems.

Day 3: Aerodynamics and Flight Controls

- Lecture (2 hours):
  - Newton's Laws of Motion (AM.I.J.K6)
  - Theory of flight (aerodynamics) (AM.I.J.K8)
  - Risk management: Effect a repair can have on a flight surface (AM.I.J.R2)
- Lab (2 hours):
  - L102.2 (continued): Demonstrate the mechanical advantage of various types of levers (AM.I.J.S5)
    Given: Worksheet containing additional problems regarding the calculation of levers and mechanical advantages.

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Performance: The student will continue practicing mechanical advantage calculations to reinforce skills.
Standard: The student will correctly apply the formulas and solve 70% of the problems.

Day 4: Fluid Dynamics and Atmospheric Conditions

- Lecture (2 hours):
  - Bernoulli's Principle (AM.I.J.K5)
  - Gas law and fluid mechanics (AM.I.J.K7)
  - Risk management: Changes in aircraft and engine performance due to density altitude (AM.I.J.R1)
- Lab (2 hours):
  - L102.5: Identify changes in pressure and velocity as a fluid passes through a venturi (AM.I.J.S7)
    Given: Worksheet containing various diagrams of venturi tubes.
    Performance: The student will correctly identify the pressure and velocity changes as a fluid passes through the venturi tubes.
    Standard: The student will correctly apply the formulas and solve 70% of the problems.

Day 5: Thermodynamics and Flight Controls

- Lecture (2 hours):
  - Heat and pressure (AM.I.J.K4)
  - Primary and secondary aircraft flight controls (AM.I.J.K10)
  - Additional aerodynamic devices (vortex generators, wing fences, stall strips) (AM.I.J.K11)
- Lab (2 hours):
  - L102.4: Calculate force, area, or pressure in a specific application (AM.I.J.S4)
    Given: Worksheet containing various problems regarding the calculation of force and pressure within a cylinder.
    Performance: The student will apply the correct formulas to solve the pressure and force problems.
    Standard: The student will correctly apply the formulas and solve 70% of the problems.

Day 6: Performance Calculations and Atmospheric Effects

- Lecture (2 hours):
  - Standard atmosphere and factors affecting atmospheric conditions (AM.I.J.K9)
  - Relationship between temperature, density, weight, and volume (AM.I.J.K12)
  - Force, area, or pressure in a specific application (AM.I.J.K13)
  - Risk management: Use of performance/testing data (AM.I.J.R3)
- Lab (2 hours):
  - L102.1: Calculate horsepower (AM.I.J.S8)
    Given: Worksheet containing various problems regarding horsepower calculation.
    Performance: The student will apply the correct formulas to solve the horsepower calculation problems.
    Standard: The student will correctly apply the formulas and solve 70% of the problems.

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Additional Skills Covered

- Determine density altitude (AM.I.J.S2)
- Determine pressure altitude (AM.I.J.S3)

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AMG103: Aircraft Drawings

Course Overview

- Course Code: AMG103
- Course Title: Aircraft Drawings
- Total Hours: 24 (12 Lecture, 12 Lab)
- Prerequisite: None
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 4: Aircraft Drawings (FAA, 2023)

Description

This course focuses on interpreting and creating aircraft technical drawings, including blueprints, schematics, and diagrams. Emphasis is on standard symbols and conventions used in aviation maintenance.

Learning Objectives

- Read and interpret aircraft technical drawings accurately.
- Create basic aircraft schematics following industry standards.
- Apply drawing knowledge to maintenance and repair tasks.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L103.1, L103.2, L103.4, L103.5). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.

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AMG103 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 4 days to complete 24 hours.

Day 1: Introduction to Aircraft Drawings

- Lecture (3 hours):
  - Drawings, blueprints, sketches, charts, graphs, and system schematics, including commonly used lines, symbols, and terminology (AM.I.B.K1)
  - Terms used in conjunction with aircraft drawings, blueprints, or system schematics (AM.I.B.K4)
  - Risk management: Interpretation of plus or minus tolerances as depicted on aircraft drawings (AM.I.B.R1)
- Lab (3 hours):
  - L103.1: Identify the meaning of lines and symbols used in an aircraft drawing (AM.I.B.S2)
    Given: Worksheet containing various samples of aircraft drawings.
    Performance: The student will correctly interpret diagrams to identify various lines, line types, and dimensions as indicated on the drawings.
    Standard: The student will correctly apply the standards and identify 70% of the lines and dimensions.

Day 2: Interpreting Drawings for Maintenance

- Lecture (3 hours):
  - Repair or alteration of an aircraft system or component(s) using drawings, blueprints, or system schematics to determine conformity to type design (AM.I.B.K2)
  - Inspection of an aircraft system or component(s) using drawings, blueprints, or system schematics (AM.I.B.K3)
  - Risk management: Specifications for design of alterations and repairs (AM.I.B.R2)
- Lab (3 hours):
  - L103.2: Draw a sketch of a repair or alteration (AM.I.B.S1)
    Given: A scenario involving a typical aircraft skin repair.
    Performance: The student will correctly draw a sketch of a typical skin patch repair.
    Standard: The student will correctly draw a sketch of a typical skin repair and correctly use proper lines and dimensions.

Day 3: Drawing Revisions and Material Requirements

- Lecture (3 hours):
  - Risk management: Applicability of the drawing or schematic to the particular aircraft by model and serial number (AM.I.B.R3)
  - Risk management: Identification of the current version and applicability of drawing being used (AM.I.B.R4)
- Lab (3 hours):

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- L103.4: Identify changes on an aircraft drawing and determine material requirements (AM.I.B.S4, AM.I.B.S5)
  Given: Various title/information blocks from aircraft drawings.
  Performance: The student will correctly interpret the title/information blocks to identify the changes and materials.
  Standard: The student will correctly indicate the changes and materials from the title/information blocks with at least 70% accuracy.

Day 4: Performance Charts and Practical Applications

- Lecture (3 hours):
  - Review of drawing interpretation and its application to maintenance tasks
  - Overview of graphs and charts used in aircraft performance analysis
  - Practical applications of drawings in real-world aviation maintenance scenarios
- Lab (3 hours):
  - L103.5: Interpret graphs and charts (AM.I.B.S6)
    Given: Various aircraft performance charts.
    Performance: The student will correctly interpret the performance charts to indicate the brake horsepower, fuel consumption, and engine horsepower/altitude.
    Standard: The student will correctly indicate the correct performance values with at least 70% accuracy.

Additional Skills Covered

- Interpret dimensions used in an aircraft drawing (AM.I.B.S3)

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AMG103 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours.

Day 1: Introduction to Aircraft Drawings

- Lecture (2 hours):
  - Drawings, blueprints, sketches, charts, graphs, and system schematics, including commonly used lines, symbols, and terminology (AM.I.B.K1)
  - Terms used in conjunction with aircraft drawings, blueprints, or system schematics (AM.I.B.K4)
- Lab (2 hours):
  - L103.1: Identify the meaning of lines and symbols used in an aircraft drawing (AM.I.B.S2)
    Given: Worksheet containing various samples of aircraft drawings.
    Performance: The student will correctly interpret diagrams to identify various lines, line types, and dimensions as indicated on the drawings.
    Standard: The student will correctly apply the standards and identify 70% of the lines and dimensions.

Day 2: Interpreting Drawings and Tolerances

- Lecture (2 hours):
  - Risk management: Interpretation of plus or minus tolerances as depicted on aircraft drawings (AM.I.B.R1)
  - Introduction to inspection of aircraft systems using drawings (AM.I.B.K3)
- Lab (2 hours):
  - L103.1 (continued): Interpret dimensions used in an aircraft drawing (AM.I.B.S3)
    Given: Worksheet containing additional samples of aircraft drawings.
    Performance: The student will continue practicing interpretation of dimensions to reinforce skills.
    Standard: The student will correctly identify 70% of the dimensions.

Day 3: Drawings for Repairs and Alterations

- Lecture (2 hours):
  - Repair or alteration of an aircraft system or component(s) using drawings, blueprints, or system schematics to determine conformity to type design (AM.I.B.K2)
  - Risk management: Specifications for design of alterations and repairs (AM.I.B.R2)
- Lab (2 hours):
  - L103.2: Draw a sketch of a repair or alteration (AM.I.B.S1)
    Given: A scenario involving a typical aircraft skin repair.
    Performance: The student will correctly draw a sketch of a typical skin patch repair.
    Standard: The student will correctly draw a sketch of a typical skin repair and correctly use proper lines and dimensions.

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Day 4: Drawing Revisions and Applicability

- Lecture (2 hours):
  - Risk management: Applicability of the drawing or schematic to the particular aircraft by model and serial number (AM.I.B.R3)
  - Risk management: Identification of the current version and applicability of drawing being used (AM.I.B.R4)
- Lab (2 hours):
  - L103.4: Identify changes on an aircraft drawing (AM.I.B.S4)
    Given: Various title/information blocks from aircraft drawings.
    Performance: The student will correctly interpret the title/information blocks to identify the changes.
    Standard: The student will correctly indicate the changes with at least 70% accuracy.

Day 5: Material Requirements

- Lecture (2 hours):
  - Determining material requirements from aircraft drawings
  - Review of drawing interpretation for maintenance tasks
- Lab (2 hours):
  - L103.4 (continued): Determine material requirements from an aircraft drawing (AM.I.B.S5)
    Given: Various title/information blocks from aircraft drawings.
    Performance: The student will correctly interpret the title/information blocks to determine materials.
    Standard: The student will correctly indicate the materials with at least 70% accuracy.

Day 6: Performance Charts and Practical Applications

- Lecture (2 hours):
  - Overview of graphs and charts used in aircraft performance analysis
  - Practical applications of drawings in real-world aviation maintenance scenarios
- Lab (2 hours):
  - L103.5: Interpret graphs and charts (AM.I.B.S6)
    Given: Various aircraft performance charts.
    Performance: The student will correctly interpret the performance charts to indicate the brake horsepower, fuel consumption, and engine horsepower/altitude.
    Standard: The student will correctly indicate the correct performance values with at least 70% accuracy.

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AMG104: Fundamentals of Electricity and Electronics

Course Overview

- Course Code: AMG104
- Course Title: Fundamentals of Electricity and Electronics
- Total Hours: 72 (24 Lecture, 48 Lab)
- Prerequisite: High school-level mathematics or equivalent

- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 12: Fundamentals of Electricity & Electronics (FAA, 2023), AC 43.13-1B - Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair (FAA 1998), CHAPTER 11. AIRCRAFT ELECTRICAL SYSTEMS.

Description

This course provides a comprehensive study of electrical and electronic systems in aircraft, including circuits, wiring, and troubleshooting. Extensive lab work develops practical skills.

Learning Objectives

- Understand electrical principles and circuit theory.
- Troubleshoot and repair aircraft electrical systems.
- Apply safety protocols in working with electronic components.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L104.1, L104.2, L104.3, L104.4). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols are emphasized throughout all lab activities, particularly when handling batteries and high-voltage circuits.

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AMG104 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 2 hours of lecture and 4 hours of lab, totaling 12 days to complete 72 hours.

Day 1: Introduction to Electrical Principles

- Lecture (2 hours):
  - Electron theory (conventional flow vs. electron flow) (AM.I.A.K1)
  - Magnetism (AM.I.A.K2)
  - Electrical laws and theory: Ohm's Law, Kirchhoff's Laws (AM.I.A.K7a, AM.I.A.K7b)
- Lab (4 hours):
  - L104.1: Identify symbols used in electrical and electronic schematic diagrams (AM.I.A.S9)
    Given: Examples of unlabeled aircraft wiring diagrams and schematics which include all commonly used electrical and electronic symbols and a list of electrical component symbol terms.
    Performance: The student will locate and label the given symbols on the diagrams.
    Standard: The student will correctly locate and label with at least 70% accuracy of the given symbols.

Day 2: Circuit Fundamentals

- Lecture (2 hours):
  - Voltage and regulation (AM.I.A.K9, AM.I.A.K9a)
  - Current (AM.I.A.K10)
  - Resistance, impedance, resistance in series and parallel, total resistance (AM.I.A.K11, AM.I.A.K11a, AM.I.A.K11b, AM.I.A.K11c, AM.I.A.K11d)
- Lab (4 hours):
  - L104.2: Perform circuit continuity test, measure voltage, current, and resistance (AM.I.A.S1, AM.I.A.S2, AM.I.A.S3, AM.I.A.S4)
    Given: Aircraft electrical system trainer.
    Performance: The student will use the wiring diagram for the aircraft electrical system trainer to perform circuit continuity tests and measure voltage, current, and resistance.
    Standard: The student will correctly perform measurements with at least 70% accuracy.

Day 3: Circuit Components and Measurements

- Lecture (2 hours):
  - Electrical measurement tools, principles, and procedures (AM.I.A.K8)
  - Risk management: Taking voltage, current, resistance, and capacitance measurements (AM.I.A.R1)
  - Controlling devices: switches and relays (AM.I.A.K18)
- Lab (4 hours):

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- L104.2 (continued): Test a switch or relay, test a fuse or circuit breaker (AM.I.A.S5, AM.I.A.S6)
  Given: Aircraft electrical system trainer.
  Performance: The student will test switches, relays, fuses, and circuit breakers.
  Standard: The student will correctly test components with at least 70% accuracy.

Day 4: Series and Parallel Circuits

- Lecture (2 hours):
  - Series circuits (AM.I.A.K13)
  - Parallel circuits (AM.I.A.K14)
  - Complex/combined circuits (AM.I.A.K26)
- Lab (4 hours):
  - L104.2 (continued): Troubleshoot a circuit, test for short-circuit and open-circuit conditions, measure voltage drop across a resistor (AM.I.A.S8, AM.I.A.S10, AM.I.A.S11)
    Given: Aircraft electrical system trainer.
    Performance: The student will troubleshoot instructor-induced faults, identify short-circuit and open-circuit conditions, and measure voltage drop across a resistor.
    Standard: The student will correctly locate faults with at least 70% accuracy.

Day 5: Power and Electrical Laws

- Lecture (2 hours):
  - Power and Watt's Law (AM.I.A.K12, AM.I.A.K7c)
  - Faraday's Law, Lenz's Law, Right-hand motor rule (AM.I.A.K7d, AM.I.A.K7e, AM.I.A.K7f)
- Lab (4 hours):
  - L104.2 (continued): Determine or measure for open electrical circuits (AM.I.A.S12)
    Given: Aircraft electrical system trainer.
    Performance: The student will measure for open electrical circuits.
    Standard: The student will correctly identify open circuits with at least 70% accuracy.

Day 6: Capacitance and Inductance

- Lecture (2 hours):
  - Capacitance in a circuit (AM.I.A.K3)
  - Inductance in a circuit (AM.I.A.K4)
  - Transformers (AM.I.A.K16)
- Lab (4 hours):
  - L104.3: Read and interpret aircraft electrical circuit diagrams, including solid state devices and logic functions (AM.I.A.S7)
    Given: Aircraft electrical circuit diagrams with solid state devices and logic gates.
    Performance: The student will interpret the diagrams and correctly identify the various solid state devices and logic circuit functions.
    Standard: The student will correctly identify the solid state devices and logic functions with at least 70% accuracy.

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Day 7: AC and DC Circuits

- Lecture (2 hours):
  - Alternating current (AC) electrical circuits (AM.I.A.K5)
  - Direct current (DC) electrical circuits (AM.I.A.K6)
  - AC and DC motors (AM.I.A.K27)
- Lab (4 hours):
  - L104.3 (continued): Read and interpret aircraft electrical circuit diagrams (AM.I.A.S7)
    Given: Additional aircraft electrical circuit diagrams with solid state devices and logic gates.
    Performance: The student will continue practicing interpretation of diagrams to reinforce skills.
    Standard: The student will correctly identify components and functions with at least 70% accuracy.

Day 8: Aircraft Batteries

- Lecture (2 hours):
  - Aircraft batteries (AM.I.A.K15)
  - Risk management: Handling, storage, and inspection of different types of batteries (AM.I.A.R2)
  - Risk management: Working around batteries (AM.I.A.R4)
- Lab (4 hours):
  - L104.4: Inspect an aircraft battery, service an aircraft battery (AM.I.A.S13, AM.I.A.S14)
    Given: Aircraft lead-acid storage batteries, manufacturer's manuals, appropriate technical data, and test equipment (battery chargers, hydrometer, high rate discharge tester).
    Performance: The student will perform battery service procedures for a lead-acid battery, including battery and case inspection, state-of-charge check, electrolyte check and replenishment, battery charging preparation, and high rate discharge test. The student will describe how to prepare a dry-charged lead-acid battery for service.
    Standard: The student will perform all procedures without error in accordance with the appropriate technical data provided.

Day 9: Protective Devices and Resistors

- Lecture (2 hours):
  - Protective devices: fuses, circuit breakers, and current limiters (AM.I.A.K19)
  - Resistor types and color coding (AM.I.A.K20)
- Lab (4 hours):
  - L104.4 (continued): Inspect and service an aircraft battery (AM.I.A.S13, AM.I.A.S14)
    Given: Aircraft lead-acid storage batteries and test equipment.
    Performance: The student will continue practicing battery inspection and servicing to reinforce skills.
    Standard: The student will perform all procedures without error in accordance with technical data.

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Day 10: Semiconductors and Digital Logic

- Lecture (2 hours):
  - Semiconductors: diodes, transistors, and integrated circuits (AM.I.A.K21)
  - Digital logic: RAM, ROM, NVRAM, logic gates, inverter, rectifier, and flip flop (AM.I.A.K22)
- Lab (4 hours):
  - L104.1 (continued): Identify symbols used in electrical and electronic schematic diagrams (AM.I.A.S9)
    Given: Additional examples of unlabeled aircraft wiring diagrams and schematics.
    Performance: The student will locate and label additional symbols, focusing on semiconductors and digital logic components.
    Standard: The student will correctly locate and label with at least 70% accuracy.

Day 11: Circuit Drawings and Electrostatic Discharge

- Lecture (2 hours):
  - Electrical circuit drawings (AM.I.A.K25)
  - Electrostatic discharge (AM.I.A.K24)
  - Risk management: High-voltage circuits (e.g., strobe lighting) (AM.I.A.R3)
- Lab (4 hours):
  - L104.3 (continued): Read and interpret aircraft electrical circuit diagrams (AM.I.A.S7)
    Given: Complex aircraft electrical circuit diagrams.
    Performance: The student will interpret diagrams with advanced components and logic functions.
    Standard: The student will correctly identify components and functions with at least 70% accuracy.

Day 12: Review and Practical Applications

- Lecture (2 hours):
  - Binary numbers (AM.I.A.K23)
  - Circuit continuity and practical applications in aircraft maintenance
- Lab (4 hours):
  - L104.2 (continued): Troubleshoot a circuit (AM.I.A.S8)
    Given: Aircraft electrical system trainer with instructor-induced faults.
    Performance: The student will troubleshoot various faults and provide resolutions.
    Standard: The student will correctly locate and resolve faults with at least 70% accuracy.

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AMG104 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 1.33 hours of lecture and 2.67 hours of lab, totaling 18 days to complete 72 hours.

Day 1: Introduction to Electrical Principles

- Lecture (1.33 hours):
  - Electron theory (conventional flow vs. electron flow) (AM.I.A.K1)
  - Magnetism (AM.I.A.K2)
- Lab (2.67 hours):
  - L104.1: Identify symbols used in electrical and electronic schematic diagrams (AM.I.A.S9)
    Given: Examples of unlabeled aircraft wiring diagrams and schematics which include all commonly used electrical and electronic symbols and a list of electrical component symbol terms.
    Performance: The student will locate and label the given symbols on the diagrams.
    Standard: The student will correctly locate and label with at least 70% accuracy of the given symbols.

Day 2: Electrical Laws

- Lecture (1.33 hours):
  - Electrical laws and theory: Ohm's Law, Kirchhoff's Laws (AM.I.A.K7a, AM.I.A.K7b)
- Lab (2.67 hours):
  - L104.1 (continued): Identify symbols used in electrical and electronic schematic diagrams (AM.I.A.S9)
    Given: Additional examples of unlabeled aircraft wiring diagrams and schematics.
    Performance: The student will continue practicing identifying symbols to reinforce skills.
    Standard: The student will correctly locate and label with at least 70% accuracy.

Day 3: Circuit Fundamentals

- Lecture (1.33 hours):
  - Voltage and regulation (AM.I.A.K9, AM.I.A.K9a)
  - Current (AM.I.A.K10)
- Lab (2.67 hours):
  - L104.2: Measure voltage and current (AM.I.A.S2, AM.I.A.S3)
    Given: Aircraft electrical system trainer.
    Performance: The student will use the wiring diagram for the aircraft electrical system trainer to measure voltage and current.
    Standard: The student will correctly perform measurements with at least 70% accuracy.

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Day 4: Resistance and Measurements

- Lecture (1.33 hours):
  - Resistance, impedance, resistance in series and parallel, total resistance (AM.I.A.K11, AM.I.A.K11a, AM.I.A.K11b, AM.I.A.K11c, AM.I.A.K11d)
- Lab (2.67 hours):
  - L104.2 (continued): Measure resistance (AM.I.A.S4)
    Given: Aircraft electrical system trainer.
    Performance: The student will measure resistance in circuits.
    Standard: The student will correctly perform measurements with at least 70% accuracy.

Day 5: Circuit Components

- Lecture (1.33 hours):
  - Electrical measurement tools, principles, and procedures (AM.I.A.K8)
  - Risk management: Taking voltage, current, resistance, and capacitance measurements (AM.I.A.R1)
- Lab (2.67 hours):
  - L104.2 (continued): Perform circuit continuity test (AM.I.A.S1)
    Given: Aircraft electrical system trainer.
    Performance: The student will perform circuit continuity tests.
    Standard: The student will correctly perform tests with at least 70% accuracy.

Day 6: Controlling and Protective Devices

- Lecture (1.33 hours):
  - Controlling devices: switches and relays (AM.I.A.K18)
  - Protective devices: fuses, circuit breakers, and current limiters (AM.I.A.K19)
- Lab (2.67 hours):
  - L104.2 (continued): Test a switch or relay, test a fuse or circuit breaker (AM.I.A.S5, AM.I.A.S6)
    Given: Aircraft electrical system trainer.
    Performance: The student will test switches, relays, fuses, and circuit breakers.
    Standard: The student will correctly test components with at least 70% accuracy.

Day 7: Power and Electrical Laws

- Lecture (1.33 hours):
  - Power and Watt's Law (AM.I.A.K12, AM.I.A.K7c)
- Lab (2.67 hours):
  - L104.2 (continued): Measure voltage drop across a resistor (AM.I.A.S11)
    Given: Aircraft electrical system trainer.
    Performance: The student will measure voltage drop across a resistor.
    Standard: The student will correctly perform measurements with at least 70% accuracy.
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Day 8: Advanced Electrical Laws

- Lecture (1.33 hours):
  - Faraday's Law, Lenz's Law, Right-hand motor rule (AM.I.A.K7d, AM.I.A.K7e, AM.I.A.K7f)
- Lab (2.67 hours):
  - L104.2 (continued): Determine or measure for open electrical circuits (AM.I.A.S12)
    Given: Aircraft electrical system trainer.
    Performance: The student will measure for open electrical circuits.
    Standard: The student will correctly identify open circuits with at least 70% accuracy.

Day 9: Capacitance and Inductance

- Lecture (1.33 hours):
  - Capacitance in a circuit (AM.I.A.K3)
  - Inductance in a circuit (AM.I.A.K4)
- Lab (2.67 hours):
  - L104.3: Read and interpret aircraft electrical circuit diagrams, including solid state devices and logic functions (AM.I.A.S7)
    Given: Aircraft electrical circuit diagrams with solid state devices and logic gates.
    Performance: The student will interpret the diagrams and correctly identify the various solid state devices and logic circuit functions.
    Standard: The student will correctly identify the solid state devices and logic functions with at least 70% accuracy.

Day 10: Transformers and Circuits

- Lecture (1.33 hours):
  - Transformers (AM.I.A.K16)
  - Series circuits (AM.I.A.K13)
- Lab (2.67 hours):
  - L104.3 (continued): Read and interpret aircraft electrical circuit diagrams (AM.I.A.S7)
    Given: Additional aircraft electrical circuit diagrams with solid state devices and logic gates.
    Performance: The student will continue practicing interpretation of diagrams to reinforce skills.
    Standard: The student will correctly identify components and functions with at least 70% accuracy.

Day 11: AC and DC Circuits

- Lecture (1.33 hours):
  - Alternating current (AC) electrical circuits (AM.I.A.K5)
  - Direct current (DC) electrical circuits (AM.I.A.K6)
- Lab (2.67 hours):
  - L104.2 (continued): Troubleshoot a circuit (AM.I.A.S8)
    Given: Aircraft electrical system trainer with instructor-induced faults.

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Performance: The student will troubleshoot faults and provide resolutions.
Standard: The student will correctly locate and resolve faults with at least 70% accuracy.

Day 12: Troubleshooting Circuits

- Lecture (1.33 hours):
  - Circuit continuity (AM.I.A.K17)
- Lab (2.67 hours):
  - L104.2 (continued): Demonstrate how to test for short-circuit and open-circuit conditions (AM.I.A.S10)
    Given: Aircraft electrical system trainer.
    Performance: The student will test for short-circuit and open-circuit conditions.
    Standard: The student will correctly identify conditions with at least 70% accuracy.

Day 13: Aircraft Batteries

- Lecture (1.33 hours):
  - Aircraft batteries (AM.I.A.K15)
  - Risk management: Handling, storage, and inspection of different types of batteries (AM.I.A.R2)
- Lab (2.67 hours):
  - L104.4: Inspect an aircraft battery (AM.I.A.S13)
    Given: Aircraft lead-acid storage batteries, manufacturer's manuals, and test equipment (battery chargers, hydrometer, high rate discharge tester).
    Performance: The student will perform battery inspection procedures.
    Standard: The student will perform all procedures without error in accordance with technical data.

Day 14: Battery Servicing

- Lecture (1.33 hours):
  - Risk management: Working around batteries (AM.I.A.R4)
- Lab (2.67 hours):
  - L104.4 (continued): Service an aircraft battery (AM.I.A.S14)
    Given: Aircraft lead-acid storage batteries and test equipment.
    Performance: The student will perform battery service procedures, including state-of-charge check, electrolyte check and replenishment, and battery charging preparation.
    Standard: The student will perform all procedures without error in accordance with technical data.

Day 15: Battery Testing

- Lecture (1.33 hours):
  - Review of battery-related safety protocols
- Lab (2.67 hours):

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- L104.4 (continued): Service an aircraft battery (AM.I.A.S14)
  Given: Aircraft lead-acid storage batteries and test equipment.
  Performance: The student will perform a high rate discharge test and describe how to prepare a dry-charged lead-acid battery for service.
  Standard: The student will perform all procedures without error in accordance with technical data.

Day 16: Semiconductors and Resistors

- Lecture (1.33 hours):
  - Semiconductors: diodes, transistors, and integrated circuits (AM.I.A.K21)
  - Resistor types and color coding (AM.I.A.K20)
- Lab (2.67 hours):
  - L104.1 (continued): Identify symbols used in electrical and electronic schematic diagrams (AM.I.A.S9)
    Given: Additional examples of unlabeled aircraft wiring diagrams and schematics focusing on semiconductors and resistors.
    Performance: The student will locate and label symbols for semiconductors and resistors.
    Standard: The student will correctly locate and label with at least 70% accuracy.

Day 17: Digital Logic and Motors

- Lecture (1.33 hours):
  - Digital logic: RAM, ROM, NVRAM, logic gates, inverter, rectifier, and flip flop (AM.I.A.K22)
  - AC and DC motors (AM.I.A.K27)
- Lab (2.67 hours):
  - L104.3 (continued): Read and interpret aircraft electrical circuit diagrams (AM.I.A.S7)
    Given: Complex aircraft electrical circuit diagrams with digital logic components.
    Performance: The student will interpret diagrams with advanced components and logic functions.
    Standard: The student will correctly identify components and functions with at least 70% accuracy.

Day 18: Circuit Drawings and Electrostatic Discharge

- Lecture (1.33 hours):
  - Electrical circuit drawings (AM.I.A.K25)
  - Electrostatic discharge (AM.I.A.K24)
  - Binary numbers (AM.I.A.K23)
  - Risk management: High-voltage circuits (e.g., strobe lighting) (AM.I.A.R3)
- Lab (2.67 hours):
  - L104.2 (continued): Troubleshoot a circuit (AM.I.A.S8)
    Given: Aircraft electrical system trainer with instructor-induced faults.
    Performance: The student will troubleshoot various faults and provide resolutions.
    Standard: The student will correctly locate and resolve faults with at least 70% accuracy.

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AMG105: Aircraft Material, Hardware, and Processes

Course Overview

- Course Code: AMG105
- Course Title: Aircraft Material Hardware and Processes
- Total Hours: 36 (12 Lecture, 24 Lab)
- Prerequisite: None
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 7: Aircraft Materials, Hardware, & Processes (FAA, 2023), AC 43.13-1B - Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair (FAA 1998), CHAPTER 7. AIRCRAFT HARDWARE, CONTROL CABLES, AND TURNBUCKLES.

Description

This course explores materials used in aircraft construction, including hardware, fasteners, and manufacturing processes. Lab work includes hands-on practice with materials to develop practical skills.

Learning Objectives

- Identify and select appropriate materials and hardware for aircraft maintenance.
- Understand manufacturing and repair processes for aircraft components.
- Perform material handling and installation tasks safely.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L105.1, L105.2, L105.3, L105.4, L105.5, L105.6, L105.7). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including the use of PPE, are emphasized throughout all lab activities.

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AMG105 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 2 hours of lecture and 4 hours of lab, totaling 6 days to complete 36 hours.

Day 1: Aircraft Materials and Identification

- Lecture (2 hours):
  - Materials commonly used in aircraft and their general application (AM.I.E.K1)
  - Identification markings on materials and hardware (AM.I.E.K11)
  - Risk management: Use of personal protective equipment (PPE) (AM.I.E.R1)
- Lab (4 hours):
  - L105.1: Select the correct aluminum alloy for a structural repair, distinguish between heat-treated and non-heat-treated aluminum alloys, determine suitability of materials (AM.I.E.S10, AM.I.E.S13, AM.I.E.S12)
    Given: Display of sheet aluminum samples including different alloy types and aluminum reference data and/or appropriate technical data.
    Performance: The student will identify samples of various aluminum alloy family groups by visual recognition of code designators, select appropriate alloys for specified aircraft applications, and distinguish between heat-treated and non-heat-treated aluminum alloys.
    Standard: The student will correctly identify aluminum alloy family groups and select 70% of the alloys for a specified application, and correctly determine 70% of heat-treated and non-heat-treated aluminum alloys.

Day 2: Hardware and Fasteners

- Lecture (2 hours):
  - Hardware commonly used in aircraft (bolts, nuts, screws, pins, washers, turnlock fasteners, cables, cable fittings, and rigid line couplings) (AM.I.E.K4)
  - Risk management: Used hardware or suspected unapproved parts (SUPS) (AM.I.E.R3)
- Lab (4 hours):
  - L105.4: Identify aircraft materials and hardware based on manufacturer's markings (AM.I.E.S4)
    Given: Display of unlabeled AN, MS, NAS nuts, bolts, and washers.
    Performance: The student will identify each piece of hardware by head shape, alloy, dimensions, and where applicable, type letter designating strength characteristics, and answer questions concerning use limitations for certain types of fasteners.
    Standard: The student will correctly identify 70% of the hardware and answer 70% of the questions correctly.

Day 3: Fastener Installation and Safety Wiring

- Lecture (2 hours):

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  - Safety wire and safety clip requirements and techniques (AM.I.E.K5)
  - Torquing tools, principles, and procedures; relationship between torque and fastener preload (AM.I.E.K8, AM.I.E.K10)
  - Risk management: Improper torque, torquing techniques on critical, highly-stressed fasteners (AM.I.E.R2, AM.I.E.R4)
- Lab (4 hours):
  - L105.3: Install safety wire on nuts, bolts, and turnbuckles, determine and properly torque aircraft hardware, select and install aircraft bolts (AM.I.E.S1, AM.I.E.S2, AM.I.E.S5)
    Given: An aircraft, aircraft engine, and/or mock-up, manufacturer's service manual and/or appropriate technical data, including a display of different kinds of aircraft bolts and a bolted installation problem.
    Performance: The student will identify and select the proper hardware for the installation, ascertain the proper torque value, and apply proper safety wire procedure.
    Standard: The student will correctly identify and select the hardware, install it in accordance with technical data, check for proper calibration of the torque wrench, determine the required torque value, and properly install safety wire.

Day 4: Rivets and Control Cables

- Lecture (2 hours):
  - Suitability and compatibility of materials and hardware used for maintenance (AM.I.E.K9)
  - Soldering preparation, types of solder, and flux usage (AM.I.E.K7)
- Lab (4 hours):
  - L105.2: Identify rivets by physical characteristics (AM.I.E.S11)
    Given: Display of unlabeled AN, MS, NAS, and trademark aircraft rivets and standard rivet publications and/or appropriate technical data.
    Performance: The student will identify each rivet by head shape, alloy, dimensions, and where applicable, type letter designating strength characteristics, and answer questions concerning use limitations and heat treatment requirements.
    Standard: The student will correctly identify 70% of the rivets and answer 70% of the questions correctly.
  - L105.5: Identify aircraft control cable components, fabricate a cable assembly using a swaged-end fitting (AM.I.E.S8, AM.I.E.S9)
    Given: Display of aircraft control cable samples, tools, equipment, and fittings to swage a cable end fitting, a turnbuckle, and appropriate technical data.
    Performance: The student will identify different samples of aircraft control cable, fabricate a cable assembly using a swaged end fitting, and safety wire a turnbuckle.
    Standard: The student will correctly identify 70% of the cables, correctly fabricate a cable swaged end fitting, and safety wire a turnbuckle in accordance with technical data.

Day 5: Welds and Heat Treatment

- Lecture (2 hours):
  - Heat treatment and metal working processes (AM.I.E.K2)

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    - Characteristics of acceptable and unacceptable welds, procedures for weld repairs (AM.I.E.K12, AM.I.E.K13, AM.I.E.K14)
    - Forces placed on aircraft materials (tension, compression, torsion, bending, strain, shear) (AM.I.E.K3)
- Lab (4 hours):
    - L105.7: Inspect and check welds (AM.I.E.S3)
      Given: Samples of aircraft welded assemblies of acceptable and unacceptable quality with cracks and/or blow-holes, magnifying glass (10 power or greater), AC 43.13-1B or equivalent technical publications.
      Performance: The student will inspect and evaluate the quality of welded assemblies by sight and touch, describe flaws, determine weldability, and identify faults or defects to determine acceptability.
      Standard: The student will perform the examination of welds and weldability tests correctly to an accuracy of at least 70%.

Day 6: Precision Measurements

- Lecture (2 hours):
    - Precision measurement tools, principles, and procedures (AM.I.E.K6)
    - Review of practical applications in aircraft maintenance
- Lab (4 hours):
    - L105.6: Make precision measurements with an instrument that has a Vernier scale, check the concentricity of a shaft, check for proper calibration of a micrometer (AM.I.E.S6, AM.I.E.S7, AM.I.E.S14)
      Given: Used and worn aircraft components (shafts, bearings, cylinders, pistons, connecting rods, crankshafts, sheet metal parts), inspection tools (micrometers, calipers, hole and snap gauges), manufacturer's service manuals, and technical data with wear limits.
      Performance: The student will check for proper calibration of a micrometer, perform precision measurements using a Vernier scale instrument, check the alignment of a shaft, and complete report forms or status tags indicating acceptance or rejection.
      Standard: The inspection of the micrometer and components will meet tolerances in the technical data, and report forms or status tags will be correctly annotated.

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AMG105 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 1.33 hours of lecture and 2.67 hours of lab, totaling 9 days to complete 36 hours.

Day 1: Aircraft Materials and Identification

- Lecture (1.33 hours):
  - Materials commonly used in aircraft and their general application (AM.I.E.K1)
  - Identification markings on materials and hardware (AM.I.E.K11)
- Lab (2.67 hours):
  - L105.1: Select the correct aluminum alloy for a structural repair (AM.I.E.S10)
    Given: Display of sheet aluminum samples including different alloy types and aluminum reference data and/or appropriate technical data.
    Performance: The student will identify samples of various aluminum alloy family groups by visual recognition of code designators and select appropriate alloys for specified aircraft applications.
    Standard: The student will correctly identify aluminum alloy family groups and select 70% of the alloys for a specified application.

Day 2: Aluminum Alloys and Suitability

- Lecture (1.33 hours):
  - Risk management: Use of personal protective equipment (PPE) (AM.I.E.R1)
  - Suitability and compatibility of materials and hardware used for maintenance (AM.I.E.K9)
- Lab (2.67 hours):
  - L105.1 (continued): Distinguish between heat-treated and non-heat-treated aluminum alloys, determine suitability of materials (AM.I.E.S13, AM.I.E.S12)
    Given: Display of sheet aluminum samples and technical data.
    Performance: The student will distinguish between heat-treated and non-heat-treated aluminum alloys and determine suitability for aircraft repairs.
    Standard: The student will correctly determine 70% of heat-treated and non-heat-treated aluminum alloys and suitability for repairs.

Day 3: Hardware and Fasteners

- Lecture (1.33 hours):
  - Hardware commonly used in aircraft (bolts, nuts, screws, pins, washers, turnlock fasteners, cables, cable fittings, and rigid line couplings) (AM.I.E.K4)
- Lab (2.67 hours):
  - L105.4: Identify aircraft materials and hardware based on manufacturer's markings (AM.I.E.S4)
    Given: Display of unlabeled AN, MS, NAS nuts, bolts, and washers.

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Performance: The student will identify each piece of hardware by head shape, alloy, dimensions, and where applicable, type letter designating strength characteristics, and answer questions concerning use limitations for certain types of fasteners.
Standard: The student will correctly identify 70% of the hardware and answer 70% of the questions correctly.

Day 4: Fastener Installation

- Lecture (1.33 hours):
  - Safety wire and safety clip requirements and techniques (AM.I.E.K5)
  - Risk management: Used hardware or suspected unapproved parts (SUPS) (AM.I.E.R3)
- Lab (2.67 hours):
  - L105.3: Install safety wire on nuts, bolts, and turnbuckles, select and install aircraft bolts (AM.I.E.S1, AM.I.E.S5)
    Given: An aircraft, aircraft engine, and/or mock-up, manufacturer's service manual and/or appropriate technical data, including a display of different kinds of aircraft bolts and a bolted installation problem.
    Performance: The student will identify and select the proper hardware for the installation and apply proper safety wire procedure.
    Standard: The student will correctly identify and select the hardware, install it in accordance with technical data, and properly install safety wire.

Day 5: Torquing Techniques

- Lecture (1.33 hours):
  - Torquing tools, principles, and procedures; relationship between torque and fastener preload (AM.I.E.K8, AM.I.E.K10)
  - Risk management: Improper torque, torquing techniques on critical, highly-stressed fasteners (AM.I.E.R2, AM.I.E.R4)
- Lab (2.67 hours):
  - L105.3 (continued): Determine and properly torque aircraft hardware (AM.I.E.S2)
    Given: An aircraft, aircraft engine, and/or mock-up, manufacturer's service manual and/or technical data.
    Performance: The student will ascertain the proper torque value for a given installation and check for proper calibration of the torque wrench.
    Standard: The student will correctly determine the required torque value and apply it in accordance with technical data.

Day 6: Rivets and Soldering

- Lecture (1.33 hours):
  - Soldering preparation, types of solder, and flux usage (AM.I.E.K7)
- Lab (2.67 hours):
  - L105.2: Identify rivets by physical characteristics (AM.I.E.S11)
    Given: Display of unlabeled AN, MS, NAS, and trademark aircraft rivets and standard rivet publications and/or appropriate technical data.
    Performance: The student will identify each rivet by head shape, alloy, dimensions, and

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where applicable, type letter designating strength characteristics, and answer questions concerning use limitations and heat treatment requirements.
Standard: The student will correctly identify 70% of the rivets and answer 70% of the questions correctly.

Day 7: Control Cables

- Lecture (1.33 hours):
  - Forces placed on aircraft materials (tension, compression, torsion, bending, strain, shear) (AM.I.E.K3)
- Lab (2.67 hours):
  - L105.5: Identify aircraft control cable components, fabricate a cable assembly using a swaged-end fitting (AM.I.E.S8, AM.I.E.S9)
    Given: Display of aircraft control cable samples, tools, equipment, and fittings to swage a cable end fitting, a turnbuckle, and appropriate technical data.
    Performance: The student will identify different samples of aircraft control cable, fabricate a cable assembly using a swaged end fitting, and safety wire a turnbuckle.
    Standard: The student will correctly identify 70% of the cables, correctly fabricate a cable swaged end fitting, and safety wire a turnbuckle in accordance with technical data.

Day 8: Welds and Heat Treatment

- Lecture (1.33 hours):
  - Heat treatment and metal working processes (AM.I.E.K2)
  - Characteristics of acceptable and unacceptable welds, procedures for weld repairs (AM.I.E.K12, AM.I.E.K13, AM.I.E.K14)
- Lab (2.67 hours):
  - L105.7: Inspect and check welds (AM.I.E.S3)
    Given: Samples of aircraft welded assemblies of acceptable and unacceptable quality with cracks and/or blow-holes, magnifying glass (10 power or greater), AC 43.13-1B or equivalent technical publications.
    Performance: The student will inspect and evaluate the quality of welded assemblies by sight and touch, describe flaws, determine weldability, and identify faults or defects to determine acceptability.
    Standard: The student will perform the examination of welds and weldability tests correctly to an accuracy of at least 70%.

Day 9: Precision Measurements

- Lecture (1.33 hours):
  - Precision measurement tools, principles, and procedures (AM.I.E.K6)
  - Review of practical applications in aircraft maintenance
- Lab (2.67 hours):
  - L105.6: Make precision measurements with an instrument that has a Vernier scale, check the concentricity of a shaft, check for proper calibration of a micrometer (AM.I.E.S6, AM.I.E.S7, AM.I.E.S14)
    Given: Used and worn aircraft components (shafts, bearings, cylinders, pistons,

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connecting rods, crankshafts, sheet metal parts), inspection tools (micrometers, calipers, hole and snap gauges), manufacturer's service manuals, and technical data with wear limits.
Performance: The student will check for proper calibration of a micrometer, perform precision measurements using a Vernier scale instrument, check the alignment of a shaft, and complete report forms or status tags indicating acceptance or rejection.
Standard: The inspection of the micrometer and components will meet tolerances in the technical data, and report forms or status tags will be correctly annotated.

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AMG106: Cleaning and Corrosion Control

Course Overview

- Course Code: AMG106
- Course Title: Cleaning and Corrosion Control
- Total Hours: 24 (12 Lecture, 12 Lab)
- Prerequisite: None
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 8: Cleaning & Corrosion Control (FAA, 2023), AC 43.13-1B - Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair (FAA 1998), CHAPTER 6. CORROSION, INSPECTION & PROTECTION

Description

This course covers techniques for cleaning aircraft and preventing corrosion, including identification of corrosion types and application of protective coatings. Lab work provides hands-on practice in cleaning and corrosion control procedures.

Learning Objectives

- Implement proper cleaning procedures for aircraft surfaces.
- Identify and treat corrosion on aircraft components.
- Apply corrosion prevention techniques according to industry standards.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L106.1, L106.3, L106.4, L106.5, L106.6). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.

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AMG106 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 4 days to complete 24 hours.

Day 1: Aircraft Cleaning and Corrosion Theory

- Lecture (3 hours):
  - Aircraft cleaning procedures (AM.I.G.K1)
  - Corrosion theory and causation (AM.I.G.K2)
  - Types and effects of corrosion (AM.I.G.K3)
  - Corrosion-prone areas in aircraft (AM.I.G.K4)
  - Risk management: Health concerns when using paints, solvents, finishing materials, and processes (AM.I.G.R1)
  - Risk management: Identification of materials and processes for cleaning or corrosion treatment (AM.I.G.R3)
- Lab (3 hours):
  - L106.1: Identify procedures to clean and protect plastics (AM.I.G.S6)
    Given: The Piper Warrior, Saratoga, or Matrix/Malibu.
    Performance: The student will determine the correct compound to clean the assigned aircraft's windshield or windows and perform the correct cleaning procedures.
    Standard: The student will correctly locate the appropriate cleaning compound and procedures and clean the assigned areas to a return-to-service standard.

Day 2: Corrosion Identification and Prevention

- Lecture (3 hours):
  - Corrosion preventive maintenance procedures (AM.I.G.K5)
  - Corrosion identification and inspection (AM.I.G.K6)
  - Corrosion removal and treatment procedures (AM.I.G.K7)
  - Corrosion preventive compounds (CPC) (e.g., waxy sealants, thin-film dielectrics) (AM.I.G.K8)
  - Selection of optimal CPC and frequency of treatment (AM.I.G.K9)
  - Risk management: SDS PPE instructions for products during corrosion removal and treatment (AM.I.G.R4)
  - Risk management: Use of PPE when working with paints and solvents (AM.I.G.R7)
- Lab (3 hours):
  - L106.5: Prepare metal surface for painting, apply etch solution and conversion coating (AM.I.G.S11, AM.I.G.S13)
    Given: Written procedures, assorted primers, paints, spray painting equipment, aluminum-covered aircraft structures, and appropriate safety equipment.
    Performance: The student will identify finishing materials and thinners, prepare the metal surface for painting, and apply etch solution and conversion coating.
    Standard: The preparation of the surface and spray application of finish must be of simulated return-to-service quality.

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Day 3: Finishing Materials and Application

- Lecture (3 hours):
  - Materials used for protection of airframe structures (AM.I.G.K14)
  - Primer materials, topcoat materials, and conversion coatings (AM.I.G.K13, AM.I.G.K15, AM.I.G.K16)
  - Surface preparation for desired finishing material (AM.I.G.K17)
  - Effects of improper surface preparation and ambient conditions on finishing materials (AM.I.G.K18, AM.I.G.K19)
  - Finishing materials application techniques and practices (AM.I.G.K23)
  - Risk management: Application of finishing materials (AM.I.G.R8)
  - Risk management: Working with flammable chemicals, disposal of chemicals and waste materials (AM.I.G.R5, AM.I.G.R6)
- Lab (3 hours):
  - L106.4: Identify finishing materials and appropriate thinners, determine paint system for an aircraft, identify protective finishes (AM.I.G.S9, AM.I.G.S12, AM.I.G.S14)
    Given: Labeled samples of aircraft finishes (zinc chromate primer, epoxy primer, enamels, lacquers, polyurethane, appropriate thinners, etc.).
    Performance: The student will examine the labeling and physical characteristics of each sample, identify and select the appropriate thinner, distinguish between lacquer and enamel protective finishes, and recognize safety precautions for mixing and applying paints and thinners.
    Standard: The student will correctly distinguish between lacquer and enamel finishes, select the correct thinner, and recognize applicable safety precautions.

Day 4: Corrosion Inspection and Regulatory Requirements

- Lecture (3 hours):
  - Use of high-pressure application equipment (AM.I.G.K10)
  - Improper use of cleaners on aluminum or composite materials (AM.I.G.K11)
  - Dissimilar metals causing accelerated corrosion and role of protective barriers (AM.I.G.K12)
  - Regulatory requirements for replacing identification, registration markings, and placards (AM.I.G.K20)
  - Inspection of aircraft finishes, control surface balance considerations after refinishing (AM.I.G.K21, AM.I.G.K24)
  - Safety practices/precautions when using finishing materials (e.g., PPE, fire prevention) (AM.I.G.K22)
  - Risk management: Ventilation (AM.I.G.R2)
- Lab (3 hours):
  - L106.3: Determine location and size requirements for aircraft registration numbers, layout and mask a surface for painting (AM.I.G.S7, AM.I.G.S10)
    Given: The Piper Warrior, Saratoga, or Matrix/Malibu.
    Performance: The student will research 14 CFR §45 Subpart C to determine the correct size and placement of aircraft registration markings and lay out with masking tape a suitable registration number at the correct location on the assigned aircraft.
    Standard: The student will correctly locate the applicable regulations and successfully

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mask outline at least three letters of the assigned registration number to return-to-service standard.

- L106.6: Prepare composite surface for painting (AM.I.G.S8)
  Given: Written procedures, assorted primers, paints, spray painting equipment, a composite sample structure, and appropriate safety equipment.
  Performance: The student will identify finishing materials and thinners, prepare the composite surface for painting, and apply primers and paints.
  Standard: The preparation of the surface and spray application of finish must be of simulated return-to-service quality.

Additional Skills Covered

- Perform a portion of an aircraft corrosion inspection (AM.I.G.S1)
- Identify, select, and use aircraft corrosion prevention/cleaning materials (AM.I.G.S2)
- Apply corrosion prevention/coating materials (AM.I.G.S3)
- Inspect finishes and identify defects (AM.I.G.S4)
- Inspect an aircraft compartment for corrosion (AM.I.G.S5)

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AMG106 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours.

Day 1: Aircraft Cleaning and Corrosion Theory

- Lecture (2 hours):
  - Aircraft cleaning procedures (AM.I.G.K1)
  - Corrosion theory and causation (AM.I.G.K2)
  - Types and effects of corrosion (AM.I.G.K3)
- Lab (2 hours):
  - L106.1: Identify procedures to clean and protect plastics (AM.I.G.S6)
    Given: The Piper Warrior, Saratoga, or Matrix/Malibu.
    Performance: The student will determine the correct compound to clean the assigned aircraft's windshield or windows and perform the correct cleaning procedures.
    Standard: The student will correctly locate the appropriate cleaning compound and procedures and clean the assigned areas to a return-to-service standard.

Day 2: Corrosion Identification and Prevention

- Lecture (2 hours):
  - Corrosion-prone areas in aircraft (AM.I.G.K4)
  - Corrosion preventive maintenance procedures (AM.I.G.K5)
  - Corrosion identification and inspection (AM.I.G.K6)
  - Risk management: Identification of materials and processes for cleaning or corrosion treatment (AM.I.G.R3)
- Lab (2 hours):
  - L106.5: Prepare metal surface for painting (AM.I.G.S11)
    Given: Written procedures, assorted primers, paints, spray painting equipment, aluminum-covered aircraft structures, and appropriate safety equipment.
    Performance: The student will identify finishing materials and thinners and prepare the metal surface for painting.
    Standard: The preparation of the surface must be of simulated return-to-service quality.

Day 3: Corrosion Treatment and Safety

- Lecture (2 hours):
  - Corrosion removal and treatment procedures (AM.I.G.K7)
  - Corrosion preventive compounds (CPC) (e.g., waxy sealants, thin-film dielectrics) (AM.I.G.K8)
  - Selection of optimal CPC and frequency of treatment (AM.I.G.K9)
  - Risk management: SDS PPE instructions for products during corrosion removal and treatment (AM.I.G.R4)

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    - Risk management: Use of PPE when working with paints and solvents (AM.I.G.R7)
- Lab (2 hours):
    - L106.5 (continued): Apply etch solution and conversion coating (AM.I.G.S13)
      Given: Written procedures, assorted primers, paints, spray painting equipment, aluminum-covered aircraft structures, and appropriate safety equipment.
      Performance: The student will apply etch solution and conversion coating to the prepared metal surface.
      Standard: The spray application of finish must be of simulated return-to-service quality.

Day 4: Finishing Materials and Application

- Lecture (2 hours):
    - Materials used for protection of airframe structures (AM.I.G.K14)
    - Primer materials, topcoat materials, and conversion coatings (AM.I.G.K13, AM.I.G.K15, AM.I.G.K16)
    - Risk management: Application of finishing materials (AM.I.G.R8)
- Lab (2 hours):
    - L106.4: Identify finishing materials and appropriate thinners, identify types of protective finishes (AM.I.G.S9, AM.I.G.S14)
      Given: Labeled samples of aircraft finishes (zinc chromate primer, epoxy primer, enamels, lacquers, polyurethane, appropriate thinners, etc.).
      Performance: The student will examine the labeling and physical characteristics of each sample, identify and select the appropriate thinner, distinguish between lacquer and enamel protective finishes, and recognize safety precautions for mixing and applying paints and thinners.
      Standard: The student will correctly distinguish between lacquer and enamel finishes, select the correct thinner, and recognize applicable safety precautions.

Day 5: Surface Preparation and Regulatory Requirements

- Lecture (2 hours):
    - Surface preparation for desired finishing material (AM.I.G.K17)
    - Effects of improper surface preparation and ambient conditions on finishing materials (AM.I.G.K18, AM.I.G.K19)
    - Regulatory requirements for replacing identification, registration markings, and placards (AM.I.G.K20)
    - Risk management: Health concerns when using paints, solvents, finishing materials, and processes (AM.I.G.R1)
- Lab (2 hours):
    - L106.3: Determine location and size requirements for aircraft registration numbers, layout and mask a surface for painting (AM.I.G.S7, AM.I.G.S10)
      Given: The Piper Warrior, Saratoga, or Matrix/Malibu.
      Performance: The student will research 14 CFR §45 Subpart C to determine the correct size and placement of aircraft registration markings and lay out with masking tape a suitable registration number at the correct location on the assigned aircraft.
      Standard: The student will correctly locate the applicable regulations and successfully

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mask outline at least three letters of the assigned registration number to return-to-service standard.

Day 6: Corrosion Inspection and Safety Practices

- Lecture (2 hours):
  - Use of high-pressure application equipment (AM.I.G.K10)
  - Improper use of cleaners on aluminum or composite materials (AM.I.G.K11)
  - Dissimilar metals causing accelerated corrosion and role of protective barriers (AM.I.G.K12)
  - Inspection of aircraft finishes, control surface balance considerations after refinishing (AM.I.G.K21, AM.I.G.K24)
  - Safety practices/precautions when using finishing materials (e.g., PPE, fire prevention) (AM.I.G.K22)
  - Risk management: Ventilation, working with flammable chemicals, disposal of chemicals and waste materials (AM.I.G.R2, AM.I.G.R5, AM.I.G.R6)
- Lab (2 hours):
  - L106.6: Prepare composite surface for painting (AM.I.G.S8)
    Given: Written procedures, assorted primers, paints, spray painting equipment, a composite sample structure, and appropriate safety equipment.
    Performance: The student will identify finishing materials and thinners, prepare the composite surface for painting, and apply primers and paints.
    Standard: The preparation of the surface and spray application of finish must be of simulated return-to-service quality.

Additional Skills Covered

- Perform a portion of an aircraft corrosion inspection (AM.I.G.S1)
- Identify, select, and use aircraft corrosion prevention/cleaning materials (AM.I.G.S2)
- Apply corrosion prevention/coating materials (AM.I.G.S3)
- Inspect finishes and identify defects (AM.I.G.S4)
- Inspect an aircraft compartment for corrosion (AM.I.G.S5)
- Determine what paint system can be used on a given aircraft (AM.I.G.S12)

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AMG107: Fluid Lines and Fittings

Course Overview

- Course Code: AMG107
- Course Title: Fluid Lines and Fittings
- Total Hours: 24 (12 Lecture, 12 Lab)
- Prerequisite: None
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 9: Fluid Lines & Fittings (FAA, 2023)

Description

This course focuses on the installation, maintenance, and inspection of fluid lines and fittings in aircraft hydraulic and fuel systems. Lab work emphasizes hands-on practice to ensure leak-free connections and compliance with regulatory standards.

Learning Objectives

- Install and inspect fluid lines and fittings per regulatory standards.
- Identify and troubleshoot issues in hydraulic and fuel systems.
- Ensure leak-free connections in aircraft fluid systems.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L107.1, L107.2, L107.3, L107.4, L107.5, L107.6, L107.7). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including the use of required safety equipment and handling of hazardous fluids, are emphasized throughout all lab activities.

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AMG107 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 4 days to complete 24 hours.

Day 1: Introduction to Fluid Lines and Fittings

- Lecture (3 hours):
  - Tubing and hose materials, applications, sizes, and fittings (AM.I.D.K1)
  - Rigid line or flexible hose material identification (AM.I.D.K2)
  - Risk management: System configuration prior to and during maintenance (AM.I.D.R1)
  - Risk management: Use of required safety equipment (AM.I.D.R2)
- Lab (3 hours):
  - L107.4: Identify fluid lines, pneumatic lines, and fittings (AM.I.D.S6)
    Given: A worksheet with a variety of fluid line/pneumatic markings without verbiage identifying the fluid and illustrations of various fittings.
    Performance: The student will correctly indicate the fluid/pneumatic marking labels with the correct verbiage and identify various fittings.
    Standard: The student will correctly identify fluid lines and fittings with at least 70% accuracy.

Day 2: Rigid Line Fabrication and Installation

- Lecture (3 hours):
  - Rigid line fabrication, installation, and inspection techniques/practices (AM.I.D.K3)
  - Importance of using a torque wrench when securing fluid hose and line fittings (AM.I.D.K5)
  - Use of torque seal or similar witness techniques after installing critical fluid hose and line fittings (AM.I.D.K6)
  - Risk management: Use of tools while applying torque to a fluid line (AM.I.D.R7)
- Lab (3 hours):
  - L107.1: Fabricate a rigid line with a flare and a bend (AM.I.D.S1)
    Given: Written information, AC 43.13-1B and/or appropriate technical data, aluminum and/or stainless-steel tubing, tube bending and flaring tools, B-nuts, sleeves, and tubing hardware.
    Performance: The student will repair an aluminum or stainless-steel line by fabricating a replacement line, making bends using hand or production bending tools, and forming a single flare on aluminum tubing.
    Standard: The student will correctly fabricate the tubing line, making bends and flares according to AC 43.13-1B and/or technical data, and install the tubing line into an aircraft or mockup without stress.
  - L107.3: Install an aircraft rigid line (AM.I.D.S2)
    Given: Piper Warrior, Saratoga, or Matrix/Malibu.
    Performance: The student will correctly install a given line into the selected aircraft.

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Standard: The student will correctly install the line as outlined in AC 43.13-1B and/or technical data.

Day 3: Flexible Hose Fabrication and Installation

- Lecture (3 hours):
  - Flexible hose fabrication, installation, and inspection techniques/practices (AM.I.D.K4)
  - Risk management: Hazardous fluids (AM.I.D.R3)
  - Risk management: High-pressure fluid systems (AM.I.D.R4)
- Lab (3 hours):
  - L107.5: Fabricate a flexible hose (AM.I.D.S7)
    Given: Written information, AC 43.13-1B and/or appropriate technical data, flexible hose of various diameters, tools, and necessary tubing hardware.
    Performance: The student will fabricate and install a replacement section of flexible hose, select correct hose materials and fittings, check the hose by pressure test, and determine proper routing and support.
    Standard: The student will correctly fabricate, pressure check, and install flexible hose as outlined in AC 43.13-1B and/or technical data.
  - L107.6: Install an aircraft flexible hose (AM.I.D.S3)
    Given: Piper Warrior, Saratoga, or Matrix/Malibu.
    Performance: The student will install a replacement section of flexible hose, select the correct hose assembly, check by pressure test, and determine proper routing and support.
    Standard: The student will correctly install flexible hose as outlined in AC 43.13-1B and/or technical data.

Day 4: Inspection and Troubleshooting

- Lecture (3 hours):
  - Review of rigid and flexible line installation and inspection techniques
  - Risk management: A twisted hose (AM.I.D.R5)
  - Risk management: A loosened fitting or a hose that has moved out of position (AM.I.D.R6)
- Lab (3 hours):
  - L107.2: Fabricate a flareless-fitting-tube connection (AM.I.D.S8)
    Given: Written information, AC 43.13-1B and/or appropriate technical data, aluminum tubing, tools, and necessary tubing hardware.
    Performance: The student will identify and select the correct materials and fittings and install a flareless-fitting-tube connection.
    Standard: The student will correctly install the flareless-fitting-tube connection as outlined in AC 43.13-1B and/or technical data.
  - L107.7: Perform a rigid line or flexible hose inspection, identify installation and security requirements (AM.I.D.S4, AM.I.D.S5)
    Given: Piper Warrior, Saratoga, or Matrix/Malibu.
    Performance: The student will inspect fluid line routing on a given aircraft and record all defects.

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Standard: The student will correctly inspect flexible hose and rigid lines as outlined in AC 43.13-1B and/or technical data.

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AMG107 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours.

Day 1: Introduction to Fluid Lines and Fittings

- Lecture (2 hours):
  - Tubing and hose materials, applications, sizes, and fittings (AM.I.D.K1)
  - Rigid line or flexible hose material identification (AM.I.D.K2)
- Lab (2 hours):
  - L107.4: Identify fluid lines, pneumatic lines, and fittings (AM.I.D.S6)
    Given: A worksheet with a variety of fluid line/pneumatic markings without verbiage identifying the fluid and illustrations of various fittings.
    Performance: The student will correctly indicate the fluid/pneumatic marking labels with the correct verbiage and identify various fittings.
    Standard: The student will correctly identify fluid lines and fittings with at least 70% accuracy.

Day 2: Rigid Line Fabrication

- Lecture (2 hours):
  - Rigid line fabrication, installation, and inspection techniques/practices (AM.I.D.K3)
  - Risk management: System configuration prior to and during maintenance (AM.I.D.R1)
- Lab (2 hours):
  - L107.1: Fabricate a rigid line with a flare and a bend (AM.I.D.S1)
    Given: Written information, AC 43.13-1B and/or appropriate technical data, aluminum and/or stainless-steel tubing, tube bending and flaring tools, B-nuts, sleeves, and tubing hardware.
    Performance: The student will repair an aluminum or stainless-steel line by fabricating a replacement line, making bends using hand or production bending tools, and forming a single flare on aluminum tubing.
    Standard: The student will correctly fabricate the tubing line, making bends and flares according to AC 43.13-1B and/or technical data, and install the tubing line into an aircraft or mockup without stress.

Day 3: Rigid Line Installation and Torque

- Lecture (2 hours):
  - Importance of using a torque wrench when securing fluid hose and line fittings (AM.I.D.K5)
  - Use of torque seal or similar witness techniques after installing critical fluid hose and line fittings (AM.I.D.K6)
  - Risk management: Use of tools while applying torque to a fluid line (AM.I.D.R7)

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- Lab (2 hours):
    - L107.3: Install an aircraft rigid line (AM.I.D.S2)
      Given: Piper Warrior, Saratoga, or Matrix/Malibu.
      Performance: The student will correctly install a given line into the selected aircraft.
      Standard: The student will correctly install the line as outlined in AC 43.13-1B and/or technical data.

Day 4: Flexible Hose Fabrication

- Lecture (2 hours):
    - Flexible hose fabrication, installation, and inspection techniques/practices (AM.I.D.K4)
    - Risk management: Hazardous fluids (AM.I.D.R3)
- Lab (2 hours):
    - L107.5: Fabricate a flexible hose (AM.I.D.S7)
      Given: Written information, AC 43.13-1B and/or appropriate technical data, flexible hose of various diameters, tools, and necessary tubing hardware.
      Performance: The student will fabricate and install a replacement section of flexible hose, select correct hose materials and fittings, check the hose by pressure test, and determine proper routing and support.
      Standard: The student will correctly fabricate, pressure check, and install flexible hose as outlined in AC 43.13-1B and/or technical data.

Day 5: Flexible Hose Installation

- Lecture (2 hours):
    - Risk management: High-pressure fluid systems (AM.I.D.R4)
    - Risk management: A twisted hose (AM.I.D.R5)
- Lab (2 hours):
    - L107.6: Install an aircraft flexible hose (AM.I.D.S3)
      Given: Piper Warrior, Saratoga, or Matrix/Malibu.
      Performance: The student will install a replacement section of flexible hose, select the correct hose assembly, check by pressure test, and determine proper routing and support.
      Standard: The student will correctly install flexible hose as outlined in AC 43.13-1B and/or technical data.

Day 6: Inspection and Flareless Fittings

- Lecture (2 hours):
    - Risk management: A loosened fitting or a hose that has moved out of position (AM.I.D.R6)
    - Risk management: Use of required safety equipment (AM.I.D.R2)
- Lab (2 hours):
    - L107.2: Fabricate a flareless-fitting-tube connection (AM.I.D.S8)
      Given: Written information, AC 43.13-1B and/or appropriate technical data, aluminum tubing, tools, and necessary tubing hardware.
      Performance: The student will identify and select the correct materials and fittings and

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install a flareless-fitting-tube connection.
Standard: The student will correctly install the flareless-fitting-tube connection as outlined in AC 43.13-1B and/or technical data.

- L107.7: Perform a rigid line or flexible hose inspection, identify installation and security requirements (AM.I.D.S4, AM.I.D.S5)
  Given: Piper Warrior, Saratoga, or Matrix/Malibu.
  Performance: The student will inspect fluid line routing on a given aircraft and record all defects.
  Standard: The student will correctly inspect flexible hose and rigid lines as outlined in AC 43.13-1B and/or technical data.

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AMG108: Inspection Concepts and Techniques

Course Overview

- Course Code: AMG108
- Course Title: Inspection Concepts and Techniques
- Total Hours: 24 (12 Lecture, 12 Lab)
- Prerequisite: None
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 10: Inspection Concepts & Techniques (FAA, 2023),), AC 43.13-1B - Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair (FAA 1998), CHAPTER 5. NONDESTRUCTIVE INSPECTION (NDI).

Description

This course introduces inspection methods for aircraft maintenance, including visual, non-destructive testing (NDT), and documentation procedures. Lab work emphasizes hands-on practice to ensure accurate inspections and compliance with airworthiness standards.

Learning Objectives

- Conduct thorough visual and non-destructive inspections.
- Document inspection findings accurately.
- Apply inspection standards to ensure airworthiness.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L108.1, L108.2, L108.3, L108.4, L108.5). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper handling of inspection equipment and risk mitigation, are emphasized throughout all lab activities.

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AMG108 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 4 days to complete 24 hours.

Day 1: Introduction to Inspection Tools and Methods

- Lecture (3 hours):
  - Measuring tools: calipers, micrometers, and gauges (AM.I.K.K1)
  - Calibration and tool accuracy requirements (AM.I.K.K2)
  - Risk management: Using precision measuring instruments (AM.I.K.R2)
  - Risk management: Calibration of precision measuring equipment (AM.I.K.R3)
- Lab (3 hours):
  - L108.2: Use Vernier calipers, micrometers, and measurement gauges (AM.I.K.S1, AM.I.K.S2, AM.I.K.S3)
    Given: Used and worn aircraft components (e.g., shafts, bearing journals, bearings, cylinders, pistons, connecting rods, crankshafts, sheet metal parts), inspection tools (micrometers, calipers, hole and snap gauges), manufacturer's service manuals, and appropriate technical data with wear limits.
    Performance: The student will check for proper calibration of a micrometer, perform precision measurements using a Vernier micrometer scale to determine if components are within tolerance, check shaft alignment, and complete report forms or status tags indicating acceptance or rejection.
    Standard: The inspection of the micrometer and components will meet tolerances in the technical data, and report forms or status tags will be correctly annotated.

Day 2: Non-Destructive Testing (NDT) Methods

- Lecture (3 hours):
  - Nondestructive Testing (NDT) procedures and methods (AM.I.K.K3)
  - Aircraft inspection methods and tools for materials, hardware, and processes (AM.I.K.K5)
  - Risk management: Selection of inspection techniques (AM.I.K.R4)
  - Risk management: Demagnetizing a component following a magnetic particle inspection (AM.I.K.R1)
- Lab (3 hours):
  - L108.4: Identify NDT methods for composite, surface metal, and subsurface metal defects (AM.I.K.S7)
    Given: A worksheet containing descriptions of various defects.
    Performance: The student will determine the correct method of inspection for each defect.
    Standard: The student will successfully determine the correct methods of inspection.
  - L108.5: Perform a tap test on a composite component (AM.I.K.S8)
    Given: A composite material sample with a known defect.
    Performance: The student will determine the limits of hidden damage by performing a

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coin tap test.
Standard: The student will successfully determine and mark the limits of hidden damage in the composite material sample.

Day 3: Visual and Dye Penetrant Inspections

- Lecture (3 hours):
  - Aircraft inspection programs (e.g., progressive, 100-hour, annual, and other FAA-approved inspections) (AM.I.K.K4)
  - Risk management: Damage prevention to aircraft components and test equipment when using an ohmmeter (AM.I.K.R5)
- Lab (3 hours):
  - L108.3: Perform a visual inspection, perform a dye penetrant inspection (AM.I.K.S4, AM.I.K.S5)
    Given: An aircraft part with known invisible surface cracks, AC 43.13-1B and/or appropriate technical data, a dye penetrant inspection kit with applicable instructions.
    Performance: The student will perform a visual inspection of the part, clean and prep the part for inspection, perform the dye penetrant inspection according to instructions, and identify surface cracks.
    Standard: The student will perform all steps in accordance with the instructions and locate all cracks on the part.

Day 4: Airworthiness Directives and Documentation

- Lecture (3 hours):
  - Review of inspection methods and documentation procedures
  - Importance of accurate record-keeping for airworthiness compliance
- Lab (3 hours):
  - L108.1: Inspect aircraft for compliance with an AD (AM.I.K.S6)
    Given: Piper Warrior aircraft maintenance records.
    Performance: The student will research using the Dynamic Regulatory System and the Piper Warrior aircraft maintenance records to determine if the aircraft has complied with AD 2020-24-05.
    Standard: The student will successfully locate the AD and correctly determine if the AD has been complied with.

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AMG108 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours.

Day 1: Introduction to Inspection Tools

- Lecture (2 hours):
  - Measuring tools: calipers, micrometers, and gauges (AM.I.K.K1)
  - Calibration and tool accuracy requirements (AM.I.K.K2)
- Lab (2 hours):
  - L108.2: Use Vernier calipers (AM.I.K.S1)
    Given: Used and worn aircraft components (e.g., shafts, bearing journals, bearings, cylinders, pistons, connecting rods, crankshafts, sheet metal parts), inspection tools (micrometers, calipers, hole and snap gauges), manufacturer's service manuals, and technical data with wear limits.
    Performance: The student will perform precision measurements using Vernier calipers to determine if components are within tolerance and complete report forms or status tags.
    Standard: The inspection of components will meet tolerances in the technical data, and report forms or status tags will be correctly annotated.

Day 2: Precision Measurement Techniques

- Lecture (2 hours):
  - Risk management: Using precision measuring instruments (AM.I.K.R2)
  - Risk management: Calibration of precision measuring equipment (AM.I.K.R3)
- Lab (2 hours):
  - L108.2 (continued): Use micrometers and measurement gauges (AM.I.K.S2, AM.I.K.S3)
    Given: Used and worn aircraft components, inspection tools, and technical data with wear limits.
    Performance: The student will check for proper calibration of a micrometer, perform precision measurements using micrometers and gauges, and complete report forms or status tags indicating acceptance or rejection.
    Standard: The inspection of the micrometer and components will meet tolerances in the technical data, and report forms or status tags will be correctly annotated.

Day 3: Non-Destructive Testing (NDT) Methods

- Lecture (2 hours):
  - Nondestructive Testing (NDT) procedures and methods (AM.I.K.K3)
  - Risk management: Selection of inspection techniques (AM.I.K.R4)
- Lab (2 hours):

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- L108.4: Identify NDT methods for composite, surface metal, and subsurface metal defects (AM.I.K.S7)
  Given: A worksheet containing descriptions of various defects.
  Performance: The student will determine the correct method of inspection for each defect.
  Standard: The student will successfully determine the correct methods of inspection.

Day 4: Visual and Dye Penetrant Inspections

- Lecture (2 hours):
  - Aircraft inspection methods and tools for materials, hardware, and processes (AM.I.K.K5)
  - Risk management: Demagnetizing a component following a magnetic particle inspection (AM.I.K.R1)
- Lab (2 hours):
  - L108.3: Perform a visual inspection, perform a dye penetrant inspection (AM.I.K.S4, AM.I.K.S5)
    Given: An aircraft part with known invisible surface cracks, AC 43.13-1B and/or appropriate technical data, a dye penetrant inspection kit with applicable instructions.
    Performance: The student will perform a visual inspection of the part, clean and prep the part for inspection, perform the dye penetrant inspection according to instructions, and identify surface cracks.
    Standard: The student will perform all steps in accordance with the instructions and locate all cracks on the part.

Day 5: Composite Inspection and Risk Management

- Lecture (2 hours):
  - Aircraft inspection programs (e.g., progressive, 100-hour, annual, and other FAA-approved inspections) (AM.I.K.K4)
  - Risk management: Damage prevention to aircraft components and test equipment when using an ohmmeter (AM.I.K.R5)
- Lab (2 hours):
  - L108.5: Perform a tap test on a composite component (AM.I.K.S8)
    Given: A composite material sample with a known defect.
    Performance: The student will determine the limits of hidden damage by performing a coin tap test.
    Standard: The student will successfully determine and mark the limits of hidden damage in the composite material sample.

Day 6: Airworthiness Directives and Documentation

- Lecture (2 hours):
  - Review of inspection methods and documentation procedures
  - Importance of accurate record-keeping for airworthiness compliance
- Lab (2 hours):

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- L108.1: Inspect aircraft for compliance with an AD (AM.I.K.S6)
  Given: Piper Warrior aircraft maintenance records.
  Performance: The student will research using the Dynamic Regulatory System and the Piper Warrior aircraft maintenance records to determine if the aircraft has complied with AD 2020-24-05.
  Standard: The student will successfully locate the AD and correctly determine if the AD has been complied with.

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AMG109: Regulations, Maintenance Forms, Records, and Publications

Course Overview

- Course Code: AMG109
- Course Title: Regulations, Maintenance Forms, Records, and Publications
- Total Hours: 24 (12 Lecture, 12 Lab)
- Prerequisite: None
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General (FAA, 2023), Chapter 2: Regulations, Maintenance Forms, Records, and Publications and Chapter 13: Mechanic Privileges and Limitations

Description

This course covers aviation regulations, maintenance documentation, and the use of technical publications, emphasizing compliance with FAA and other regulatory standards. Lab work focuses on hands-on practice with documentation and regulatory research.

Learning Objectives

- Understand and apply aviation regulatory requirements.
- Complete maintenance forms and records accurately.
- Utilize technical publications for maintenance tasks.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L109.1, L109.2, L109.3, L109.4, L109.5, L109.6, L109.7, L109.8, L109.9, L109.10, L109.11). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including adherence to SDS and manual warnings, are emphasized throughout all lab activities.

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AMG109 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 4 days to complete 24 hours.

Day 1: Aviation Regulations and Mechanic Privileges

- Lecture (3 hours):
  - Privileges and limitations of a mechanic certificate (AM.I.I.K1)
  - Recent experience requirements and re-establishment (AM.I.I.K2)
  - The regulatory framework, including 14 CFR parts relevant to aircraft maintenance (AM.I.I.K8)
  - Maintenance terminology (e.g., time in service, maintenance, preventive maintenance, major/minor repairs/alterations) (AM.I.I.K6)
  - Criteria and responsibility for determining major or minor repairs/alterations (AM.I.I.K7)
  - Risk management: Completeness or accuracy of documentation (AM.I.I.R1)
- Lab (3 hours):
  - L109.7: Determine whether a given repair or alteration is major or minor (AM.I.I.S15)
    Given: A list of various aircraft repairs.
    Performance: The student will search 14 CFR Appendix A to Part 43 to determine the repair classification.
    Standard: The student will correctly classify at least 70% of the repairs.
  - L109.8: Determine applicability of approved data for a major repair, explain the difference between approved and acceptable data (AM.I.I.S16, AM.I.I.S17)
    Given: B767 Structural Repair Manual (SRM) 53-00-01 figure 1 allowable skin damage.
    Performance: The student will navigate to the referenced page, determine if a dent 0.16 inches deep is a major or minor repair, and write a statement describing the difference between approved and acceptable data.
    Standard: The student will correctly classify the dent as a major repair and provide an accurate statement on approved vs. acceptable data.

Day 2: Maintenance Forms and Records

- Lecture (3 hours):
  - Maintenance record entry for approval for return to service after maintenance, alterations, and inspections (AM.I.I.K3, AM.I.I.K4)
  - Purpose and use of FAA forms (e.g., FAA Forms 337, 8010-4, 8100-2, 8130-3) (AM.I.I.K5)
  - Risk management: Complacency during documentation phase of maintenance procedures (AM.I.I.R3)
- Lab (3 hours):
  - L109.2: Complete maintenance record entries for a recurring AD, return to service, and 100-hour inspection (AM.I.I.S4, AM.I.I.S7, AM.I.I.S18)
    Given: Blank aircraft logs.
    Performance: The student will complete log entries for the recurring AD 87-08-08 R3 Lower spar cap inspection, an aircraft maintenance entry for alternator replacement,

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and a 100-hour inspection entry for PA-28-161 s/n 28-8016115.
Standard: The student will complete all log entries accurately.

- L109.4: Complete and examine an FAA Form 337 for a major repair or alteration (AM.I.I.S1, AM.I.I.S2)
  Given: An example of a major repair.
  Performance: The student will complete an FAA Form 337 describing the repair and examine various Form 337s for accuracy.
  Standard: The student will successfully complete and verify the accuracy of the FAA Form 337.

Day 3: Technical Publications and Databases

- Lecture (3 hours):
  - Agency publications and guidance materials (e.g., aircraft specifications, TCDSs, advisory circulars, airworthiness directives) (AM.I.I.K9)
  - Alternative methods of AD compliance (AM.I.I.K10)
  - FAA databases and resources (e.g., TCDSs, supplemental type certificates) (AM.I.I.K12)
  - Manufacturer publications (e.g., maintenance manuals, service bulletins, maintenance alerts, MMEL) (AM.I.I.K11)
  - FAA-approved maintenance data and airworthiness limitations (AM.I.I.K15, AM.I.I.K17)
  - Risk management: Determination of component applicability to a given aircraft (AM.I.I.R5)
- Lab (3 hours):
  - L109.6: Determine applicability of an AD (AM.I.I.S8)
    Given: Piper Saratoga PA-32R-301T.
    Performance: The student will search the FAA Dynamic Regulatory System AD database to locate AD 2013-02-13 and determine its applicability to PA-32R-301T s/n 3257001.
    Standard: The student will successfully find the correct AD number, subject, and applicability.
  - L109.9: Locate FAA aircraft specifications and TCDS, determine maximum allowable weight (AM.I.I.S6, AM.I.I.S14)
    Given: A worksheet listing various aircraft.
    Performance: The student will search the FAA TCDS database to find the applicable TCDS and required data, including maximum allowable weight.
    Standard: The student will successfully find the TCDS, record the TCDS number, and required data.
  - L109.10: Locate supplemental type certificates (AM.I.I.S11)
    Given: Piper Saratoga PA-32R-301T.
    Performance: The student will search the FAA Dynamic Regulatory System STC database to locate STC number SA1521GL “Installation of Flap, Aileron, Flap/Fuselage, and Stabilator Gap Seals.”
    Standard: The student will successfully find the correct STC number, holder, and date of issuance.

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Day 4: Parts and Compliance Verification

- Lecture (3 hours):
  - Compliance requirements for manufacturer-specified methods, techniques, and maintenance intervals (AM.I.I.K13, AM.I.I.K14)
  - Difference between approved data and acceptable data (AM.I.I.K16)
  - Alert, caution, and warning indications in maintenance and operating manuals (AM.I.I.K18)
  - Inoperative equipment, discrepancy records, or placards (AM.I.I.K19, AM.I.I.K20)
  - Usable on (effectivity) codes and serial number effectivity in parts manuals (AM.I.I.K21, AM.I.I.K22)
  - Mechanic address change notification procedures (AM.I.I.K23)
  - Risk management: Use of SDS, adherence to warnings, cautions, or notes in manuals (AM.I.I.R2, AM.I.I.R4)
- Lab (3 hours):
  - L109.1: Determine an aircraft's inspection status (AM.I.I.S3)
    Given: Piper PA-28-160 Warrior aircraft records.
    Performance: The student will search the PA-28-161 Warrior records for the last 100-hour/annual inspection date.
    Standard: The student will successfully determine the last inspection date.
  - L109.3: Compare equipment list to installed equipment, determine conformity of instrument range markings and placarding (AM.I.I.S5, AM.I.I.S12)
    Given: Piper PA-28-161 s/n 28-8016115.
    Performance: The student will compare the equipment list with installed equipment and inspect the airspeed indicator for correct range markings and placards.
    Standard: The student will list all equipment not in the current equipment list and discrepancies with airspeed indicator markings and placards.
  - L109.5: Check TSO or PMA for proper markings (AM.I.I.S9)
    Given: Various aircraft parts.
    Performance: The student will search the FAA TSO database to find the applicable TSO and check for required TSO or PMA markings.
    Standard: The student will successfully find the TSO, record the TSO number, and verify markings.
  - L109.11: Use manufacturer’s illustrated parts catalog, determine approved replacement parts (AM.I.I.S10, AM.I.I.S13)
    Given: Seat belt p/n 564-862 and PA-28-161 Warrior IPC.
    Performance: The student will search the PA-28-161 Warrior IPC for p/n 564-862 and determine applicability to aircraft s/n 28-8016115.
    Standard: The student will determine that the p/n is not applicable and find the correct applicable p/n.

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AMG109 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours.

Day 1: Aviation Regulations and Mechanic Privileges

- Lecture (2 hours):
  - Privileges and limitations of a mechanic certificate (AM.I.I.K1)
  - Recent experience requirements and re-establishment (AM.I.I.K2)
  - The regulatory framework, including 14 CFR parts relevant to aircraft maintenance (AM.I.I.K8)
- Lab (2 hours):
  - L109.7: Determine whether a given repair or alteration is major or minor (AM.I.I.S15)
    Given: A list of various aircraft repairs.
    Performance: The student will search 14 CFR Appendix A to Part 43 to determine the repair classification.
    Standard: The student will correctly classify at least 70% of the repairs.

Day 2: Maintenance Forms and Records

- Lecture (2 hours):
  - Maintenance record entry for approval for return to service after maintenance and inspections (AM.I.I.K3, AM.I.I.K4)
  - Purpose and use of FAA forms (e.g., FAA Forms 337, 8010-4, 8100-2, 8130-3) (AM.I.I.K5)
  - Risk management: Completeness or accuracy of documentation (AM.I.I.R1)
- Lab (2 hours):
  - L109.4: Complete and examine an FAA Form 337 for a major repair or alteration (AM.I.I.S1, AM.I.I.S2)
    Given: An example of a major repair.
    Performance: The student will complete an FAA Form 337 describing the repair and examine various Form 337s for accuracy.
    Standard: The student will successfully complete and verify the accuracy of the FAA Form 337.

Day 3: Maintenance Documentation and AD Compliance

- Lecture (2 hours):
  - Maintenance terminology (e.g., time in service, maintenance, preventive maintenance, major/minor repairs/alterations) (AM.I.I.K6)
  - Criteria and responsibility for determining major or minor repairs/alterations (AM.I.I.K7)
  - Risk management: Complacency during documentation phase of maintenance procedures (AM.I.I.R3)
- Lab (2 hours):

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- L109.2: Complete maintenance record entries for a recurring AD, return to service, and 100-hour inspection (AM.I.I.S4, AM.I.I.S7, AM.I.I.S18)
  Given: Blank aircraft logs.
  Performance: The student will complete log entries for the recurring AD 87-08-08 R3 Lower spar cap inspection, an aircraft maintenance entry for alternator replacement, and a 100-hour inspection entry for PA-28-161 s/n 28-8016115.
  Standard: The student will complete all log entries accurately.

Day 4: Technical Publications and Databases

- Lecture (2 hours):
  - Agency publications and guidance materials (e.g., aircraft specifications, TCDSs, advisory circulars, airworthiness directives) (AM.I.I.K9)
  - Alternative methods of AD compliance (AM.I.I.K10)
  - FAA databases and resources (e.g., TCDSs, supplemental type certificates) (AM.I.I.K12)
- Lab (2 hours):
  - L109.6: Determine applicability of an AD (AM.I.I.S8)
    Given: Piper Saratoga PA-32R-301T.
    Performance: The student will search the FAA Dynamic Regulatory System AD database to locate AD 2013-02-13 and determine its applicability to PA-32R-301T s/n 3257001.
    Standard: The student will successfully find the correct AD number, subject, and applicability.
  - L109.9: Locate FAA aircraft specifications and TCDS, determine maximum allowable weight (AM.I.I.S6, AM.I.I.S14)
    Given: A worksheet listing various aircraft.
    Performance: The student will search the FAA TCDS database to find the applicable TCDS and required data, including maximum allowable weight.
    Standard: The student will successfully find the TCDS, record the TCDS number, and required data.

Day 5: Parts and Compliance Verification

- Lecture (2 hours):
  - Manufacturer publications (e.g., maintenance manuals, service bulletins, maintenance alerts, MMEL) (AM.I.I.K11)
  - Compliance requirements for manufacturer-specified methods, techniques, and maintenance intervals (AM.I.I.K13, AM.I.I.K14)
  - FAA-approved maintenance data and airworthiness limitations (AM.I.I.K15, AM.I.I.K17)
  - Risk management: Determination of component applicability to a given aircraft (AM.I.I.R5)
- Lab (2 hours):
  - L109.5: Check TSO or PMA for proper markings (AM.I.I.S9)
    Given: Various aircraft parts.
    Performance: The student will search the FAA TSO database to find the applicable TSO and check for required TSO or PMA markings.
    Standard: The student will successfully find the TSO, record the TSO number, and verify markings.

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- L109.11: Use manufacturer's illustrated parts catalog, determine approved replacement parts (AM.I.I.S10, AM.I.I.S13)
  Given: Seat belt p/n 564-862 and PA-28-161 Warrior IPC.
  Performance: The student will search the PA-28-161 Warrior IPC for p/n 564-862 and determine applicability to aircraft s/n 28-8016115.
  Standard: The student will determine that the p/n is not applicable and find the correct applicable p/n.

Day 6: Safety and Documentation Practices

- Lecture (2 hours):
  - Difference between approved data and acceptable data (AM.I.I.K16)
  - Alert, caution, and warning indications in maintenance and operating manuals (AM.I.I.K18)
  - Inoperative equipment, discrepancy records, or placards (AM.I.I.K19, AM.I.I.K20)
  - Usable on (effectivity) codes and serial number effectivity in parts manuals (AM.I.I.K21, AM.I.I.K22)
  - Mechanic address change notification procedures (AM.I.I.K23)
  - Risk management: Use of SDS, adherence to warnings, cautions, or notes in manuals (AM.I.I.R2, AM.I.I.R4)
- Lab (2 hours):
  - L109.1: Determine an aircraft's inspection status (AM.I.I.S3)
    Given: Piper PA-28-160 Warrior aircraft records.
    Performance: The student will search the PA-28-161 Warrior records for the last 100-hour/annual inspection date.
    Standard: The student will successfully determine the last inspection date.
  - L109.3: Compare equipment list to installed equipment, determine conformity of instrument range markings and placarding (AM.I.I.S5, AM.I.I.S12)
    Given: Piper PA-28-161 s/n 28-8016115.
    Performance: The student will compare the equipment list with installed equipment and inspect the airspeed indicator for correct range markings and placards.
    Standard: The student will list all equipment not in the current equipment list and discrepancies with airspeed indicator markings and placards.
  - L109.10: Locate supplemental type certificates (AM.I.I.S11)
    Given: Piper Saratoga PA-32R-301T.
    Performance: The student will search the FAA Dynamic Regulatory System STC database to locate STC number SA1521GL "Installation of Flap, Aileron, Flap/Fuselage, and Stabilator Gap Seals."
    Standard: The student will successfully find the correct STC number, holder, and date of issuance.

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AMG110: Weight and Balance

Course Overview

- Course Code: AMG110
- Course Title: Weight and Balance
- Total Hours: 24 (12 Lecture, 12 Lab)
- Prerequisite: High school-level mathematics or equivalent

Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 6: Aircraft Weight & Balance (FAA, 2023), AC 43.13-1B - Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair (FAA 1998), CHAPTER 10. WEIGHT AND BALANCE.

Description

This course teaches the principles of aircraft weight and balance, including calculations and adjustments to ensure safe operation. Lab work emphasizes hands-on practice with weight and balance calculations, documentation, and equipment handling.

Learning Objectives

- Perform weight and balance calculations for aircraft.
- Adjust aircraft loading to maintain balance and stability.
- Document weight and balance data accurately.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L110.1, L110.2, L110.3, L110.4, L110.5). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper handling of weighing equipment and jacking procedures, are emphasized throughout all lab activities.

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AMG110 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 4 days to complete 24 hours.

Day 1: Weight and Balance Fundamentals

- Lecture (3 hours):
  - Weight and balance terminology (AM.I.C.K1)
  - Purpose for weighing an aircraft (AM.I.C.K2)
  - Purpose and application of weight and CG limits (AM.I.C.K5)
  - Purpose of determining CG (AM.I.C.K6)
  - Risk management: Aerodynamic effect of CG that is forward or aft of CG limits (AM.I.C.R4)
- Lab (3 hours):
  - L110.3: Locate weight and balance information, datum, placarding, and limitation requirements, determine CG range (AM.I.C.S11, AM.I.C.S12, AM.I.C.S13, AM.I.C.S16)
    Given: Sample loading schedules and equipment specification for an instructor-assigned model of aircraft.
    Performance: The student will compute the effects of items installed or removed forward and aft of the CG, and prepare a loading schedule for maximum baggage, cargo load, or gross loaded CG conditions.
    Standard: The computed CG will be accurate to one-tenth of an inch, and the loading schedule will meet FAA and/or manufacturer's requirements with correct nomenclature.

Day 2: Weighing Procedures and Calculations

- Lecture (3 hours):
  - Weighing procedures, including aircraft weighing area considerations (AM.I.C.K3)
  - Procedures for calculation of arm, moment, CG, or moment index (AM.I.C.K4)
  - Jacking an aircraft (AM.I.C.K10)
  - Risk management: Situations and conditions when jacking an aircraft (AM.I.C.R1)
  - Risk management: Aircraft weighing procedures (AM.I.C.R2)
- Lab (3 hours):
  - L110.5: Research and explain procedures for weighing an aircraft, check scales for calibration, compute empty weight and CG (AM.I.C.S1, AM.I.C.S4, AM.I.C.S8)
    Given: Manufacturer's manuals, technical data, weight and balance records, and weighing equipment for an instructor-assigned aircraft.
    Performance: The student will locate and interpret information for weighing, describe procedures and precautions, identify required equipment, position jacks and scales, level the aircraft, measure moment arms, read scale weights, and compute the empty weight CG.
    Standard: The student will correctly perform the procedure and calculate the empty weight CG according to the technical data.

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Day 3: Ballast and Adverse Loading

- Lecture (3 hours):
  - Adverse loading considerations and calculating out-of-limit conditions (AM.I.C.K7)
  - Proper ballast placement (AM.I.C.K9)
  - Risk management: Aerodynamic and performance effects of weight in excess of limits (AM.I.C.R5)
- Lab (3 hours):
  - L110.1: Perform weight and balance calculations, calculate ballast weight shift, compute CG limits, correct out-of-balance condition (AM.I.C.S2, AM.I.C.S3, AM.I.C.S6, AM.I.C.S15)
    Given: Manufacturer's manuals, technical data, and weight and balance records for an instructor-assigned aircraft.
    Performance: The student will perform weight and balance calculations, record forward and rearward CG, explain hazards of exceeding limits, determine necessary ballast or loading adjustments, identify minimum/maximum fuel weight, and identify tare items.
    Standard: The student will correctly record CG and determine required ballast at a specified distance.
  - L110.4: Calculate ballast weight shift, identify tare items, correct out-of-balance condition (AM.I.C.S3, AM.I.C.S10, AM.I.C.S15)
    Given: Manufacturer's manuals, technical data, and weight and balance records for an instructor-assigned helicopter.
    Performance: The student will perform weight and balance calculations, record forward, rearward, and lateral CG, explain hazards of exceeding limits, determine necessary ballast or loading adjustments, identify minimum/maximum fuel weight, and identify tare items.
    Standard: The computed CG will be accurate to one-tenth of an inch, and the loading schedule will meet FAA and/or manufacturer's requirements with correct nomenclature.

Day 4: Equipment Changes and Documentation

- Lecture (3 hours):
  - Proper empty weight configuration (AM.I.C.K8)
  - Risk management: Use of scales (AM.I.C.R3)
- Lab (3 hours):
  - L110.2: Calculate weight and balance after equipment change, create maintenance record, calculate equipment moment, revise equipment list, complete records (AM.I.C.S5, AM.I.C.S7, AM.I.C.S9, AM.I.C.S14, AM.I.C.S17)
    Given: Manufacturer's manuals, technical data, and weight and balance records for an instructor-assigned aircraft.
    Performance: The student will perform weight and balance calculations for an avionics modification, record the new CG, revise the equipment list, calculate the moment of an equipment item, and make the correct aircraft log entry.
    Standard: The student will compute the new CG with 100% accuracy, revise the equipment list, and make the appropriate log entry to return-to-service standards.

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AMG110 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours.

Day 1: Weight and Balance Fundamentals

- Lecture (2 hours):
  - Weight and balance terminology (AM.I.C.K1)
  - Purpose for weighing an aircraft (AM.I.C.K2)
- Lab (2 hours):
  - L110.3: Locate weight and balance information, locate datum (AM.I.C.S11, AM.I.C.S12)
    Given: Sample loading schedules and equipment specification for an instructor-assigned model of aircraft.
    Performance: The student will locate weight and balance information and the datum for the assigned aircraft.
    Standard: The student will accurately locate the required information and datum per FAA and/or manufacturer's requirements.

Day 2: Weight and Balance Calculations

- Lecture (2 hours):
  - Procedures for calculation of arm, moment, CG, or moment index (AM.I.C.K4)
  - Purpose and application of weight and CG limits (AM.I.C.K5)
- Lab (2 hours):
  - L110.1: Perform weight and balance calculations, compute forward and aft loaded CG limit (AM.I.C.S2, AM.I.C.S6)
    Given: Manufacturer's manuals, technical data, and weight and balance records for an instructor-assigned aircraft.
    Performance: The student will perform weight and balance calculations, record forward and rearward CG, and compute forward and aft CG limits.
    Standard: The student will correctly record CG and compute CG limits with accuracy.

Day 3: Ballast and Adverse Loading

- Lecture (2 hours):
  - Adverse loading considerations and calculating out-of-limit conditions (AM.I.C.K7)
  - Risk management: Aerodynamic effect of CG that is forward or aft of CG limits (AM.I.C.R4)
- Lab (2 hours):
  - L110.1 (continued): Calculate ballast weight shift, correct out-of-balance condition (AM.I.C.S3, AM.I.C.S15)
    Given: Manufacturer's manuals, technical data, and weight and balance records for an instructor-assigned aircraft.

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Performance: The student will determine necessary ballast or loading adjustments to correct an out-of-balance condition and identify tare items.
Standard: The student will determine required ballast at a specified distance to meet FAA and/or manufacturer's requirements.

Day 4: Helicopter Weight and Balance

- Lecture (2 hours):
  - Proper ballast placement (AM.I.C.K9)
  - Risk management: Aerodynamic and performance effects of weight in excess of limits (AM.I.C.R5)
- Lab (2 hours):
  - L110.4: Calculate ballast weight shift, identify tare items, correct out-of-balance condition (AM.I.C.S3, AM.I.C.S10, AM.I.C.S15)
    Given: Manufacturer's manuals, technical data, and weight and balance records for an instructor-assigned helicopter.
    Performance: The student will perform weight and balance calculations, record forward, rearward, and lateral CG, determine necessary ballast or loading adjustments, identify minimum/maximum fuel weight, and identify tare items.
    Standard: The computed CG will be accurate to one-tenth of an inch, and the loading schedule will meet FAA and/or manufacturer's requirements with correct nomenclature.

Day 5: Weighing Procedures

- Lecture (2 hours):
  - Weighing procedures, including aircraft weighing area considerations (AM.I.C.K3)
  - Jacking an aircraft (AM.I.C.K10)
  - Risk management: Situations and conditions when jacking an aircraft (AM.I.C.R1)
  - Risk management: Aircraft weighing procedures (AM.I.C.R2)
- Lab (2 hours):
  - L110.5: Research and explain procedures for weighing an aircraft, check scales for calibration (AM.I.C.S1, AM.I.C.S4)
    Given: Manufacturer's manuals, technical data, and weighing equipment for an instructor-assigned aircraft.
    Performance: The student will locate and interpret information for weighing, describe procedures and precautions, identify required equipment, and check scales for calibration.
    Standard: The student will correctly perform the procedure and verify scale calibration according to the technical data.

Day 6: Equipment Changes and Documentation

- Lecture (2 hours):
  - Proper empty weight configuration (AM.I.C.K8)
  - Risk management: Use of scales (AM.I.C.R3)
- Lab (2 hours):

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- L110.2: Calculate weight and balance after equipment change, create maintenance record, calculate equipment moment, revise equipment list, complete records (AM.I.C.S5, AM.I.C.S7, AM.I.C.S9, AM.I.C.S14, AM.I.C.S17)
  Given: Manufacturer's manuals, technical data, and weight and balance records for an instructor-assigned aircraft.
  Performance: The student will perform weight and balance calculations for an avionics modification, record the new CG, revise the equipment list, calculate the moment of an equipment item, and make the correct aircraft log entry.
  Standard: The student will compute the new CG with 100% accuracy, revise the equipment list, and make the appropriate log entry to return-to-service standards.

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AMG111: Ground Operations and Servicing

Course Overview

- Course Code: AMG111
- Course Title: Ground Operations and Servicing
- Total Hours: 24 (12 Lecture, 12 Lab)
- Prerequisite: None
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 1: Safety, Ground Operations, & Servicing (FAA, 2023)

Description

This course covers ground handling, servicing, and safety procedures for aircraft operations, including towing, fueling, and pre-flight checks. Lab work emphasizes hands-on practice to ensure compliance with safety protocols and operational standards.

Learning Objectives

- Execute safe ground handling and servicing procedures.
- Perform pre-flight and post-flight servicing tasks.
- Ensure compliance with ground operation safety protocols.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L111.1, L111.2, L111.3, L111.4, L111.5, L111.6, L111.7, L111.8). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook for additional examples and practice problems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including PPE, SDS adherence, and FOD prevention, are emphasized throughout all lab activities.

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AMG111 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 4 days to complete 24 hours.

Day 1: Ground Handling and Safety

- Lecture (3 hours):
  - Aircraft towing procedures (AM.I.F.K1)
  - Aircraft securing procedures (AM.I.F.K2)
  - Airport operation area procedures and ATC communications, including runway incursion prevention (AM.I.F.K4)
  - Risk management: Preparing to tow an aircraft (AM.I.F.R5)
  - Risk management: Ground operation of aircraft in the vicinity of other aircraft or ground support equipment (AM.I.F.R7)
- Lab (3 hours):
  - L111.2: Secure an aircraft (AM.I.F.S1)
    Given: Aircraft for outside storage, written storage procedures, and necessary securing equipment.
    Performance: The student will prepare an aircraft for outside storage, analyzing weather conditions and location constraints, and secure the aircraft for normal weather conditions.
    Standard: The aircraft will be tied down and secured to prevent damage under normal weather conditions.
  - L111.5: Use appropriate hand signals for the movement of aircraft (AM.I.F.S5)
    Given: Hand signal instructions, an operational aircraft, and manufacturer's service manuals or technical data.
    Performance: The student will use accepted hand signals to direct aircraft movement during towing, taxiing, or parking, and follow hand signals while moving an aircraft.
    Standard: Signals will be sharp, clear, and conform to technical data; responses to signals will be prompt and safe within a prescribed area.
  - L111.6: Prepare an aircraft for towing (AM.I.F.S2)
    Given: Boeing 767 AMM Chapter 9.
    Performance: The student will locate and describe the towing procedures for the B767.
    Standard: The towing procedures will align with B767 AMM Chapter 9-00.

Day 2: Fueling and Fire Safety

- Lecture (3 hours):
  - Aviation fueling/defueling procedures (AM.I.F.K3)
  - Characteristics of aviation gasoline and turbine fuels, including types and identification (AM.I.F.K9)
  - Fuel additives commonly used in the field (AM.I.F.K10)
  - Use of approved grades/types of fuel in aircraft engines (AM.I.F.K11)
  - Types/classes of fire extinguishers and procedures (AM.I.F.K6)

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    - Risk management: Misfueling and using incorrect or contaminated fuel (AM.I.F.R2)
    - Risk management: Fueling/defueling ungrounded aircraft or using improper equipment (AM.I.F.R9)
- Lab (3 hours):
    - L111.1: Identify procedures for extinguishing fires in an engine induction system (AM.I.F.S8)
      Given: Approved aircraft fire extinguisher equipment and technical data on fire extinguishment.
      Performance: The student will explain the procedure to extinguish burning fuel and take proper firefighting action for a simulated aircraft induction system fire.
      Standard: The explanation will align with provided procedures.
    - L111.7: Identify different grades of aviation fuel (AM.I.F.S10)
      Given: Aircraft operator's manual, a list of colors and octane ratings, and a fuel system of an airplane.
      Performance: The student will obtain fuel samples, identify the fuel, verify the minimum required octane rating, associate colors with octane ranges, and discuss volatility and turbine fuel characteristics.
      Standard: The student will correctly identify color, octane rating, and characteristics of each fuel sample.
    - L111.8: Prepare an aircraft for fueling, inspect fuel system for contamination, select approved fuel (AM.I.F.S6, AM.I.F.S7, AM.I.F.S12)
      Given: An aircraft requiring fuel, refueling and safety/protective equipment, and an airplane fueling procedures manual with fuel charts or technical data.
      Performance: The student will determine remaining fuel, select approved fuel, explain fueling hazards, simulate fueling per technical data, and inspect the fuel system for water and FOD contamination.
      Standard: Fueling will be accomplished per technical data with all safety precautions, and the student will correctly identify fuel grades and inspect for contamination.

Day 3: Engine Operations and Servicing

- Lecture (3 hours):
    - Engine starting, ground operation, and aircraft taxiing procedures (AM.I.F.K5)
    - Aircraft oil, hydraulic, pneumatic, and deicing servicing procedures (AM.I.F.K7)
    - Oxygen system servicing procedures (AM.I.F.K8)
    - Risk management: Engine start/run-up without using a checklist (AM.I.F.R3)
    - Risk management: Engine starting and operation while troubleshooting or adjusting engine controls (AM.I.F.R8)
    - Risk management: Oxygen system servicing (AM.I.F.R4)
- Lab (3 hours):
    - L111.3: Follow a checklist to start up or shut down an aircraft engine, perform a FOD control procedure, connect external power (AM.I.F.S3, AM.I.F.S4, AM.I.F.S9)
      Given: An aircraft with an operational engine or engine on a run stand, external power cart, manufacturer's operating procedures, and technical data for engine and auxiliary power requirements.
      Performance: The student will select, connect, and operate an external power source, identify hazards of ground engine operation, perform a FOD walk inspection, and start,

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operate, and shut down the engine per technical data.
Standard: Auxiliary power will be operated as specified, the FOD walk will be satisfactory, and all engine operations will comply with technical data.

- L111.4: Identify procedures for securing a turbine-powered aircraft after engine shutdown (AM.I.F.S11)
  Given: Access to the B767 AMM Chapter 71.
  Performance: The student will identify the procedures for securing the aircraft after an engine run.
  Standard: The student will correctly identify the normal shutdown procedures as described in B767 AMM Chapter 71 page 253.

Day 4: Ground Safety and Material Handling

- Lecture (3 hours):
  - Tool and hardware use and accountability (AM.I.F.K12)
  - Material handling (AM.I.F.K13)
  - Parts protections (AM.I.F.K14)
  - Hazardous materials, Safety Data Sheets (SDS), and PPE (AM.I.F.K15)
  - Foreign object damage effects (AM.I.F.K16)
  - Risk management: Ground operation of an aircraft engine with cowling removed contrary to manufacturer instructions (AM.I.F.R6)
  - Risk management: Connecting external power equipment to an aircraft (AM.I.F.R10)
- Lab (3 hours):
  - L111.3 (continued): Perform a foreign object damage control procedure (AM.I.F.S4)
    Given: An aircraft with an operational engine or engine on a run stand and technical data.
    Performance: The student will perform a FOD walk inspection around the aircraft prior to engine runs.
    Standard: The FOD walk will be performed in a satisfactory manner acceptable to the instructor.
  - L111.8 (continued): Prepare an aircraft for fueling (AM.I.F.S6)
    Given: An aircraft requiring fuel, refueling and safety/protective equipment, and technical data.
    Performance: The student will demonstrate proper use of PPE and adherence to SDS while preparing the aircraft for fueling.
    Standard: The student will follow safety protocols and technical data during fueling preparation.

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AMG111 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours.

Day 1: Ground Handling and Towing

- Lecture (2 hours):
  - Aircraft towing procedures (AM.I.F.K1)
  - Airport operation area procedures and ATC communications, including runway incursion prevention (AM.I.F.K4)
  - Risk management: Preparing to tow an aircraft (AM.I.F.R5)
- Lab (2 hours):
  - L111.5: Use appropriate hand signals for the movement of aircraft (AM.I.F.S5)
    Given: Hand signal instructions, an operational aircraft, and manufacturer's service manuals or technical data.
    Performance: The student will use accepted hand signals to direct aircraft movement during towing, taxiing, or parking, and follow hand signals while moving an aircraft.
    Standard: Signals will be sharp, clear, and conform to technical data; responses to signals will be prompt and safe within a prescribed area.
  - L111.6: Prepare an aircraft for towing (AM.I.F.S2)
    Given: Boeing 767 AMM Chapter 9.
    Performance: The student will locate and describe the towing procedures for the B767.
    Standard: The towing procedures will align with B767 AMM Chapter 9-00.

Day 2: Aircraft Securing and Safety

- Lecture (2 hours):
  - Aircraft securing procedures (AM.I.F.K2)
  - Risk management: Ground operation of aircraft in the vicinity of other aircraft or ground support equipment (AM.I.F.R7)
- Lab (2 hours):
  - L111.2: Secure an aircraft (AM.I.F.S1)
    Given: Aircraft for outside storage, written storage procedures, and necessary securing equipment.
    Performance: The student will prepare an aircraft for outside storage, analyzing weather conditions and location constraints, and secure the aircraft for normal weather conditions.
    Standard: The aircraft will be tied down and secured to prevent damage under normal weather conditions.

Day 3: Fueling Procedures

- Lecture (2 hours):

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  - Aviation fueling/defueling procedures (AM.I.F.K3)
  - Characteristics of aviation gasoline and turbine fuels, including types and identification (AM.I.F.K9)
  - Use of approved grades/types of fuel in aircraft engines (AM.I.F.K11)
  - Risk management: Misfueling and using incorrect or contaminated fuel (AM.I.F.R2)
- Lab (2 hours):
  - L111.7: Identify different grades of aviation fuel (AM.I.F.S10)
    Given: Aircraft operator's manual, a list of colors and octane ratings, and a fuel system of an airplane.
    Performance: The student will obtain fuel samples, identify the fuel, verify the minimum required octane rating, associate colors with octane ranges, and discuss volatility and turbine fuel characteristics.
    Standard: The student will correctly identify color, octane rating, and characteristics of each fuel sample.
  - L111.8: Prepare an aircraft for fueling, inspect fuel system for contamination, select approved fuel (AM.I.F.S6, AM.I.F.S7, AM.I.F.S12)
    Given: An aircraft requiring fuel, refueling and safety/protective equipment, and an airplane fueling procedures manual with fuel charts or technical data.
    Performance: The student will determine remaining fuel, select approved fuel, explain fueling hazards, simulate fueling per technical data, and inspect the fuel system for water and FOD contamination.
    Standard: Fueling will be accomplished per technical data with all safety precautions, and the student will correctly identify fuel grades and inspect for contamination.

Day 4: Fire Safety and Fuel Additives

- Lecture (2 hours):
  - Types/classes of fire extinguishers and procedures (AM.I.F.K6)
  - Fuel additives commonly used in the field (AM.I.F.K10)
  - Risk management: Fueling/defueling ungrounded aircraft or using improper equipment (AM.I.F.R9)
- Lab (2 hours):
  - L111.1: Identify procedures for extinguishing fires in an engine induction system (AM.I.F.S8)
    Given: Approved aircraft fire extinguisher equipment and technical data on fire extinguishment.
    Performance: The student will explain the procedure to extinguish burning fuel and take proper firefighting action for a simulated aircraft induction system fire.
    Standard: The explanation will align with provided procedures.

Day 5: Engine Operations

- Lecture (2 hours):
  - Engine starting, ground operation, and aircraft taxiing procedures (AM.I.F.K5)
  - Risk management: Engine start/run-up without using a checklist (AM.I.F.R3)
  - Risk management: Engine starting and operation while troubleshooting or adjusting engine controls (AM.I.F.R8)

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- Lab (2 hours):
    - L111.3: Follow a checklist to start up or shut down an aircraft engine, perform a FOD control procedure (AM.I.F.S3, AM.I.F.S4)
      Given: An aircraft with an operational engine or engine on a run stand, manufacturer's operating procedures, and technical data.
      Performance: The student will identify hazards of ground engine operation, perform a FOD walk inspection, and start, operate, and shut down the engine per technical data.
      Standard: The FOD walk will be satisfactory, and all engine operations will comply with technical data.

Day 6: Servicing and Material Handling

- Lecture (2 hours):
    - Aircraft oil, hydraulic, pneumatic, and deicing servicing procedures (AM.I.F.K7)
    - Oxygen system servicing procedures (AM.I.F.K8)
    - Tool and hardware use and accountability (AM.I.F.K12)
    - Material handling and parts protections (AM.I.F.K13, AM.I.F.K14)
    - Hazardous materials, Safety Data Sheets (SDS), and PPE (AM.I.F.K15)
    - Foreign object damage effects (AM.I.F.K16)
    - Risk management: Oxygen system servicing (AM.I.F.R4)
    - Risk management: Connecting external power equipment to an aircraft (AM.I.F.R10)
    - Risk management: Ground operation of an aircraft engine with cowling removed contrary to manufacturer instructions (AM.I.F.R6)
- Lab (2 hours):
    - L111.3 (continued): Connect external power to an aircraft (AM.I.F.S9)
      Given: An aircraft and external power cart, auxiliary power requirements, and technical data.
      Performance: The student will select, connect, and operate an external power source.
      Standard: Auxiliary power will be operated as specified.
    - L111.4: Identify procedures for securing a turbine-powered aircraft after engine shutdown (AM.I.F.S11)
      Given: Access to the B767 AMM Chapter 71.
      Performance: The student will identify the procedures for securing the aircraft after an engine run.
      Standard: The student will correctly identify the normal shutdown procedures as described in B767 AMM Chapter 71 page 253.

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AMG112: Human Factors

Course Overview

- Course Code: AMG112
- Course Title: Human Factors
- Total Hours: 12 (6 Lecture, 6 Lab)
- Prerequisite: None
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General, Chapter 14: Human Factors (FAA, 2023)

Description

This course examines human factors affecting aviation maintenance, focusing on error prevention, teamwork, and situational awareness. Lab work emphasizes practical application of strategies to minimize errors and enhance communication in maintenance operations.

Learning Objectives

- Recognize human factors that impact maintenance safety.
- Apply strategies to minimize errors in maintenance tasks.
- Foster effective communication and teamwork in maintenance operations.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L112.1, L112.2, L112.3). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-30B handbook, Chapter 14, for additional examples and case studies on human factors.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Emphasis is placed on fostering a safety culture, effective communication, and error mitigation strategies throughout all lab activities.

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AMG112 DAY Course Schedule

Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 2 days to complete 12 hours.

Day 1: Understanding Human Factors and Error Prevention

- Lecture (3 hours):
  - Safety culture and organizational factors (AM.I.L.K1)
  - Human error principles (AM.I.L.K2)
  - Types of human errors (AM.I.L.K11)
  - Human performance and limitations (AM.I.L.K4)
  - Conditions/preconditions for unsafe acts (AM.I.L.K10)
  - Risk management: Fatigue management and fitness for duty (AM.I.L.R2)
- Lab (3 hours):
  - L112.3: Locate information regarding human factors errors (AM.I.L.S3)
    Given: The students will watch the video entitled *Case Study: Crossed Wires*.
    Performance: The student will identify human factor errors in the video and indicate corrective actions to mitigate the issues, followed by watching *Case Study: The Right Connections* to reinforce learning.
    Standard: The student will accurately identify at least 70% of the human factor errors and propose appropriate corrective actions based on the video content and FAA-H-8083-30B guidelines.

Day 2: Communication, Teamwork, and Reporting

- Lecture (3 hours):
  - Event investigation (AM.I.L.K3)
  - Communication/reporting of hazards (AM.I.L.K6)
  - Teamwork and leadership (AM.I.L.K7)
  - Professionalism and integrity (AM.I.L.K8)
  - Shift and task turnover (AM.I.L.K9)
  - Physical and social environment (AM.I.L.K5)
  - Risk management: Selective reporting of hazards (AM.I.L.R1)
  - Risk management: Non-invasive, condition-monitoring technologies (AM.I.L.R3)
- Lab (3 hours):
  - L112.1: File a Malfunction or Defect Report (AM.I.L.S1)
    Given: A scenario where the owner of a Piper Warrior detected a fuel odor during flight, performed a normal landing, and observed fuel leaking from the lower engine cowl after shutdown; an FAA Form 8010-4 Malfunction or Defect Report.
    Performance: The student will source the FAA Form 8010-4 and complete it with accurate findings based on the scenario.
    Standard: The student will correctly complete the FAA Form 8010-4, including all required details per FAA guidelines.

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- L112.2: Brief a shift turnover for continuity of work (AM.I.L.S2)
  Given: A scenario where the student is a mechanic performing an annual inspection on a Piper Warrior during the 1st shift and needs to write a shift turnover report for the 2nd shift.
  Performance: The student will complete a shift turnover report indicating the status of the annual inspection, completed items, incomplete items, and parts on order.
  Standard: The shift turnover report will be clear, accurate, and include all necessary details to ensure continuity of work per FAA-H-8083-30B guidelines.

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AMG112 NIGHT Course Schedule

Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 3 days to complete 12 hours.

Day 1: Human Error and Safety Culture

- Lecture (2 hours):
  - Safety culture and organizational factors (AM.I.L.K1)
  - Human error principles (AM.I.L.K2)
  - Types of human errors (AM.I.L.K11)
  - Risk management: Fatigue management and fitness for duty (AM.I.L.R2)
- Lab (2 hours):
  - L112.3: Locate information regarding human factors errors (AM.I.L.S3)
    Given: The students will watch the video entitled *Case Study: Crossed Wires*.
    Performance: The student will identify human factor errors in the video and indicate corrective actions to mitigate the issues.
    Standard: The student will accurately identify at least 70% of the human factor errors and propose appropriate corrective actions based on the video content and FAA-H-8083-30B guidelines.

Day 2: Human Performance and Teamwork

- Lecture (2 hours):
  - Human performance and limitations (AM.I.L.K4)
  - Conditions/preconditions for unsafe acts (AM.I.L.K10)
  - Teamwork and leadership (AM.I.L.K7)
  - Professionalism and integrity (AM.I.L.K8)
- Lab (2 hours):
  - L112.2: Brief a shift turnover for continuity of work (AM.I.L.S2)
    Given: A scenario where the student is a mechanic performing an annual inspection on a Piper Warrior during the 1st shift and needs to write a shift turnover report for the 2nd shift.
    Performance: The student will complete a shift turnover report indicating the status of the annual inspection, completed items, incomplete items, and parts on order.
    Standard: The shift turnover report will be clear, accurate, and include all necessary details to ensure continuity of work per FAA-H-8083-30B guidelines.

Day 3: Communication and Reporting

- Lecture (2 hours):
  - Event investigation (AM.I.L.K3)
  - Communication/reporting of hazards (AM.I.L.K6)
  - Shift and task turnover (AM.I.L.K9)

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  - Physical and social environment (AM.I.L.K5)
  - Risk management: Selective reporting of hazards (AM.I.L.R1)
  - Risk management: Non-invasive, condition-monitoring technologies (AM.I.L.R3)
- Lab (2 hours):
  - L112.1: File a Malfunction or Defect Report (AM.I.L.S1)
    Given: A scenario where the owner of a Piper Warrior detected a fuel odor during flight, performed a normal landing, and observed fuel leaking from the lower engine cowl after shutdown; an FAA Form 8010-4 Malfunction or Defect Report.
    Performance: The student will source the FAA Form 8010-4 and complete it with accurate findings based on the scenario.
    Standard: The student will correctly complete the FAA Form 8010-4, including all required details per FAA guidelines.
  - L112.3 (continued): Locate information regarding human factors errors (AM.I.L.S3)
    Given: The students will watch the video entitled *Case Study: The Right Connections*.
    Performance: The student will reinforce learning by identifying additional human factor errors and corrective actions from the video.
    Standard: The student will accurately identify at least 70% of the human factor errors and propose appropriate corrective actions based on the video content and FAA-H-8083-30B guidelines.

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AMG-RE: General Review and Exam

Course Overview

- Course Code: AMG-RE
- Course Title: General Review and Exam
- Total Hours: 24 (24 Lecture, 0 Lab)
- Target Audience: Aviation Maintenance Technician students preparing for FAA certification
- Prerequisite: Completion of all AMG courses (AMG101 to AMG112)
- Textbook: FAA-H-8083-30B Aviation Maintenance Technician Handbook-General (FAA, 2023)

Description

This course provides a comprehensive review of all AMG courses, preparing students for the final examination. Focuses on reinforcing key concepts and addressing knowledge gaps.
Learning Objectives

- Synthesize knowledge from all AMG courses.
- Demonstrate mastery of aviation maintenance concepts.
- Successfully complete the program's final examination.

Assessment

- Final Exam (100%): Comprehensive exam covering knowledge from all AMG courses, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- This course is designed to consolidate knowledge from AMG101 to AMG112, with no new lab activities.
- Students are encouraged to review FAA-H-8083-30B handbook chapters relevant to each AMG course for reinforcement.
- Emphasis on interactive Q&A to address individual knowledge gaps and prepare for FAA certification.
- No lab performance assessment due to the review nature of the course; focus is on synthesis and examination.

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AMG-RE DAY Course Schedule

Course Schedule

6-hour instructional days, all lecture, totaling 4 days to complete 24 hours.

Day 1: Review of Foundations

- Lecture (6 hours):
    - Review AMG101: Mathematics in Aviation Maintenance (algebra, geometry, trigonometry, measurements)
    - Review AMG102: Physics for Aviation (mechanics, thermodynamics, fluid dynamics)
    - Review AMG103: Aircraft Drawings (interpreting blueprints, schematics, diagrams)
    - Q&A and problem-solving exercises

Day 2: Review of Electrical and Materials

- Lecture (6 hours):
    - Review AMG104: Fundamentals of Electricity and Electronics (circuits, troubleshooting, batteries)
    - Review AMG105: Aircraft Material Hardware and Processes (materials, fasteners, measurements)
    - Review AMG106: Cleaning and Corrosion Control (cleaning procedures, corrosion prevention)
    - Q&A and case studies

Day 3: Review of Operations and Regulations

- Lecture (6 hours):
    - Review AMG107: Fluid Lines and Fittings (installation, inspection, troubleshooting)
    - Review AMG108: Inspection Concepts and Techniques (visual, NDT inspections)
    - Review AMG109: Regulations, Maintenance Forms, Records, and Publications (FAA regulations, documentation)
    - Review AMG110: Weight and Balance (calculations, adjustments)
    - Q&A and regulatory compliance exercises

Day 4: Review of Advanced Topics and Final Exam

- Lecture (4 hours):
    - Review AMG111: Ground Operations and Servicing (towing, fueling, safety procedures)

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- Review AMG112: Human Factors (error prevention, teamwork, situational awareness)
- Comprehensive Q&A and knowledge gap addressing

- Final Exam (2 hours):
  - Comprehensive exam covering all AMG courses

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AMG-RE NIGHT Course Schedule

Course Schedule

4-hour instructional days, all lecture, totaling 6 days to complete 24 hours.

Day 1: Review of Mathematics and Physics

- Lecture (4 hours):
    - Review AMG101: Mathematics in Aviation Maintenance (algebra, geometry, trigonometry, measurements)
    - Review AMG102: Physics for Aviation (mechanics, thermodynamics, fluid dynamics)
    - Q&A and problem-solving exercises

Day 2: Review of Drawings and Electricity

- Lecture (4 hours):
    - Review AMG103: Aircraft Drawings (interpreting blueprints, schematics, diagrams)
    - Review AMG104: Fundamentals of Electricity and Electronics (circuits, troubleshooting, batteries)
    - Q&A and case studies

Day 3: Review of Materials and Corrosion

- Lecture (4 hours):
    - Review AMG105: Aircraft Material Hardware and Processes (materials, fasteners, measurements)
    - Review AMG106: Cleaning and Corrosion Control (cleaning procedures, corrosion prevention)
    - Q&A and practical application exercises

Day 4: Review of Fluid Lines and Inspections

- Lecture (4 hours):
    - Review AMG107: Fluid Lines and Fittings (installation, inspection, troubleshooting)
    - Review AMG108: Inspection Concepts and Techniques (visual, NDT inspections)
    - Q&A and inspection procedure discussions

Day 5: Review of Regulations and Weight

- Lecture (4 hours):
    - Review AMG109: Regulations, Maintenance Forms, Records, and Publications (FAA regulations, documentation)

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- Review AMG110: Weight and Balance (calculations, adjustments)
- Q&A and regulatory compliance exercises

Day 6: Review of Operations, Human Factors, and Final Exam

- Lecture (3 hours):
  - Review AMG111: Ground Operations and Servicing (towing, fueling, safety procedures)
  - Review AMG112: Human Factors (error prevention, teamwork, situational awareness)
  - Comprehensive Q&A and knowledge gap addressing
- Final Exam (2 hours):
  - Comprehensive exam covering all AMG courses

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Airframe Program Curriculum Content

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AMA201.1: Metallic Structures

Course Overview

- Course Code: AMA201.1
- Course Title: Metallic Structures
- Total Hours: 84 (23 Lecture, 60 Lab, 1 Final Exam)
- Prerequisite: Completion of APMI AMT General Program
- Textbooks: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe (FAA, 2023), Chapter 4: Aircraft Metal Structural Repair and AC 43.13-1B - Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair (FAA 1998), CHAPTER 4. METAL STRUCTURE, WELDING, AND BRAZING.

Description

This course covers the design, construction, and repair of metallic aircraft structures, including sheet metal, riveting, and welding techniques. Extensive lab work focuses on practical applications to ensure proficiency in structural repairs.

Learning Objectives

- Understand the properties and applications of metallic materials in aircraft.
- Perform sheet metal repairs and riveting per industry standards.
- Apply welding techniques for aircraft structural repairs.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L201.1, L201.2, L201.3). All labs must be completed and passed.

Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 4, for additional examples and technical guidance.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper handling of welding gases, PPE, and sheet metal tools, are emphasized throughout all lab activities.

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AMA201.1 DAY Course Schedule

6-hour instructional days, with each day including lecture and lab components, totaling 14 days to complete 83 hours of instruction plus 1 hour for the final exam.

Day 1: Introduction to Metallic Structures

- Lecture (2 hours):
  - Types of structures and their characteristics (AM.II.A.K17)
  - Inspection/testing of metal structures (AM.II.A.K1)
  - Types of sheet metal defects (AM.II.A.K2)
- Lab (4 hours):
  - L201.1 (Part 1): Determine extent of damage and decide if metallic structure is repairable (AM.II.A.S14)
    Given: Cessna 172 Service Manual 1977-1986.
    Performance: The student will navigate to Section 18 and use Figure 18-4 to determine if a 1-inch diameter puncture in a fuselage skin is repairable.
    Standard: The student will correctly navigate to the appropriate section and determine repairability per the manual.

Day 2: Sheet Metal Repair Materials and Layout

- Lecture (2 hours):
  - Selection of sheet metal repair materials (AM.II.A.K3)
  - Layout, forming, and drilling of sheet metal components (AM.II.A.K4)
- Lab (4 hours):
  - L201.1 (Part 2): Design a repair using a Manufacturer's Structural Repair Manual, make a drawing of a repair (AM.II.A.S5, AM.II.A.S7)
    Given: Cessna 172 Service Manual 1977-1986, drawing tools.
    Performance: The student will design and draw a rectangular flush patch repair for a 1-inch diameter skin puncture with a material thickness of 0.025, indicating all materials, fasteners, dimensions, and rivet patterns.
    Standard: The drawing will meet return-to-service standards, including all required details per Figure 18-4.

Day 3: Rivet Selection and Patterns

- Lecture (2 hours):
  - Selection of rivets, hardware, and fasteners for sheet metal repair (AM.II.A.K5)
  - Rivet layout (AM.II.A.K7)
- Lab (4 hours):
  - L201.1 (Part 3): Determine a rivet pattern for a specific repair (AM.II.A.S11)
    Given: Repair drawing from Lab L201.1.
    Performance: The student will determine the rivet pattern for the rectangular flush patch repair.
    Standard: The rivet pattern will align with Cessna 172 Service Manual specifications and return-to-service standards.

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Day 4: Rivet Installation and Removal

- Lecture (2 hours):
  - Rivet removal and installation methods (AM.II.A.K8)
  - Maintenance safety practices/precautions for sheet metal repairs (AM.II.A.K9)
- Lab (4 hours):
  - L201.2 (Part 1): Install and remove solid rivets, install and remove a blind rivet (AM.II.A.S1, AM.II.A.S2)
    Given: Repair drawing from Lab L201.1, fuselage mockup or simulated fuselage section, riveting tools.
    Performance: The student will install and remove solid and blind rivets on a fuselage mockup.
    Standard: Rivet installation and removal will meet FAA-H-8083-31B standards.

Day 5: Sheet Metal Fabrication

- Lecture (2 hours):
  - Heat treatment processes for aluminum (AM.II.A.K6)
- Lab (4 hours):
  - L201.2 (Part 2): Trim and form a piece of sheet metal, fabricate an aluminum part (AM.II.A.S9, AM.II.A.S10)
    Given: Repair drawing from Lab L201.1, aluminum sheet, forming tools.
    Performance: The student will trim and form a piece of sheet metal and fabricate an aluminum part per the repair drawing.
    Standard: The fabricated part will match the drawing specifications with return-to-service accuracy.

Day 6: Sheet Metal Repair Techniques

- Lecture (1 hour):
  - Review of sheet metal repair techniques
- Lab (5 hours):
  - L201.2 (Part 3): Determine applicability of sheet metal for a repair, perform a repair on a damaged aluminum sheet (AM.II.A.S3, AM.II.A.S13)
    Given: Repair drawing from Lab L201.1, fuselage mockup, aluminum sheet.
    Performance: The student will select appropriate sheet metal for the repair and perform a repair on a damaged aluminum sheet.
    Standard: The repair will meet FAA-H-8083-31B and Cessna 172 Service Manual standards.

Day 7: Special Fasteners and Countersinking

- Lecture (1 hour):
  - Selection and use of special purpose fasteners (AM.II.A.K5)
- Lab (5 hours):
  - L201.2 (Part 4): Select and install special purpose fasteners, countersink rivet holes (AM.II.A.S4, AM.II.A.S12)

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Given: Repair drawing from Lab L201.1, fuselage mockup, special fasteners, countersinking tools.
Performance: The student will select and install special purpose fasteners and countersink rivet holes in sheet metal.
Standard: Fastener installation and countersinking will comply with FAA-H-8083-31B standards.

Day 8: Patch Installation

- Lecture (1 hour):
  - Procedures for installing patches
- Lab (5 hours):
  - L201.2 (Part 5): Prepare and install a patch to repair an aircraft or component (AM.II.A.S6)
    Given: Repair drawing from Lab L201.1, fuselage mockup, repair materials.
    Performance: The student will prepare and install a rectangular flush patch per the repair drawing.
    Standard: The patch installation will meet return-to-service standards per Cessna 172 Service Manual.

Day 9: Weld Repairs

- Lecture (2 hours):
  - Types of steel tubing welding repairs (AM.II.A.K15)
  - Procedures for weld repairs (AM.II.A.K16)
- Lab (4 hours):
  - L201.3: Perform a weld repair on steel tubing
    Given: Steel tubing, welding equipment, technical data.
    Performance: The student will perform a weld repair on a steel tubing sample per FAA-H-8083-31B guidelines.
    Standard: The weld repair will meet FAA standards for structural integrity.

Day 10: Flame Welding

- Lecture (2 hours):
  - Flame welding gases (AM.II.A.K10)
  - Storage/handling of welding gases (AM.II.A.K11)
  - Flame welding practices and techniques (AM.II.A.K12)
- Lab (4 hours):
  - L201.3 (continued): Perform a flame weld repair
    Given: Steel tubing, flame welding equipment, technical data.
    Performance: The student will perform a flame weld repair on a steel tubing sample.
    Standard: The weld will conform to FAA-H-8083-31B standards.

Day 11: Inert-Gas Welding

- Lecture (2 hours):

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    - Inert-gas welding practices and techniques (AM.II.A.K13)
    - Purpose and types of shielding gases (AM.II.A.K14)
- Lab (4 hours):
    - L201.3 (continued): Perform an inert-gas weld repair
      Given: Steel tubing, inert-gas welding equipment, technical data.
      Performance: The student will perform an inert-gas weld repair on a steel tubing sample.
      Standard: The weld will meet FAA-H-8083-31B standards for structural integrity.

Day 12: Weld Safety and Review

- Lecture (1 hour):
    - Maintenance safety practices/precautions for welding (AM.II.A.K9)
- Lab (5 hours):
    - L201.3 (continued): Practice weld repairs with safety protocols
      Given: Steel tubing, welding equipment, PPE, technical data.
      Performance: The student will perform weld repairs while adhering to safety protocols for handling welding gases and equipment.
      Standard: Welds will meet FAA standards, and safety protocols will be followed per FAA-H-8083-31B.

Day 13: Repair Removal

- Lecture (1 hour):
    - Review of rivet removal techniques
- Lab (5 hours):
    - L201.2 (Part 6): Remove a repair that was installed with rivets (AM.II.A.S8)
      Given: Fuselage mockup with a riveted repair, rivet removal tools.
      Performance: The student will remove a riveted repair from the fuselage mockup.
      Standard: The removal process will avoid damage to the surrounding structure and comply with FAA-H-8083-31B standards.

Day 14: Final Review and Examination

- Lecture (4 hours):
    - Comprehensive review of metallic structures, sheet metal repairs, riveting, and welding techniques
- Lab (1 hour):
    - L201.2 (Part 8): Final practical assessment
      Given: Fuselage mockup, repair drawing, repair materials.
      Performance: The student will perform a complete sheet metal repair, including rivet installation and patch application.
      Standard: The repair will meet return-to-service standards per FAA-H-8083-31B and Cessna 172 Service Manual.
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

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AMA201.1 NIGHT Course Schedule

4-hour instructional days, with each day including lecture and lab components, totaling 21 days to complete 83 hours of instruction plus 1 hour for the final exam.

Day 1: Introduction to Metallic Structures

- Lecture (1 hour):
  - Types of structures and their characteristics (AM.II.A.K17)
  - Inspection/testing of metal structures (AM.II.A.K1)
- Lab (3 hours):
  - L201.1 (Part 1): Determine extent of damage and decide if metallic structure is repairable (AM.II.A.S14)
    Given: Cessna 172 Service Manual 1977-1986.
    Performance: The student will navigate to Section 18 and use Figure 18-4 to determine if a 1-inch diameter puncture in a fuselage skin is repairable.
    Standard: The student will correctly navigate to the appropriate section and determine repairability per the manual.

Day 2: Sheet Metal Defects

- Lecture (1 hour):
  - Types of sheet metal defects (AM.II.A.K2)
- Lab (3 hours):
  - L201.1 (Part 1 continued): Practice identifying sheet metal defects
    Given: Sample metallic structures with defects, Cessna 172 Service Manual.
    Performance: The student will identify defects in provided samples and assess repairability.
    Standard: The student will accurately identify defects per FAA-H-8083-31B guidelines.

Day 3: Sheet Metal Repair Materials

- Lecture (1 hour):
  - Selection of sheet metal repair materials (AM.II.A.K3)
- Lab (3 hours):
  - L201.1 (Part 2): Design a repair using a Manufacturer's Structural Repair Manual (AM.II.A.S5)
    Given: Cessna 172 Service Manual 1977-1986, drawing tools.
    Performance: The student will design a rectangular flush patch repair for a 1-inch diameter skin puncture with a material thickness of 0.025.
    Standard: The design will meet return-to-service standards per Figure 18-4.

Day 4: Repair Drawing and Rivet Patterns

- Lecture (1 hour):
  - Layout, forming, and drilling of sheet metal components (AM.II.A.K4)
- Lab (3 hours):

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- L201.1 (Part 3): Make a drawing of a repair, determine a rivet pattern (AM.II.A.S7, AM.II.A.S11)
  Given: Cessna 172 Service Manual 1977-1986, drawing tools.
  Performance: The student will draw a rectangular flush patch repair, indicating all materials, fasteners, dimensions, and rivet patterns.
  Standard: The drawing will include all required details per Cessna 172 Service Manual.

Day 5: Rivet Selection

- Lecture (1 hour):
  - Selection of rivets, hardware, and fasteners for sheet metal repair (AM.II.A.K5)
- Lab (3 hours):
  - L201.2 (Part 1): Determine applicability of sheet metal for a repair (AM.II.A.S3)
    Given: Repair drawing from Lab L201.1, fuselage mockup, aluminum sheet.
    Performance: The student will select appropriate sheet metal for the repair.
    Standard: The selection will comply with FAA-H-8083-31B and Cessna 172 Service Manual standards.

Day 6: Rivet Installation

- Lecture (1 hour):
  - Rivet removal and installation methods (AM.II.A.K8)
- Lab (3 hours):
  - L201.2 (Part 2): Install and remove solid rivets (AM.II.A.S1)
    Given: Repair drawing from Lab L201.1, fuselage mockup, riveting tools.
    Performance: The student will install and remove solid rivets on a fuselage mockup.
    Standard: Rivet installation and removal will meet FAA-H-8083-31B standards.

Day 7: Blind Rivets

- Lecture (1 hour):
  - Maintenance safety practices/precautions for sheet metal repairs (AM.II.A.K9)
- Lab (3 hours):
  - L201.2 (Part 3): Install and remove a blind rivet (AM.II.A.S2)
    Given: Repair drawing from Lab L201.1, fuselage mockup, riveting tools.
    Performance: The student will install and remove blind rivets on a fuselage mockup.
    Standard: Rivet installation and removal will meet FAA-H-8083-31B standards.

Day 8: Sheet Metal Fabrication

- Lecture (1 hour):
  - Heat treatment processes for aluminum (AM.II.A.K6)
- Lab (3 hours):
  - L201.2 (Part 4): Trim and form a piece of sheet metal, fabricate an aluminum part (AM.II.A.S9, AM.II.A.S10)
    Given: Repair drawing from Lab L201.1, aluminum sheet, forming tools.
    Performance: The student will trim and form a piece of sheet metal and fabricate an

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aluminum part per the repair drawing.
Standard: The fabricated part will match the drawing specifications with return-to-service accuracy.

Day 9: Special Fasteners

- Lecture (1 hour):
  - Selection and use of special purpose fasteners (AM.II.A.K5)
- Lab (3 hours):
  - L201.2 (Part 5): Select and install special purpose fasteners (AM.II.A.S4)
    Given: Repair drawing from Lab L201.1, fuselage mockup, special fasteners.
    Performance: The student will select and install special purpose fasteners.
    Standard: Fastener installation will comply with FAA-H-8083-31B standards.

Day 10: Countersinking Rivet Holes

- Lecture (1 hour):
  - Review of rivet installation techniques
- Lab (3 hours):
  - L201.2 (Part 6): Countersink rivet holes in sheet metal (AM.II.A.S12)
    Given: Repair drawing from Lab L201.1, fuselage mockup, countersinking tools.
    Performance: The student will countersink rivet holes in sheet metal.
    Standard: Countersinking will comply with FAA-H-8083-31B standards.

Day 11: Patch Installation

- Lecture (1 hour):
  - Procedures for installing patches
- Lab (3 hours):
  - L201.2 (Part 7): Prepare and install a patch to repair an aircraft or component (AM.II.A.S6)
    Given: Repair drawing from Lab L201.1, fuselage mockup, repair materials.
    Performance: The student will prepare and install a rectangular flush patch per the repair drawing.
    Standard: The patch installation will meet return-to-service standards per Cessna 172 Service Manual.

Day 12: Sheet Metal Repair

- Lecture (1 hour):
  - Review of sheet metal repair techniques
- Lab (3 hours):
  - L201.2 (Part 8): Perform a repair on a damaged aluminum sheet (AM.II.A.S13)
    Given: Repair drawing from Lab L201.1, fuselage mockup, repair materials.
    Performance: The student will perform a repair on a damaged aluminum sheet.
    Standard: The repair will meet FAA-H-8083-31B and Cessna 172 Service Manual standards.

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Day 13: Repair Removal

- Lecture (1 hour):
  - Review of rivet removal techniques
- Lab (3 hours):
  - L201.2 (Part 9): Remove a repair that was installed with rivets (AM.II.A.S8)
    Given: Fuselage mockup with a riveted repair, rivet removal tools.
    Performance: The student will remove a riveted repair from the fuselage mockup.
    Standard: The removal process will avoid damage to the surrounding structure and comply with FAA-H-8083-31B standards.

Day 14: Weld Repairs

- Lecture (1 hour):
  - Types of steel tubing welding repairs (AM.II.A.K15)
- Lab (3 hours):
  - L201.3 (Part 1): Perform a weld repair on steel tubing
    Given: Steel tubing, welding equipment, technical data.
    Performance: The student will perform a weld repair on a steel tubing sample per FAA-H-8083-31B guidelines.
    Standard: The weld repair will meet FAA standards for structural integrity.

Day 15: Flame Welding

- Lecture (1 hour):
  - Flame welding gases (AM.II.A.K10)
  - Storage/handling of welding gases (AM.II.A.K11)
- Lab (3 hours):
  - L201.3 (Part 2): Perform a flame weld repair
    Given: Steel tubing, flame welding equipment, technical data.
    Performance: The student will perform a flame weld repair on a steel tubing sample.
    Standard: The weld will conform to FAA-H-8083-31B standards.

Day 16: Flame Welding Techniques

- Lecture (1 hour):
  - Flame welding practices and techniques (AM.II.A.K12)
- Lab (3 hours):
  - L201.3 (Part 3): Practice flame welding techniques
    Given: Steel tubing, flame welding equipment, technical data.
    Performance: The student will practice flame welding techniques on steel tubing samples.
    Standard: Welds will meet FAA-H-8083-31B standards.

Day 17: Inert-Gas Welding

- Lecture (1 hour):

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    - Inert-gas welding practices and techniques (AM.II.A.K13)
- Lab (3 hours):
    - L201.3 (Part 4): Perform an inert-gas weld repair
      Given: Steel tubing, inert-gas welding equipment, technical data.
      Performance: The student will perform an inert-gas weld repair on a steel tubing sample.
      Standard: The weld will meet FAA-H-8083-31B standards for structural integrity.

Day 18: Shielding Gases

- Lecture (1 hour):
    - Purpose and types of shielding gases (AM.II.A.K14)
- Lab (3 hours):
    - L201.3 (Part 5): Practice inert-gas welding with shielding gases
      Given: Steel tubing, inert-gas welding equipment, shielding gases, technical data.
      Performance: The student will practice inert-gas welding with appropriate shielding gases.
      Standard: Welds will meet FAA-H-8083-31B standards.

Day 19: Weld Safety

- Lecture (1 hour):
    - Maintenance safety practices/precautions for welding (AM.II.A.K9)
- Lab (3 hours):
    - L201.3 (Part 6): Perform weld repairs with safety protocols
      Given: Steel tubing, welding equipment, PPE, technical data.
      Performance: The student will perform weld repairs while adhering to safety protocols for handling welding gases and equipment.
      Standard: Welds will meet FAA standards, and safety protocols will be followed per FAA-H-8083-31B.

Day 20: Weld Repair Practice

- Lecture (1 hour):
    - Procedures for weld repairs (AM.II.A.K16)
- Lab (3 hours):
    - L201.3 (Part 7): Comprehensive weld repair practice
      Given: Steel tubing, welding equipment, technical data.
      Performance: The student will perform both flame and inert-gas weld repairs on steel tubing samples.
      Standard: Welds will meet FAA-H-8083-31B standards for structural integrity.

Day 21: Final Review and Examination

- Lecture (2 hours):
    - Comprehensive review of metallic structures, sheet metal repairs, riveting, and welding techniques

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- Lab (1 hour):
    - L201.2 (Part 12): Final practical assessment
      Given: Fuselage mockup, repair drawing from Lab L201.1, repair materials.
      Performance: The student will perform a complete sheet metal repair, including rivet installation and patch application.
      Standard: The repair will meet return-to-service standards per FAA-H-8083-31B and Cessna 172 Service Manual.
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

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AMA202.1: Non-Metallic Structures

Course Overview

- Course Code: AMA202.1
- Course Title: Non-Metallic Structures
- Total Hours: 84(23 Lecture, 60 Lab, 1 Final Exam)
- Target Audience: Aviation Maintenance Technician students preparing for FAA certification
- Prerequisite: Completion of APMI AMT General Program
- Textbook2: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe (FAA, 2023), Chapter 7: Advanced Composite Materials, Chapter 6 Aircraft Wood & Structural Repair, Chapter 3 Aircraft Fabric Covering and AC43-1B Acceptable Methods, Techniques, and Practices Aircraft Inspection and Repair (FAA 1998), CHAPTER 1. WOOD STRUCTURE, CHAPTER 2. FABRIC COVERING and CHAPTER 3. FIBERGLASS AND PLASTICS.

Description

This course explores non-metallic materials, such as composites and wood, used in aircraft construction. Lab work emphasizes repair and fabrication techniques, focusing on composite repairs, wood structures, and window maintenance.

Learning Objectives

- Identify and work with composite and other non-metallic materials.
- Perform repairs on non-metallic aircraft structures.
- Apply bonding and finishing techniques for non-metallic components.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L202.1, L202.2, L202.3, L202.4, L202.5, L202.6, L202.7). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 7, and AC 43.13-1B for additional examples and technical guidance.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.

Safety protocols, including proper handling of composite materials, adhesives, and PPE, are emphasized throughout all lab activities.

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AMA202.1 DAY Course Schedule

6-hour instructional days, with each day including lecture and lab components, totaling 14 days to complete 83 hours of instruction plus 1 hour for the final exam.

Day 1: Wood Structures and Inspection

- Lecture (2 hours):
  - Wood structures, including inspection techniques, tools, and practices (AM.II.B.K1)
  - Types and general characteristics of wood used in aircraft structures (AM.II.B.K3)
  - Effects of moisture/humidity on wood and fabric coverings (AM.II.B.K2)
- Lab (4 hours):
  - L202.1: Locate and explain repair procedures for elongated bolt holes (AM.II.B.S10)
    Given: AC 43.13-1B Chapter 1.
    Performance: The student will reference AC 43.13-1B Chapter 1, Paragraph 1-45, and explain the repair process for elongated bolt holes in a wooden wing spar.
    Standard: The student will accurately describe the allowable repairs with return-to-service standards.

Day 2: Wood Repair Techniques

- Lecture (2 hours):
  - Acceptable and unacceptable wood defects (AM.II.B.K5)
  - Wood repair techniques and practices (AM.II.B.K6)
  - Permissible substitutes and materials for wood structure repairs (AM.II.B.K4)
- Lab (4 hours):
  - L202.1 (continued): Practice wood repair techniques
    Given: Wooden wing spar samples, AC 43.13-1B Chapter 1, repair tools.
    Performance: The student will perform a repair on a wooden wing spar with an elongated bolt hole per AC 43.13-1B guidelines.
    Standard: The repair will meet return-to-service standards per AC 43.13-1B.

Day 3: Aircraft Covering Materials

- Lecture (2 hours):
  - Factors used in determining the proper type covering material (AM.II.B.K7)
  - Types of approved aircraft covering material (AM.II.B.K8)
  - Covering textile terms (AM.II.B.K10)
- Lab (4 hours):
  - L202.2: Locate and explain procedures for tying a modified seine knot (AM.II.B.S6)
    Given: AC 43.13-1B Chapter 2.
    Performance: The student will reference AC 43.13-1B Chapter 2, Figure 2-4, and explain the procedures for tying a modified seine knot.
    Standard: The student will accurately explain the procedure with return-to-service standards.

Day 4: Aircraft Covering Techniques

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- Lecture (2 hours):
  - Seams commonly used with aircraft covering (AM.II.B.K9)
  - Covering methods commonly used (AM.II.B.K12)
  - Covering means of attachment (AM.II.B.K13)
- Lab (4 hours):
  - L202.2 (continued): Practice tying a modified seine knot
    Given: Fabric covering materials, AC 43.13-1B Chapter 2, sewing tools.
    Performance: The student will tie a modified seine knot on a fabric covering sample per AC 43.13-1B Figure 2-4.
    Standard: The knot will meet return-to-service standards per AC 43.13-1B.

Day 5: Covering Inspection and Maintenance

- Lecture (2 hours):
  - Areas on aircraft covering most susceptible to deterioration (AM.II.B.K14)
  - Aircraft covering preservation/restoration (AM.II.B.K15)
  - Inspection of aircraft covering (AM.II.B.K16)
- Lab (4 hours):
  - L202.2 (continued): Inspect and repair aircraft covering
    Given: Fabric-covered structure samples, AC 43.13-1B Chapter 2.
    Performance: The student will inspect a fabric-covered structure for deterioration and perform a repair per AC 43.13-1B guidelines.
    Standard: The inspection and repair will meet return-to-service standards.

Day 6: Composite Structures and Inspection

- Lecture (2 hours):
  - Inspection/testing of composite structures (AM.II.B.K18)
  - Types of composite structure defects (AM.II.B.K19)
  - Risk management: Composite structure repairs (AM.II.B.R2)
- Lab (4 hours):
  - L202.3: Inspect composite, plastic, or glass-laminated structures, determine repairability (AM.II.B.S3, AM.II.B.S11)
    Given: AC 43.13-1B Chapter 3, samples of composite or fiberglass structure.
    Performance: The student will examine structures by sight and touch, determine the extent of defects, and decide if replacement or repair is warranted.
    Standard: The student will accurately assess defects and repairability per AC 43.13-1B standards.

Day 7: Composite Repair Techniques

- Lecture (2 hours):
  - Composite structure fiber, core, and matrix materials (AM.II.B.K20)
  - Composite materials storage practices and shelf life (AM.II.B.K21)
  - Risk management: Storage of composite materials (AM.II.B.R4)
  - Risk management: Measuring and mixing of materials associated with composite construction (AM.II.B.R5)
- Lab (4 hours):

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- L202.3 (continued): Inspect and repair fiberglass (AM.II.B.S2)
  Given: AC 43.13-1B Chapter 3, fiberglass structure samples, repair materials.
  Performance: The student will repair a fiberglass surface, blending and contouring to match the original surface.
  Standard: The repair will meet return-to-service standards per AC 43.13-1B.

Day 8: Composite Surface Preparation

- Lecture (1 hour):
  - Composite repair methods, techniques, fasteners, and practices (AM.II.B.K22)
- Lab (5 hours):
  - L202.3 (continued): Prepare composite surface for painting (AM.II.B.S7)
    Given: AC 43.13-1B Chapter 3, composite structure samples, painting preparation materials.
    Performance: The student will prepare a composite surface for painting per AC 43.13-1B guidelines.
    Standard: The surface preparation will meet return-to-service standards.

Day 9: Composite Fasteners and Vacuum Bagging

- Lecture (1 hour):
  - Risk management: Selection of glue (adhesive) or fasteners for aircraft structure (AM.II.B.R1)
  - Risk management: Use of materials that are not part of an approved repair system (AM.II.B.R6)
- Lab (5 hours):
  - L202.6: Identify appropriate fasteners on composite structures (AM.II.B.S1)
    Given: Composite structure with fasteners.
    Performance: The student will inspect and identify fasteners on the given composite structure.
    Standard: The student will correctly identify fasteners per FAA-H-8083-31B standards.
  - L202.5: Locate and explain repair standard dimensions, perform lay up for composite repair (AM.II.B.S9, AM.II.B.S12)
    Given: AC 43.13-1B Chapter 3, West Systems Vacuum Bagging Techniques manual, honeycomb structure samples.
    Performance: The student will reference AC 43.13-1B, lay out a repair for honeycomb facing using the step-joint method, and prepare the sample for vacuum bagging.
    Standard: The repair will meet return-to-service standards.

Day 10: Composite Testing

- Lecture (1 hour):
  - Risk management: Material shelf-life (AM.II.B.R7)
- Lab (5 hours):
  - L202.5 (continued): Perform a tap test on composite material (AM.II.B.S8)
    Given: Composite structure samples, tap testing equipment, AC 43.13-1B Chapter 3.
    Performance: The student will perform a tap test to identify defects in composite

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material.
Standard: The tap test will be conducted per AC 43.13-1B standards.

Day 11: Window Maintenance

- Lecture (2 hours):
  - Care and maintenance of windows (AM.II.B.K26)
  - Window temporary and permanent repairs (AM.II.B.K27)
- Lab (4 hours):
  - L202.4: Clean and inspect acrylic type windshields (AM.II.B.S4)
    Given: AC 43.13-1B Chapter 3, Piper Saratoga Airplane Maintenance Manual Chapter 12-00-00 page 3, windshield sample.
    Performance: The student will clean and inspect the windshield on a Piper Saratoga per referenced manuals.
    Standard: The cleaning and inspection will meet return-to-service standards.

Day 12: Window Repairs

- Lecture (1 hour):
  - Maintenance safety practices/precautions for composite materials/structures and windows (AM.II.B.K28)
- Lab (5 hours):
  - L202.7: Locate and explain procedures for a temporary repair to a side window (AM.II.B.S5)
    Given: AC 43.13-1B Chapter 3, Paragraph 3-40.
    Performance: The student will describe a temporary repair to an aircraft side window.
    Standard: The description will align with AC 43.13-1B standards.

Day 13: Thermoplastic Materials

- Lecture (1 hours):
  - Thermoplastic material inspection/types of defects (AM.II.B.K23)
  - Thermoplastic material storage and handling (AM.II.B.K24)
  - Thermoplastic material installation procedures (AM.II.B.K25)
- Lab (2 hours):
  - L202.3 (continued): Inspect thermoplastic materials
    Given: Thermoplastic material samples, AC 43.13-1B Chapter 3.
    Performance: The student will inspect thermoplastic materials for defects and assess repairability.
    Standard: The inspection will meet AC 43.13-1B standards.

- Lecture (1 hour):
  - Inspecting restraints and upholstery (AM.II.B.K29)
- Lab (2 hours):
  - L202.3 (continued): Inspect restraints and upholstery
    Given: Aircraft restraint and upholstery samples, FAA-H-8083-31B guidelines.

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Performance: The student will inspect restraints and upholstery for wear and damage.
Standard: The inspection will comply with FAA-H-8083-31B standards.

Day 14 Final Review and Examination

- Lecture (5 hours):
  - Comprehensive review of non-metallic structures, composite repairs, wood structures, and window maintenance
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

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AMA202.1 NIGHT Course Schedule

4-hour instructional days, with each day including lecture and lab components, totaling 21 days to complete 83 hours of instruction plus 1 hour for the final exam.

Day 1: Introduction to Wood Structures

- Lecture (1 hour):
  - Wood structures, including inspection techniques, tools, and practices (AM.II.B.K1)
- Lab (3 hours):
  - L202.1: Inspect wood structures
    Given: Wooden wing spar samples, AC 43.13-1B Chapter 1.
    Performance: The student will inspect wooden wing spar samples for defects using AC 43.13-1B guidelines.
    Standard: The inspection will meet AC 43.13-1B standards.

Day 2: Wood Characteristics and Defects

- Lecture (1 hour):
  - Types and general characteristics of wood used in aircraft structures (AM.II.B.K3)
  - Acceptable and unacceptable wood defects (AM.II.B.K5)
- Lab (3 hours):
  - L202.1 (continued): Identify wood defects
    Given: Wooden wing spar samples, AC 43.13-1B Chapter 1.
    Performance: The student will identify acceptable and unacceptable defects in wood samples.
    Standard: The identification will align with AC 43.13-1B standards.

Day 3: Wood Repair Techniques

- Lecture (1 hour):
  - Wood repair techniques and practices (AM.II.B.K6)
  - Permissible substitutes and materials for wood structure repairs (AM.II.B.K4)
- Lab (3 hours):
  - L202.1: Locate and explain repair procedures for elongated bolt holes (AM.II.B.S10)
    Given: AC 43.13-1B Chapter 1, Paragraph 1-45.
    Performance: The student will explain the repair process for elongated bolt holes in a wooden wing spar.
    Standard: The explanation will meet return-to-service standards per AC 43.13-1B.

Day 4: Wood Repair Practice

- Lecture (1 hour):
  - Effects of moisture/humidity on wood and fabric coverings (AM.II.B.K2)
- Lab (3 hours):
  - L202.1 (continued): Perform a wood repair
    Given: Wooden wing spar samples, repair tools, AC 43.13-1B Chapter 1.

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Performance: The student will perform a repair on a wooden wing spar with an elongated bolt hole.
Standard: The repair will meet return-to-service standards per AC 43.13-1B.

Day 5: Aircraft Covering Materials

- Lecture (1 hour):
  - Factors used in determining the proper type covering material (AM.II.B.K7)
  - Types of approved aircraft covering material (AM.II.B.K8)
- Lab (3 hours):
  - L202.2: Select aircraft covering material
    Given: AC 43.13-1B Chapter 2, covering material samples.
    Performance: The student will select appropriate covering material based on AC 43.13-1B guidelines.
    Standard: The selection will align with AC 43.13-1B standards.

Day 6: Covering Techniques

- Lecture (1 hour):
  - Seams commonly used with aircraft covering (AM.II.B.K9)
  - Covering textile terms (AM.II.B.K10)
- Lab (3 hours):
  - L202.2: Locate and explain procedures for tying a modified seine knot (AM.II.B.S6)
    Given: AC 43.13-1B Chapter 2, Figure 2-4.
    Performance: The student will explain the procedures for tying a modified seine knot.
    Standard: The explanation will meet return-to-service standards.

Day 7: Covering Application

- Lecture (1 hour):
  - Covering methods commonly used (AM.II.B.K12)
  - Covering means of attachment (AM.II.B.K13)
- Lab (3 hours):
  - L202.2 (continued): Tie a modified seine knot
    Given: Fabric covering materials, sewing tools, AC 43.13-1B Chapter 2.
    Performance: The student will tie a modified seine knot on a fabric covering sample.
    Standard: The knot will meet return-to-service standards per AC 43.13-1B.

Day 8: Covering Inspection and Maintenance

- Lecture (1 hour):
  - Areas on aircraft covering most susceptible to deterioration (AM.II.B.K14)
  - Inspection of aircraft covering (AM.II.B.K16)
- Lab (3 hours):
  - L202.2 (continued): Inspect aircraft covering
    Given: Fabric-covered structure samples, AC 43.13-1B Chapter 2.

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Performance: The student will inspect a fabric-covered structure for deterioration.
Standard: The inspection will meet AC 43.13-1B standards.

Day 9: Covering Repair

- Lecture (1 hour):
  - Aircraft covering preservation/restoration (AM.II.B.K15)
  - Covering repair techniques and practices (AM.II.B.K17)
- Lab (3 hours):
  - L202.2 (continued): Repair aircraft covering
    Given: Fabric-covered structure samples, repair materials, AC 43.13-1B Chapter 2.
    Performance: The student will perform a repair on a fabric-covered structure.
    Standard: The repair will meet return-to-service standards per AC 43.13-1B.

Day 10: Composite Structures

- Lecture (1 hour):
  - Inspection/testing of composite structures (AM.II.B.K18)
  - Types of composite structure defects (AM.II.B.K19)
- Lab (3 hours):
  - L202.3: Inspect composite structures, determine repairability (AM.II.B.S3, AM.II.B.S11)
    Given: AC 43.13-1B Chapter 3, composite structure samples.
    Performance: The student will examine composite structures by sight and touch and determine if replacement or repair is warranted.
    Standard: The assessment will meet AC 43.13-1B standards.

Day 11: Composite Materials

- Lecture (1 hour):
  - Composite structure fiber, core, and matrix materials (AM.II.B.K20)
  - Risk management: Selection of glue (adhesive) or fasteners for aircraft structure (AM.II.B.R1)
- Lab (3 hours):
  - L202.6: Identify appropriate fasteners on composite structures (AM.II.B.S1)
    Given: Composite structure with fasteners.
    Performance: The student will inspect and identify fasteners on the composite structure.
    Standard: The identification will meet FAA-H-8083-31B standards.

Day 12: Composite Storage and Safety

- Lecture (1 hour):
  - Composite materials storage practices and shelf life (AM.II.B.K21)
  - Risk management: Storage of composite materials (AM.II.B.R4)
  - Risk management: Material shelf-life (AM.II.B.R7)
- Lab (3 hours):
  - L202.3 (continued): Practice composite material storage
    Given: Composite materials, storage guidelines, FAA-H-8083-31B Chapter 7.

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Performance: The student will demonstrate proper storage and handling of composite materials.
Standard: The storage practices will align with FAA-H-8083-31B standards.

Day 13: Composite Repair Techniques

- Lecture (1 hour):
  - Composite repair methods, techniques, fasteners, and practices (AM.II.B.K22)
  - Risk management: Composite structure repairs (AM.II.B.R2)
- Lab (3 hours):
  - L202.3: Inspect and repair fiberglass (AM.II.B.S2)
    Given: AC 43.13-1B Chapter 3, fiberglass structure samples, repair materials.
    Performance: The student will repair a fiberglass surface, blending and contouring to match the original surface.
    Standard: The repair will meet return-to-service standards per AC 43.13-1B.

Day 14: Composite Surface Preparation

- Lecture (1 hour):
  - Risk management: Measuring and mixing of materials associated with composite construction (AM.II.B.R5)
  - Risk management: Use of materials that are not part of an approved repair system (AM.II.B.R6)
- Lab (3 hours):
  - L202.3 (continued): Prepare composite surface for painting (AM.II.B.S7)
    Given: AC 43.13-1B Chapter 3, composite structure samples, painting preparation materials.
    Performance: The student will prepare a composite surface for painting.
    Standard: The surface preparation will meet return-to-service standards per AC 43.13-1B.

Day 15: Composite Testing

- Lecture (1 hour):
  - Review of composite inspection techniques
- Lab (3 hours):
  - L202.5: Perform a tap test on composite material (AM.II.B.S8)
    Given: Composite structure samples, tap testing equipment, AC 43.13-1B Chapter 3.
    Performance: The student will perform a tap test to identify defects in composite material.
    Standard: The tap test will be conducted per AC 43.13-1B standards.

Day 16: Composite Repair Standards

- Lecture (1 hour):
  - Review of composite repair standards
- Lab (3 hours):

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- L202.5: Locate and explain repair standard dimensions (AM.II.B.S9)
  Given: AC 43.13-1B Chapter 3, composite structure samples.
  Performance: The student will reference AC 43.13-1B and explain repair standard dimensions for a composite repair.
  Standard: The explanation will meet return-to-service standards.

Day 17: Vacuum Bagging

- Lecture (1 hour):
  - Review of vacuum bagging techniques
- Lab (3 hours):
  - L202.5 (continued): Perform lay up for a composite panel repair with vacuum bagging (AM.II.B.S12)
    Given: AC 43.13-1B Chapter 3, West Systems Vacuum Bagging Techniques manual, honeycomb structure samples.
    Performance: The student will lay out a repair for honeycomb facing using the step-joint method and prepare the sample for vacuum bagging.
    Standard: The repair will meet return-to-service standards.

Day 18: Thermoplastic Materials and Handling

- Lecture (1 hour):
  - Thermoplastic material inspection/types of defects (AM.II.B.K23)
  - Thermoplastic material storage and handling (AM.II.B.K24)
  - Thermoplastic material installation procedures (AM.II.B.K25)
- Lab (3 hours):
  - L202.3 (continued): Inspect thermoplastic materials
    Given: Thermoplastic material samples, AC 43.13-1B Chapter 3.
    Performance: The student will inspect thermoplastic materials for defects and assess repairability.
    Standard: The inspection will meet AC 43.13-1B standards.
  - L202.3 (continued): Practice thermoplastic material handling
    Given: Thermoplastic material samples, AC 43.13-1B Chapter 3.
    Performance: The student will demonstrate proper storage and handling of thermoplastic materials.
    Standard: The handling will align with AC 43.13-1B standards.

Day 20: Window Maintenance and Repair

- Lecture (1 hour):
  - Care and maintenance of windows (AM.II.B.K26)
  - Window temporary and permanent repairs (AM.II.B.K27)
- Lab (3 hours):
  - L202.4: Clean and inspect acrylic type windshields (AM.II.B.S4)
    Given: AC 43.13-1B Chapter 3, Piper Saratoga Airplane Maintenance Manual Chapter 12-00-00 page 3, windshield sample.
    Performance: The student will clean and inspect the windshield on a Piper Saratoga.
    Standard: The cleaning and inspection will meet return-to-service standards.

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- L202.7: Locate and explain procedures for a temporary repair to a side window (AM.II.B.S5)
  Given: AC 43.13-1B Chapter 3, Paragraph 3-40.
  Performance: The student will describe a temporary repair to an aircraft side window.
  Standard: The description will align with AC 43.13-1B standards.

Day 20: Safety and Restraints

- Lecture (1 hour):
  - Maintenance safety practices/precautions for composite materials/structures and windows (AM.II.B.K28)
  - Inspecting restraints and upholstery (AM.II.B.K29)
- Lab (3 hours):
  - L202.3 (continued): Inspect restraints and upholstery
    Given: Aircraft restraint and upholstery samples, FAA-H-8083-31B guidelines.
    Performance: The student will inspect restraints and upholstery for wear and damage.
    Standard: The inspection will comply with FAA-H-8083-31B standards.

Day 21: Final Review and Examination

- Lecture (3 hours):
  - Comprehensive review of non-metallic structures, composite repairs, wood structures, and window maintenance
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

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AMA203.1: Flight Controls

Course Overview

- Course Code: AMA203.1
- Course Title: Flight Controls
- Total Hours: 48 (12 Lecture, 36 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 2: Aerodynamics, Aircraft Assembly, & Rigging (FAA, 2023), and AC No: 43.13-1B ACCEPTABLE METHODS, TECHNIQUES, AND PRACTICES -AIRCRAFT INSPECTION AND REPAIR (1998), CHAPTER 7. AIRCRAFT HARDWARE, CONTROL CABLES, AND TURNBUCKLES

Description

This course focuses on the design, operation, and maintenance of aircraft flight control systems, including primary and secondary controls. Lab work emphasizes practical maintenance, rigging, and troubleshooting to ensure safe aircraft operation.

Learning Objectives

- Understand the function and rigging of flight control systems.
- Perform maintenance and adjustments on control surfaces.
- Troubleshoot flight control system issues.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L203.1, L203.3, L203.4, L203.5, L203.6, L203.7, L203.8). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 2, for additional examples and technical guidance.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper handling of flight control systems and rigging equipment, are emphasized throughout all lab activities.

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AMA203.1 DAY Course Schedule

6-hour instructional days, with each day including lecture and lab components, totaling 8 days to complete 47 hours of instruction plus 1 hour for the final exam.

Day 1: Introduction to Flight Controls

- Lecture (2 hours):
  - Control cables (AM.II.C.K1)
  - Control cable maintenance (AM.II.C.K2)
  - Cable connectors (AM.II.C.K3)
  - Cable guides (AM.II.C.K4)
- Lab (4 hours):
  - L203.1: Identify control surfaces that provide movement about an aircraft's axes (AM.II.C.S2)
    Given: Worksheet with an unlabeled illustration of an aircraft with flight control surfaces defined.
    Performance: The student will fill out the worksheet with correct nomenclature for various flight controls.
    Standard: The student will complete the worksheet with at least 70% accuracy.

Day 2: Control Components

- Lecture (2 hours):
  - Control stops (AM.II.C.K5)
  - Push-pull tubes (AM.II.C.K6)
  - Torque tubes (AM.II.C.K7)
  - Bell cranks (AM.II.C.K8)
- Lab (4 hours):
  - L203.4: Inspect primary control cables (AM.II.C.S5)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will perform an inspection of an assigned primary flight control cable run.
    Standard: The student will complete the inspection, record findings, and present to the instructor for evaluation.

Day 3: Flight Control Balance and Rigging

- Lecture (2 hours):
  - Flutter and flight control balance (AM.II.C.K9)
  - Rigging of aircraft flight controls (AM.II.C.K10)
  - Risk management: Rigging aircraft flight controls (AM.II.C.R2)
- Lab (4 hours):
  - L203.1: Inspect a primary and secondary flight control surface (AM.II.C.S3)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will inspect a primary or secondary control surface as assigned.

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Standard: The student will research using the applicable AMM and complete the inspection, recording findings for evaluation.

Day 4: Flight Controls and Stabilizers

- Lecture (2 hours):
  - Aircraft flight controls and stabilizer systems (AM.II.C.K11)
  - Other aerodynamic wing features (AM.II.C.K12)
  - Secondary and auxiliary control surfaces (AM.II.C.K13)
- Lab (4 hours):
  - L203.1 (continued): Inspect a trim tab for freeplay, travel, and operation (AM.II.C.S10)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will inspect an assigned trim tab for freeplay, travel, and operation.
    Standard: The student will complete the inspection, record findings, and present to the instructor for evaluation.

Day 5: Cable Fabrication and Adjustment

- Lecture (1 hour):
  - Risk management: Use and interpretation of a cable tension chart (AM.II.C.R1)
  - Risk management: Use and interpretation of cable tensiometers (AM.II.C.R5)
- Lab (5 hours):
  - L203.3: Fabricate a primary flight control cable (AM.II.C.S12)
    Given: AC 43.13-1B Chapter 7.
    Performance: The student will fabricate a control cable assembly utilizing a thimble, collar, and swaging tool.
    Standard: The student will successfully fabricate the control cable assembly.

Day 6: Flight Control Maintenance

- Lecture (1 hour):
  - Risk management: Maintaining a calibration schedule for cable tension meters and rigging equipment (AM.II.C.R4)
- Lab (5 hours):
  - L203.5: Remove and reinstall a primary flight control surface (AM.II.C.S4)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will remove an assigned flight control.
    Standard: The student will research using the applicable AMM and perform removal to return-to-service standards.

Day 7: Balance and Rigging

- Lecture (1 hour):
  - Risk management: Selection and use of lifting equipment for assembly (AM.II.C.R3)
- Lab (5 hours):

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- L203.5 (continued): Check the balance of a flight control surface, balance a control surface (AM.II.C.S8, AM.II.C.S11)
  Given: Piper Warrior or Piper Saratoga.
  Performance: The student will check the balance of the removed flight control and balance the control surface if necessary.
  Standard: The balance check and adjustment will meet return-to-service standards per applicable AMM.

Day 8: Final Rigging and Examination

- Lecture (1 hour):
  - Review of flight control rigging and maintenance
- Lab (4 hours):
  - L203.5 (continued): Reinstall the primary flight control surface, adjust and secure a primary flight control cable (AM.II.C.S6)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will reinstall the control surface, adjust and secure the flight control cables.
    Standard: The reinstallation and adjustment will meet return-to-service standards per applicable AMM.
  - L203.6: Identify fixed-wing aircraft rigging adjustment locations (AM.II.C.S1)
    Given: Piaggio Avanti II AMM.
    Performance: The student will complete a worksheet describing rigging procedures for the removal of the control cable column and determine rig pin locations.
    Standard: The student will navigate to 27-10-00 page 207, fig 103, and correctly identify rig pin locations.
  - L203.7: Determine allowable axial play limits for a flight control bearing (AM.II.C.S9)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will research the allowable axial free play limit for the assigned flight control bearing using the AMM.
    Standard: The student will record findings and present to the instructor for evaluation.
  - L203.8: Adjust push-pull flight control systems (AM.II.C.S7)
    Given: Mooney M20R Service and Maintenance Manual.
    Performance: The student will complete a worksheet describing rigging procedures for the aileron system, determining rig pin locations and control tube adjustments.
    Standard: The student will navigate to 27-00-00 page 5, fig 27-2, and correctly identify locations and procedures.
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

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AMA203.1 NIGHT Course Schedule

4-hour instructional days, with each day including lecture and lab components, totaling 12 days to complete 47 hours of instruction plus 1 hour for the final exam.

Day 1: Introduction to Flight Controls

- Lecture (1 hour):
  - Control cables (AM.II.C.K1)
  - Control cable maintenance (AM.II.C.K2)
- Lab (3 hours):
  - L203.1: Identify control surfaces that provide movement about an aircraft's axes (AM.II.C.S2)
    Given: Worksheet with an unlabeled illustration of an aircraft with flight control surfaces defined.
    Performance: The student will fill out the worksheet with correct nomenclature for various flight controls.
    Standard: The student will complete the worksheet with at least 70% accuracy.

Day 2: Control Cable Components

- Lecture (1 hour):
  - Cable connectors (AM.II.C.K3)
  - Cable guides (AM.II.C.K4)
- Lab (3 hours):
  - L203.4: Inspect primary control cables (AM.II.C.S5)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will perform an inspection of an assigned primary flight control cable run.
    Standard: The student will complete the inspection, record findings, and present to the instructor for evaluation.

Day 3: Control Mechanisms

- Lecture (1 hour):
  - Control stops (AM.II.C.K5)
  - Push-pull tubes (AM.II.C.K6)
- Lab (3 hours):
  - L203.4 (continued): Inspect control stops and push-pull tubes
    Given: Piper Warrior or Piper Saratoga, applicable AMM.
    Performance: The student will inspect control stops and push-pull tubes for wear and proper operation.
    Standard: The inspection will meet return-to-service standards per applicable AMM.

Day 4: Torque Tubes and Bell Cranks

- Lecture (1 hour):

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    - Torque tubes (AM.II.C.K7)
    - Bell cranks (AM.II.C.K8)
- Lab (3 hours):
    - L203.7: Determine allowable axial play limits for a flight control bearing (AM.II.C.S9)
      Given: Piper Warrior or Piper Saratoga.
      Performance: The student will research the allowable axial free play limit for the assigned flight control bearing using the AMM.
      Standard: The student will record findings and present to the instructor for evaluation.

Day 5: Flight Control Balance

- Lecture (1 hour):
    - Flutter and flight control balance (AM.II.C.K9)
    - Risk management: Maintaining a calibration schedule for cable tension meters and rigging equipment (AM.II.C.R4)
- Lab (3 hours):
    - L203.5: Check the balance of a flight control surface (AM.II.C.S8)
      Given: Piper Warrior or Piper Saratoga.
      Performance: The student will check the balance of an assigned flight control surface.
      Standard: The balance check will meet return-to-service standards per applicable AMM.

Day 6: Rigging Flight Controls

- Lecture (1 hour):
    - Rigging of aircraft flight controls (AM.II.C.K10)
    - Risk management: Rigging aircraft flight controls (AM.II.C.R2)
- Lab (3 hours):
    - L203.6: Identify fixed-wing aircraft rigging adjustment locations (AM.II.C.S1)
      Given: Piaggio Avanti II AMM.
      Performance: The student will complete a worksheet describing rigging procedures for the removal of the control cable column and determine rig pin locations.
      Standard: The student will navigate to 27-10-00 page 207, fig 103, and correctly identify rig pin locations.

Day 7: Stabilizer Systems

- Lecture (1 hour):
    - Aircraft flight controls and stabilizer systems (AM.II.C.K11)
- Lab (3 hours):
    - L203.1: Inspect a primary and secondary flight control surface (AM.II.C.S3)
      Given: Piper Warrior or Piper Saratoga.
      Performance: The student will inspect a primary or secondary control surface as assigned.
      Standard: The student will research using the applicable AMM and complete the inspection, recording findings for evaluation.

Day 8: Secondary Controls and Trim Tabs

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- Lecture (1 hour):
  - Secondary and auxiliary control surfaces (AM.II.C.K13)
- Lab (3 hours):
  - L203.1 (continued): Inspect a trim tab for freeplay, travel, and operation (AM.II.C.S10)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will inspect an assigned trim tab for freeplay, travel, and operation.
    Standard: The student will complete the inspection, record findings, and present to the instructor for evaluation.

Day 9: Cable Fabrication

- Lecture (1 hour):
  - Risk management: Use and interpretation of a cable tension chart (AM.II.C.R1)
  - Risk management: Use and interpretation of cable tensiometers (AM.II.C.R5)
- Lab (3 hours):
  - L203.3: Fabricate a primary flight control cable (AM.II.C.S12)
    Given: AC 43.13-1B Chapter 7.
    Performance: The student will fabricate a control cable assembly utilizing a thimble, collar, and swaging tool.
    Standard: The student will successfully fabricate the control cable assembly.

Day 10: Flight Control Maintenance

- Lecture (1 hour):
  - Other aerodynamic wing features (AM.II.C.K12)
- Lab (3 hours):
  - L203.5: Remove and reinstall a primary flight control surface (AM.II.C.S4)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will remove an assigned flight control surface.
    Standard: The student will research using the applicable AMM and perform removal to return-to-service standards.

Day 11: Balancing and Reinstallation

- Lecture (1 hour):
  - Risk management: Selection and use of lifting equipment for assembly (AM.II.C.R3)
- Lab (3 hours):
  - L203.5 (continued): Balance a control surface, reinstall the primary flight control surface (AM.II.C.S11, AM.II.C.S4)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will balance the removed flight control surface and reinstall it.
    Standard: The balance and reinstallation will meet return-to-service standards per applicable AMM.

Day 12: Final Adjustments and Examination

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- Lecture (2 hours):
  - Review of flight control rigging, maintenance, and troubleshooting
- Lab (1 hour):
  - L203.5 (continued): Adjust and secure a primary flight control cable (AM.II.C.S6)
    Given: Piper Warrior or Piper Saratoga.
    Performance: The student will adjust and secure the flight control cables.
    Standard: The adjustment will meet return-to-service standards per applicable AMM.
  - L203.8: Adjust push-pull flight control systems (AM.II.C.S7)
    Given: Mooney M20R Service and Maintenance Manual.
    Performance: The student will complete a worksheet describing rigging procedures for the aileron system, determining rig pin locations and control tube adjustments.
    Standard: The student will navigate to 27-00-00 page 5, fig 27-2, and correctly identify locations and procedures.
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

AMA204.1: Rotorcraft Fundamentals

Course Overview

- Course Code: AMA204.1
- Course Title: Rotorcraft Fundamentals
- Total Hours: 24 (12 Lecture, 11 Lab, 1 Final Exam)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 2: Aerodynamics, Aircraft Assembly, & Rigging (FAA, 2023)

Description

This course introduces the principles of rotorcraft design, operation, and maintenance, focusing on rotor systems and their components. Lab work emphasizes practical skills in identifying components, rigging controls, and tracking and balancing rotor systems.

Learning Objectives

- Understand rotorcraft aerodynamics and systems.
- Perform basic maintenance on rotorcraft components.
- Identify common rotorcraft maintenance issues.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L204.1, L204.2, L204.3). All labs must be completed and passed.

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- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 2, and the Bell 206L1 Long Ranger II Maintenance Manual for additional examples and technical guidance.
- Practical exercises emphasize real-world rotorcraft maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including precautions for working around helicopter blades and ground operations, are emphasized throughout all lab activities.

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AMA204.1 DAY Course Schedule

6-hour instructional days, with each day including lecture and lab components, totaling 4 days to complete 23 hours of instruction plus 1 hour for the final exam.

Day 1: Rotorcraft Aerodynamics and Components

- Lecture (3 hours):
    - Rotorcraft aerodynamics (AM.II.N.K1)
    - Design, type, and operation of rotor systems (AM.II.N.K5)
    - Rotor blade functions and construction (AM.II.N.K7)
- Lab (3 hours):
    - L204.1: Locate components of a helicopter rotor system (AM.II.N.S1)
      Given: A worksheet with a drawing of a rotor.
      Performance: The student will identify the components of a rotor system.
      Standard: The student will successfully identify the components with at least 70% accuracy.

Day 2: Flight Controls and Rigging

- Lecture (3 hours):
    - Flight controls (AM.II.N.K2)
    - Rigging requirements for rotary wing aircraft (AM.II.N.K4)
    - Risk management: Working around helicopter blades during ground operations (AM.II.N.R1)
    - Risk management: Ground-handling procedures (AM.II.N.R2)
- Lab (3 hours):
    - L204.2: Locate and explain procedures needed to rig helicopter controls (AM.II.N.S3)
      Given: Bell 206L1 Long Ranger II Maintenance Manual.
      Performance: The student will navigate to 27-20-00 page 27-19 and complete a fill-in-the-blank worksheet on the rigging of cyclic controls.
      Standard: The student will complete the worksheet with at least 70% accuracy.

Day 3: Rotor Tracking and Balance

- Lecture (3 hours):
    - Rotor vibrations, track, and balance (AM.II.N.K8)
    - Drive system vibrations and inspection (AM.II.N.K9)
    - Risk management: Ground operations and functional tests (AM.II.N.R3)
- Lab (3 hours):

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- L204.3: Locate helicopter rotor blade track and balance procedures (AM.II.N.S2, AM.II.N.S4)
  Given: Bell 206L1 Long Ranger II Maintenance Manual.
  Performance: The student will navigate to 65-00-00 page 10A/B and complete a fill-in-the-blank worksheet on the Bell Dynamic Tracking procedure.
  Standard: The student will complete the worksheet with at least 70% accuracy.

Day 4: Transmissions, Inspections, and Final Exam

- Lecture (3 hours):
  - Transmissions (AM.II.N.K3)
  - Helicopter skid shoe and tube inspection (AM.II.N.K6)
  - Risk management: Maintenance and inspection of rotorcraft systems and components (AM.II.N.R4)
  - Comprehensive review of rotorcraft fundamentals
- Lab (2 hours):
  - L204.3 (continued): Practice rotor system inspection
    Given: Bell 206L1 Long Ranger II Maintenance Manual, rotorcraft component mockup or actual helicopter.
    Performance: The student will perform an inspection of skid shoes and tubes, referencing the maintenance manual.
    Standard: The inspection will meet return-to-service standards per the Bell 206L1 Long Ranger II Maintenance Manual.
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

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AMA204.1 NIGHT Course Schedule

4-hour instructional days, with each day including lecture and lab components, totaling 6 days to complete 23 hours of instruction plus 1 hour for the final exam.

Day 1: Rotorcraft Aerodynamics

- Lecture (2 hours):
    - Rotorcraft aerodynamics (AM.II.N.K1)
    - Design, type, and operation of rotor systems (AM.II.N.K5)
- Lab (2 hours):
    - L204.1: Locate components of a helicopter rotor system (AM.II.N.S1)
      Given: A worksheet with a drawing of a rotor.
      Performance: The student will identify the components of a rotor system.
      Standard: The student will successfully identify the components with at least 70% accuracy.

Day 2: Rotor Blade Functions

- Lecture (2 hours):
    - Rotor blade functions and construction (AM.II.N.K7)
    - Risk management: Working around helicopter blades during ground operations (AM.II.N.R1)
- Lab (2 hours):
    - L204.1 (continued): Inspect rotor system components
      Given: Rotorcraft component mockup or actual helicopter, FAA-H-8083-31B.
      Performance: The student will inspect rotor system components for wear and damage.
      Standard: The inspection will align with FAA-H-8083-31B standards.

Day 3: Flight Controls and Rigging

- Lecture (2 hours):
    - Flight controls (AM.II.N.K2)
    - Rigging requirements for rotary wing aircraft (AM.II.N.K4)
    - Risk management: Ground-handling procedures (AM.II.N.R2)
- Lab (2 hours):
    - L204.2: Locate and explain procedures needed to rig helicopter controls (AM.II.N.S3)
      Given: Bell 206L1 Long Ranger II Maintenance Manual.
      Performance: The student will navigate to 27-20-00 page 27-19 and complete a fill-in-the-blank worksheet on the rigging of cyclic controls.
      Standard: The student will complete the worksheet with at least 70% accuracy.

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Day 4: Rotor Tracking and Balance

- Lecture (2 hours):
    - Rotor vibrations, track, and balance (AM.II.N.K8)
    - Risk management: Ground operations and functional tests (AM.II.N.R3)
- Lab (2 hours):
    - L204.3: Locate helicopter rotor blade track and balance procedures (AM.II.N.S2, AM.II.N.S4)
      Given: Bell 206L1 Long Ranger II Maintenance Manual.
      Performance: The student will navigate to 65-00-00 page 10A/B and complete a fill-in-the-blank worksheet on the Bell Dynamic Tracking procedure.
      Standard: The student will complete the worksheet with at least 70% accuracy.

Day 5: Transmissions and Inspections

- Lecture (2 hours):
    - Transmissions (AM.II.N.K3)
    - Drive system vibrations and inspection (AM.II.N.K9)
    - Risk management: Maintenance and inspection of rotorcraft systems and components (AM.II.N.R4)
- Lab (2 hours):
    - L204.3 (continued): Practice rotor system inspection
      Given: Bell 206L1 Long Ranger II Maintenance Manual, rotorcraft component mockup or actual helicopter.
      Performance: The student will perform an inspection of skid shoes and tubes, referencing the maintenance manual.
      Standard: The inspection will meet return-to-service standards per the Bell 206L1 Long Ranger II Maintenance Manual.

Day 6: Review and Final Exam

- Lecture (2 hours):
    - Helicopter skid shoe and tube inspection (AM.II.N.K6)
    - Comprehensive review of rotorcraft fundamentals
- Lab (1 hour):
    - L204.3 (continued): Review rotor system maintenance
      Given: Bell 206L1 Long Ranger II Maintenance Manual, rotorcraft component mockup or actual helicopter.
      Performance: The student will review inspection and maintenance procedures for rotor

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system components.
Standard: The review will align with FAA-H-8083-31B and Bell 206L1 Maintenance Manual standards.

- Final Exam (1 hour):
    - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

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AMA205.1: Communication and Navigation Systems

Course Overview

- Course Code: AMA205.1
- Course Title: Communication and Navigation Systems
- Total Hours: 36 (24 Lecture, 12 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 11: Communication & Navigation (FAA, 2023)

Description

This course covers the principles, installation, and maintenance of aircraft communication and navigation systems, including radios and GPS. Lab work focuses on installation, testing, and troubleshooting to ensure compliance with regulatory standards for avionics.

Learning Objectives

- Install and test communication and navigation equipment.
- Troubleshoot system malfunctions.
- Ensure compliance with regulatory standards for avionics.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L205.1, L205.1, L205.3, L205.4, L205.5, L205.6, L205.7). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 11, for additional examples and diagrams on communication and navigation systems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper handling of high-frequency systems and electrostatic discharge, are emphasized throughout all lab activities.

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AMA205.1 DAY Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 6 days to complete 24 hours. The final examination (1 hour) is included in the academic (lecture) hours on Day 6.

Day 1: Communication Systems Basics

- Lecture (3 hours):
  - Radio operating principles (AM.II.I.K1)
  - Radio components (AM.II.I.K2)
  - Antenna, static discharge wicks, and avionics identification, inspection, and mounting requirements (AM.II.I.K3)
  - Interphone and intercom systems (AM.II.I.K4)
  - Risk management: Mounting antennas (AM.II.I.R4)
  - Risk management: Electro-static discharge (AM.II.I.R5)
- Lab (3 hours):
  - L205.1: Check VHF communications for operation (AM.II.I.S5)
    Given: An operating aircraft or radio on a test fixture.
    Performance: The student will perform a VHF communications check.
    Standard: The student will successfully perform a VHF communications check.
  - L205.1: Locate and identify navigation and communication antennas (AM.II.I.S4)
    Given: PA-28 or PA-32 aircraft.
    Performance: The student will locate and identify the navigation and communication antennas.
    Standard: The student will successfully locate and identify navigation and communication antennas.
  - L205.3: Make a list of required placards for communication and navigation avionic equipment (AM.II.I.S1)
    Given: AC-43-6C.
    Performance: The student will reference AC 43-6C to determine the required placards for altimeter encoding and transponder equipment.
    Standard: The student will successfully reference AC 43-6C to determine the required placards for altimeter encoding and transponder equipment.

Day 2: Advanced Communication Systems

- Lecture (3 hours):
  - Very high frequency (VHF), high frequency (HF), and SATCOM systems (AM.II.I.K5)
  - Aircraft Communication Addressing and Reporting System (ACARS) theory, components, and operation (AM.II.I.K6)
  - Emergency locator transmitter (ELT) (AM.II.I.K7)
  - Risk management: ELT testing procedures (AM.II.I.R1)
  - Risk management: Working around live electrical systems (AM.II.I.R6)
- Lab (3 hours):
  - L205.4: Check an emergency locator transmitter for operation, inspect ELT batteries (AM.II.I.S7, AM.II.I.S8)
    Given: Piper PA-32 AMM.

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Performance: The student will reference the correct AMM chapter to locate ELT inspection requirements and test, inspect ELT batteries for condition and expiration date, and perform a simulated ELT test.
Standard: The student will successfully reference AMM 25-60-00, inspect batteries, and perform the simulated test.

- L205.5: Inspect static discharge wicks for security and resistance (AM.II.I.S11)
  Given: PA-32 aircraft.
  Performance: The student will locate and inspect the static wicks for appearance, security, and resistance check using the correct AMM chapter.
  Standard: The student will successfully locate and inspect the static wicks per AMM 23-60-00.

Day 3: Navigation Systems

- Lecture (3 hours):
  - Automatic direction finder (ADF) (AM.II.I.K8)
  - VHF omnidirectional range (VOR) theory, components, and operation (AM.II.I.K9)
  - Distance measuring equipment (DME) theory, components, and operation (AM.II.I.K10)
  - Instrument landing system (ILS) theory, components, and operation (AM.II.I.K11)
  - Global positioning system (GPS) theory, components, and operation (AM.II.I.K12)
  - Risk management: Wire harness routing (AM.II.I.R3)
- Lab (3 hours):
  - L205.6: Inspect a coaxial cable installation for security, inspect electronic equipment mounting base, inspect shock mount bonding jumpers, inspect a radio installation (AM.II.I.S6, AM.II.I.S9, AM.II.I.S10, AM.II.I.S12)
    Given: PA-32 aircraft.
    Performance: The student will inspect a coaxial cable installation, a radio installation, an electronic equipment mounting base, and check shock mount bonding jumpers for resistance.
    Standard: The student will successfully inspect all items and report findings to the instructor.

Day 4: Navigation Systems

- Lecture (3 hours):
  - SATCOM
  - SELCAL
  - Flight Management Systems
  - FMS Integration with Auto flight
  - Autoland
  - Inertial Reference Systems
  - Reduced Vertical Separation
  - Altitude Alerting

Day 5: Advanced Navigation and Warning Systems

- Lecture (2 hours):

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    - Traffic collision avoidance system (TCAS) theory, components, and operation (AM.II.I.K13)
    - Weather radar (AM.II.I.K14)
    - Ground proximity warning system (GPWS) theory, components, and operation (AM.II.I.K15)
    - Autopilot theory, components, and operation (AM.II.I.K16)
    - Auto-throttle theory, components, and operation (AM.II.I.K17)
    - Stability augmentation (AM.II.I.K18)
    - Radio altimeter (RA) theory, components, and operation (AM.II.I.K19)
    - Automatic Dependent Surveillance-Broadcast (ADS-B) theory, components, and operation (AM.II.I.K20)
    - Risk management: Performing maintenance on high power/high frequency systems (e.g., weather radar and SATCOM) (AM.II.I.R2)
- Lab (3 hours):
    - L205.7: Locate and explain the installation procedures for antennas, including mounting and coaxial connections (AM.II.I.S13)
      Given: FAA-H-8083-31A-AMT-Airframe Chapter 11.
      Performance: The student will locate the generic antenna installation procedures in the reference material and describe antenna mounting procedures, including mounting and coaxial connections.
      Standard: The student will successfully locate the procedures (Pages 11-75 thru 11-78) and describe mounting and connections.

Day 6: Review and Examination

- Comprehensive Review: Comprehensive review covering all course material.
- Final Examination (1 hour): Comprehensive exam covering all course material.

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AMA205.1 NIGHT Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 6 days to complete 24 hours. The final examination (1 hour) is included in the lecture hours on Day 6.

Day 1: Introduction to Communication Systems

- Lecture (2 hours):
  - Radio operating principles (AM.II.I.K1)
  - Radio components (AM.II.I.K2)
  - Risk management: Electro-static discharge (AM.II.I.R5)
- Lab (2 hours):
  - L205.1: Check VHF communications for operation (AM.II.I.S5)
    Given: An operating aircraft or radio on a test fixture.
    Performance: The student will perform a VHF communications check.
    Standard: The student will successfully perform a VHF communications check.

Day 2: Antennas and Placards

- Lecture (2 hours):
  - Antenna, static discharge wicks, and avionics identification, inspection, and mounting requirements (AM.II.I.K3)
  - Interphone and intercom systems (AM.II.I.K4)
  - Risk management: Mounting antennas (AM.II.I.R4)
- Lab (2 hours):
  - L205.1: Locate and identify navigation and communication antennas (AM.II.I.S4)
    Given: PA-28 or PA-32 aircraft.
    Performance: The student will locate and identify the navigation and communication antennas.
    Standard: The student will successfully locate and identify navigation and communication antennas.
  - L205.3: Make a list of required placards for communication and navigation avionic equipment (AM.II.I.S1)
    Given: AC-43-6C.
    Performance: The student will reference AC 43-6C to determine the required placards for altimeter encoding and transponder equipment.
    Standard: The student will successfully reference AC 43-6C to determine the required placards.

Day 3: Emergency Locator Transmitters

- Lecture (2 hours):
  - Very high frequency (VHF), high frequency (HF), and SATCOM systems (AM.II.I.K5)
  - Emergency locator transmitter (ELT) (AM.II.I.K7)
  - Risk management: ELT testing procedures (AM.II.I.R1)
- Lab (2 hours):

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- L205.4: Check an emergency locator transmitter for operation, inspect ELT batteries (AM.II.I.S7, AM.II.I.S8)
  Given: Piper PA-32 AMM.
  Performance: The student will reference AMM 25-60-00 to locate ELT inspection requirements and test, inspect ELT batteries for condition and expiration date, and perform a simulated ELT test.
  Standard: The student will successfully reference AMM, inspect batteries, and perform the simulated test.

Day 4: Navigation Systems Basics

- Lecture (2 hours):
  - Automatic direction finder (ADF) (AM.II.I.K8)
  - VHF omnidirectional range (VOR) theory, components, and operation (AM.II.I.K9)
  - Distance measuring equipment (DME) theory, components, and operation (AM.II.I.K10)
  - Risk management: Wire harness routing (AM.II.I.R3)
- Lab (2 hours):
  - L205.5: Inspect static discharge wicks for security and resistance (AM.II.I.S11)
    Given: PA-32 aircraft.
    Performance: The student will locate and inspect the static wicks for appearance, security, and resistance check using AMM 23-60-00.
    Standard: The student will successfully inspect the static wicks per AMM.

Day 5: Advanced Navigation Systems

- Lecture (2 hours):
  - Instrument landing system (ILS) theory, components, and operation (AM.II.I.K11)
  - Global positioning system (GPS) theory, components, and operation (AM.II.I.K12)
  - Traffic collision avoidance system (TCAS) theory, components, and operation (AM.II.I.K13)
  - Risk management: Working around live electrical systems (AM.II.I.R6)
- Lab (2 hours):
  - L205.6: Inspect a coaxial cable installation for security, inspect electronic equipment mounting base, inspect shock mount bonding jumpers, inspect a radio installation (AM.II.I.S6, AM.II.I.S9, AM.II.I.S10, AM.II.I.S12)
    Given: PA-32 aircraft.
    Performance: The student will inspect a coaxial cable installation, a radio installation, an electronic equipment mounting base, and check shock mount bonding jumpers for resistance.
    Standard: The student will successfully inspect all items and report findings to the instructor.

Day 6: Warning Systems and Final Review

- Lecture (1 hour):
  - Weather radar (AM.II.I.K14)
  - Ground proximity warning system (GPWS) theory, components, and operation (AM.II.I.K15)

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  - Autopilot theory, components, and operation (AM.II.I.K16)
  - Auto-throttle theory, components, and operation (AM.II.I.K17)
  - Stability augmentation (AM.II.I.K18)
  - Radio altimeter (RA) theory, components, and operation (AM.II.I.K19)
  - Automatic Dependent Surveillance-Broadcast (ADS-B) theory, components, and operation (AM.II.I.K20)
  - Risk management: Performing maintenance on high power/high frequency systems (e.g., weather radar and SATCOM) (AM.II.I.R2)
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (2 hours):
  - L205.7: Locate and explain the installation procedures for antennas, including mounting and coaxial connections (AM.II.I.S13)
    Given: FAA-H-8083-31A-AMT-Airframe Chapter 11.
    Performance: The student will locate the generic antenna installation procedures (Pages 11-75 thru 11-78) and describe antenna mounting procedures, including mounting and coaxial connections.
    Standard: The student will successfully locate and describe the procedures.

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AMA206.1: Water and Waste Systems

Course Overview

- Course Code: AMA206.1
- Course Title: Water and Waste Systems
- Total Hours: 12 (6 Lecture, 6 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: Aircraft Water and Waste Systems ISBN: 978-1-933189-93-2 (Avotek 2022)

Description

This course introduces the maintenance and operation of aircraft water and waste systems, including potable water and lavatory systems. Lab work focuses on servicing procedures and troubleshooting to ensure hygiene and regulatory compliance.

Learning Objectives

- Maintain and inspect water and waste system components.
- Troubleshoot issues in water and waste systems.
- Ensure hygiene and regulatory compliance in system maintenance.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L206.1, L206.2). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook for additional guidance on water and waste systems, as specific chapters may not cover all details due to the specialized nature of the topic.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including the use of personal protective equipment (PPE) and hygiene practices during lavatory waste system servicing, are emphasized throughout all lab activities.

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AMA206.1 Day Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 2 days to complete 12 hours. The final examination (1 hour) is included in the lecture hours on Day 2.

Day 1: Water and Waste System Components

- Lecture (3 hours):
  - Potable water system components and operation (AM.II.O.K1)
  - Lavatory waste system components and operation (AM.II.O.K2)
  - Risk management: Servicing lavatory waste systems, including use of safety equipment (AM.II.O.R1)
- Lab (3 hours):
  - L206.1: Locate and explain the procedures for servicing a potable water system (AM.II.O.S2)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 38-31-00 page 201 to answer worksheet questions regarding the servicing of the potable water system.
    Standard: The student will successfully locate and reference the AMM section and answer worksheet questions with at least 70% accuracy.
  - L206.2: Locate and explain the procedures for servicing a lavatory waste system (AM.II.O.S1)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 38-31-00 page 201 to answer worksheet questions regarding the servicing of the lavatory waste system.
    Standard: The student will successfully locate and reference the AMM section and answer worksheet questions with at least 70% accuracy.

Day 2: Inspection and Maintenance Procedures

- Lecture (2 hours):
  - Inspection and servicing requirements for water and waste systems (AM.II.O.K3)
  - Review of troubleshooting techniques for water and waste systems
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (3 hours):
  - L206.1 (continued): Locate and explain the procedures for servicing a potable water system (AM.II.O.S2)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will continue practicing locating and explaining potable water system servicing procedures, focusing on practical application and troubleshooting scenarios.
    Standard: The student will demonstrate proficiency in referencing AMM 38-31-00 page 201 and applying procedures accurately.
  - L206.2 (continued): Locate and explain the procedures for servicing a lavatory waste system (AM.II.O.S1)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will continue practicing locating and explaining lavatory waste

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system servicing procedures, focusing on hygiene and safety compliance.
Standard: The student will demonstrate proficiency in referencing AMM 38-31-00 page 201 and applying procedures accurately.

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AMT206.1 Night Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 3 days to complete 12 hours. The final examination (1 hour) is included in the lecture hours on Day 3.

Day 1: Water and Waste System Components

- Lecture (2 hours):
  - Potable water system components and operation (AM.II.O.K1)
  - Risk management: Servicing lavatory waste systems, including use of safety equipment (AM.II.O.R1)
- Lab (2 hours):
  - L206.1: Locate and explain the procedures for servicing a potable water system (AM.II.O.S2)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 38-31-00 page 201 to answer worksheet questions regarding the servicing of the potable water system.
    Standard: The student will successfully locate and reference the AMM section and answer worksheet questions with at least 70% accuracy.

Day 2: Lavatory Waste Systems

- Lecture (2 hours):
  - Lavatory waste system components and operation (AM.II.O.K2)
- Lab (2 hours):
  - L206.2: Locate and explain the procedures for servicing a lavatory waste system (AM.II.O.S1)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 38-31-00 page 201 to answer worksheet questions regarding the servicing of the lavatory waste system.
    Standard: The student will successfully locate and reference the AMM section and answer worksheet questions with at least 70% accuracy.

Day 3: Inspection and Final Review

- Lecture (1 hour):
  - Inspection and servicing requirements for water and waste systems (AM.II.O.K3)
  - Review of troubleshooting techniques for water and waste systems
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (2 hours):
  - L206.1 (continued): Locate and explain the procedures for servicing a potable water system (AM.II.O.S2)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will continue practicing locating and explaining potable water system servicing procedures, focusing on practical application and troubleshooting scenarios.

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Standard: The student will demonstrate proficiency in referencing AMM 38-31-00 page 201 and applying procedures accurately.

- L206.2 (continued): Locate and explain the procedures for servicing a lavatory waste system (AM.II.O.S1)
  Given: Boeing 737-300/400/500 AMM.
  Performance: The student will continue practicing locating and explaining lavatory waste system servicing procedures, focusing on hygiene and safety compliance.
  Standard: The student will demonstrate proficiency in referencing AMM 38-31-00 page 201 and applying procedures accurately.

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AMA207.1: Airframe Inspection

Course Overview

- Course Code: AMA207.1
- Course Title: Airframe Inspection
- Total Hours: 48 (12 Lecture, 36 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 2: Aerodynamics, Aircraft Assembly, & Rigging (FAA, 2023)

Description

This course teaches advanced inspection techniques for airframe systems, including non-destructive testing and regulatory compliance. Lab work focuses on performing inspections, documenting findings, and ensuring airworthiness standards.
Learning Objectives

- Conduct thorough airframe inspections using various techniques.
- Document inspection findings accurately.
- Ensure airframe compliance with airworthiness standards.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L207.1, L207.2, L207.3, L207.4). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 2, for additional guidance on airframe inspection techniques, supplemented by relevant regulatory documents.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper use of inspection tools and adherence to regulatory guidelines, are emphasized throughout all lab activities.

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AMT207.1 Day Course Schedule

Assuming 6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 8 days to complete 48 hours. The final examination (1 hour) is included in the lecture hours on Day 8.

Day 1: Regulatory Requirements and Records

- Lecture (3 hours):
    - Inspection requirements under 14 CFR part 91 (AM.II.D.K1)
    - Maintenance recordkeeping requirements under 14 CFR part 43 (AM.II.D.K2)
    - Risk management: Selection and use of checklists and other maintenance publications (AM.II.D.R4)
    - Risk management: Maintenance record documentation (AM.II.D.R5)
- Lab (3 hours):
    - L207.1: Perform an airframe inspection, including a records check (AM.II.D.S1)
      Given: Piper Warrior and aircraft records.
      Performance: The student will perform a records check as part of a 100-hour inspection of the Piper Warrior.
      Standard: The student will successfully complete the records check per Appendix D of 14 CFR part 43 and provide a discrepancy list to the instructor.

Day 2: Airworthiness Directives and Inspections

- Lecture (3 hours):
    - Requirements for complying with ADs (AM.II.D.K3)
    - CFRs applicable to inspection and airworthiness (AM.II.D.K8)
    - Risk management: Interpretation of inspection instructions, which can lead to over or under maintenance being performed (AM.II.D.R1)
- Lab (3 hours):
    - L207.2: Determine compliance with a specific AD (AM.II.D.S4)
      Given: Piper Warrior aircraft records.
      Performance: The student will research the aircraft records to determine if AD 2018-07-03 has been complied with using the FAA Dynamic Regulatory System.
      Standard: The student will successfully locate the AD and confirm compliance through a records search.

Day 3: 100-Hour Inspection Procedures

- Lecture (3 hours):
    - Special inspections (AM.II.D.K5)

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- Use of FAA-approved data (AM.II.D.K6)
- Risk management: Visual inspection and where to apply it (AM.II.D.R2)

- Lab (3 hours):
  - L207.1: Perform a portion of a 100-hour inspection, provide a checklist for conducting a 100-hour inspection (AM.II.D.S2, AM.II.D.S5)
    Given: Piper Warrior and aircraft records.
    Performance: The student will perform a portion of a 100-hour inspection and manufacture a checklist based on Appendix D of 14 CFR part 43, balanced against the manufacturer's 100-hour checklist.
    Standard: The student will successfully perform the inspection and create a checklist per standards.

Day 4: Additional Inspection Requirements

- Lecture (3 hours):
  - Identification of life-limited parts and their replacement interval (AM.II.D.K4)
  - Compliance with service letters, service bulletins, instructions for continued airworthiness, or ADs (AM.II.D.K7)
- Lab (3 hours):
  - L207.1: Determine if any additional inspections are required during a 100-hour inspection (AM.II.D.S6)
    Given: Piper Warrior and aircraft records.
    Performance: The student will determine if additional inspections, such as a 300-hour filter replacement, are required during a 100-hour inspection.
    Standard: The student will successfully identify any additional inspection requirements and provide a discrepancy list to the instructor.

Day 5: Corrosion and Non-Destructive Testing

- Lecture (3 hours):
  - Corrosion types and identification (AM.II.D.K9)
  - Risk management: Performing radiographic inspections (AM.II.D.R3)
- Lab (3 hours):
  - L207.1: Perform an airframe inspection (AM.II.D.S1)
    Given: Piper Warrior and aircraft records.
    Performance: The student will continue performing a 100-hour inspection, focusing on identifying corrosion and applying visual inspection techniques.
    Standard: The student will successfully complete the inspection per Appendix D of 14 CFR part 43 and provide a discrepancy list.

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Day 6: Seat and Seatbelt Inspections

- Lecture (3 hours):
    - Review of inspection techniques and documentation
- Lab (3 hours):
    - L207.3: Inspect seat and seatbelt, including TSO markings (AM.II.D.S7)
      Given: Piper Warrior.
      Performance: The student will inspect the seatbelts in the Piper Warrior and determine if the correct TSO markings are present, presenting findings to the instructor.
      Standard: The student will successfully inspect the seatbelts and confirm TSO markings.

Day 7: Maintenance Recordkeeping

- Lecture (3 hours):
    - Review of maintenance recordkeeping and compliance
- Lab (3 hours):
    - L207.4: Enter results of a 100-hour inspection in a maintenance record (AM.II.D.S3)
      Given: Results from Lab L207.1.
      Performance: The student will make a log entry reflecting the completion of the 100-hour inspection and its results.
      Standard: The student will successfully create a legible log entry with correct verbiage and inspection results.

Day 8: Final Review and Examination

- Lecture (2 hours):
    - Review of airframe inspection techniques and regulatory compliance
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (3 hours):
    - L207.1: Perform a portion of a 100-hour inspection (AM.II.D.S2)
      Given: Piper Warrior and aircraft records.
      Performance: The student will continue performing a portion of a 100-hour inspection, focusing on practical application of inspection techniques.
      Standard: The student will successfully complete the inspection per Appendix D of 14 CFR part 43.

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AMA207.1 Night Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 12 days to complete 48 hours. The final examination (1 hour) is included in the lecture hours on Day 12.

Day 1: Regulatory Requirements

- Lecture (2 hours):
    - Inspection requirements under 14 CFR part 91 (AM.II.D.K1)
    - Risk management: Selection and use of checklists and other maintenance publications (AM.II.D.R4)
- Lab (2 hours):
    - L207.1: Perform an airframe inspection, including a records check (AM.II.D.S1)
      Given: Piper Warrior and aircraft records.
      Performance: The student will perform a records check as part of a 100-hour inspection of the Piper Warrior.
      Standard: The student will successfully complete the records check per Appendix D of 14 CFR part 43 and provide a discrepancy list to the instructor.

Day 2: Maintenance Recordkeeping

- Lecture (2 hours):
    - Maintenance recordkeeping requirements under 14 CFR part 43 (AM.II.D.K2)
    - Risk management: Maintenance record documentation (AM.II.D.R5)
- Lab (2 hours):
    - L207.4: Enter results of a 100-hour inspection in a maintenance record (AM.II.D.S3)
      Given: Results from Lab L207.1.
      Performance: The student will make a log entry reflecting the completion of the 100-hour inspection and its results.
      Standard: The student will successfully create a legible log entry with correct verbiage and inspection results.

Day 3: Airworthiness Directives

- Lecture (2 hours):
    - Requirements for complying with ADs (AM.II.D.K3)
    - Risk management: Interpretation of inspection instructions, which can lead to over or under maintenance being performed (AM.II.D.R1)
- Lab (2 hours):
    - L207.2: Determine compliance with a specific AD (AM.II.D.S4)
      Given: Piper Warrior aircraft records.

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Performance: The student will research the aircraft records to determine if AD 2018-07-03 has been complied with using the FAA Dynamic Regulatory System.
Standard: The student will successfully locate the AD and confirm compliance through a records search.

Day 4: Special Inspections

- Lecture (2 hours):
    - Special inspections (AM.II.D.K5)
    - Use of FAA-approved data (AM.II.D.K6)
- Lab (2 hours):
    - L207.1: Provide a checklist for conducting a 100-hour inspection (AM.II.D.S5)
      Given: Piper Warrior and aircraft records.
      Performance: The student will manufacture a checklist based on Appendix D of 14 CFR part 43, balanced against the manufacturer's 100-hour checklist.
      Standard: The student will successfully create a checklist per standards.

Day 5: 100-Hour Inspection

- Lecture (2 hours):
    - CFRs applicable to inspection and airworthiness (AM.II.D.K8)
- Lab (2 hours):
    - L207.1: Perform a portion of a 100-hour inspection (AM.II.D.S2)
      Given: Piper Warrior and aircraft records.
      Performance: The student will perform a portion of a 100-hour inspection per Appendix D of 14 CFR part 43.
      Standard: The student will successfully complete the inspection and provide a discrepancy list.

Day 6: Additional Inspections

- Lecture (2 hours):
    - Identification of life-limited parts and their replacement interval (AM.II.D.K4)
- Lab (2 hours):
    - L207.1: Determine if any additional inspections are required during a 100-hour inspection (AM.II.D.S6)
      Given: Piper Warrior and aircraft records.
      Performance: The student will determine if additional inspections, such as a 300-hour filter replacement, are required during a 100-hour inspection.
      Standard: The student will successfully identify any additional inspection requirements and provide a discrepancy list.

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Day 7: Corrosion Identification

- Lecture (2 hours):
    - Corrosion types and identification (AM.II.D.K9)
    - Risk management: Visual inspection and where to apply it (AM.II.D.R2)
- Lab (2 hours):
    - L207.1: Perform an airframe inspection (AM.II.D.S1)
      Given: Piper Warrior and aircraft records.
      Performance: The student will perform a 100-hour inspection, focusing on identifying corrosion and applying visual inspection techniques.
      Standard: The student will successfully complete the inspection per Appendix D of 14 CFR part 43.

Day 8: Non-Destructive Testing

- Lecture (2 hours):
    - Compliance with service letters, service bulletins, instructions for continued airworthiness, or ADs (AM.II.D.K7)
    - Risk management: Performing radiographic inspections (AM.II.D.R3)
- Lab (2 hours):
    - L207.1: Perform an airframe inspection (AM.II.D.S1)
      Given: Piper Warrior and aircraft records.
      Performance: The student will continue performing a 100-hour inspection, focusing on non-destructive testing techniques.
      Standard: The student will successfully complete the inspection per Appendix D of 14 CFR part 43.

Day 9: Seat and Seatbelt Inspection

- Lecture (2 hours):
    - Review of inspection techniques for airframe components
- Lab (2 hours):
    - L207.3: Inspect seat and seatbelt, including TSO markings (AM.II.D.S7)
      Given: Piper Warrior.
      Performance: The student will inspect the seatbelts in the Piper Warrior and determine if the correct TSO markings are present, presenting findings to the instructor.
      Standard: The student will successfully inspect the seatbelts and confirm TSO markings.

Day 10: Inspection Review

- Lecture (2 hours):

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- Review of airframe inspection procedures

- Lab (2 hours):
  - L207.1: Perform a portion of a 100-hour inspection (AM.II.D.S2)
    Given: Piper Warrior and aircraft records.
    Performance: The student will continue performing a portion of a 100-hour inspection, focusing on practical application of inspection techniques.
    Standard: The student will successfully complete the inspection per Appendix D of 14 CFR part 43.

Day 11: Documentation Review
- Lecture (2 hours):
  - Review of maintenance recordkeeping and AD compliance
- Lab (2 hours):
  - L207.4: Enter results of a 100-hour inspection in a maintenance record (AM.II.D.S3)
    Given: Results from Lab L207.1.
    Performance: The student will continue practicing making a log entry for the 100-hour inspection results.
    Standard: The student will create a legible log entry with correct verbiage and inspection results.

Day 12: Final Review and Examination
- Lecture (1 hour):
  - Review of airframe inspection techniques and regulatory compliance
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (2 hours):
  - L207.1: Perform an airframe inspection (AM.II.D.S1)
    Given: Piper Warrior and aircraft records.
    Performance: The student will perform a final airframe inspection, consolidating all learned techniques.
    Standard: The student will successfully complete the inspection per Appendix D of 14 CFR part 43 and provide a discrepancy list.

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AMA208.2: Aircraft Electrical Systems

Course Overview

- Course Code: AMA208.2
- Course Title: Aircraft Electrical Systems
- Total Hours: 48 (12 Lecture, 36 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 9: Aircraft Electrical Systems (FAA, 2023)

Description

This course covers the installation, maintenance, and troubleshooting of aircraft electrical systems, including wiring, power distribution, and lighting. Lab work focuses on practical skills in electrical system repair and diagnostics.

Learning Objectives

- Install and repair aircraft electrical systems.
- Troubleshoot electrical faults using diagnostic tools.
- Apply safety protocols for electrical maintenance.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L208.1, L208.2, L208.3, L208.4, L208.5, L208.6, L208.7). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 9, for additional examples and technical guidance.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including working on energized circuits and handling electrical components, are emphasized throughout all lab activities.

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AMA208.2 DAY Course Schedule

6-hour instructional days, with each day including lecture and lab components, totaling 10 days to complete 59 hours of instruction plus 1 hour for the final exam.

Day 1: DC Generation and Power Distribution

- Lecture (3 hours):
    - Generators, DC generation systems, and DC power distribution systems (AM.II.K.K1)
    - Starter generators (AM.II.K.K3)
    - Voltage regulators and over-volt and overcurrent protection (AM.II.K.K5)
- Lab (3 hours):
    - L208.1: Inspect generator brush serviceability and brush spring tension (AM.II.K.S13)
      Given: Rockwell Turbo Commander AMM.
      Performance: The student will inspect and check starter generator brush serviceability and spring tension.
      Standard: The student will successfully inspect and check starter generator brush serviceability and spring tension.

Day 2: AC Generation and Inverters

- Lecture (3 hours):
    - Alternators, AC generation systems, and AC power distribution systems (AM.II.K.K2)
    - Constant speed drive (CSD) and integrated drive generator (IDG) systems and components (AM.II.K.K4)
    - Inverter systems (AM.II.K.K6)
- Lab (3 hours):
    - L208.2: Check output voltage of a DC generator (AM.II.K.S11)
      Given: Electrical Generator Mockup.
      Performance: The student will check the output of a DC Generator.
      Standard: The student will successfully check the output of a DC Generator.

Day 3: Wiring and Installation

- Lecture (3 hours):
    - Aircraft wiring sizes, types, selection, and installation (AM.II.K.K7)
    - Aircraft wiring shielding (AM.II.K.K9)
    - Aircraft bonding and protection (AM.II.K.K11)
    - Risk management: Maintenance in areas containing aircraft wiring (AM.II.K.R4)
    - Risk management: Routing and securing wires and wire bundles (AM.II.K.R5)

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- Lab (3 hours):
    - L208.6: Perform wire terminating and splicing, assemble an aircraft electrical connector, install bonding jumpers (AM.II.K.S2, AM.II.K.S3, AM.II.K.S10)
      Given: A selection of aircraft wire, terminal lugs, splices, connectors, and bonding strap material.
      Performance: The student will install terminal lugs and butt splices on wires, assemble an electrical connector, fabricate and install a bonding strap, and perform a solder splice.
      Standard: The student will successfully complete all tasks to return-to-service standards.

Day 4: Electrical Protection and Switches

- Lecture (3 hours):
    - Derating factors in switch selection (AM.II.K.K8)
    - Aircraft lightning protection (AM.II.K.K10)
    - Aircraft electrical connectors, splices, terminals, and switches (AM.II.K.K15)
    - Risk management: Selection or installation of wire terminals (AM.II.K.R7)
- Lab (3 hours):
    - L208.4: Inspect aircraft wiring to verify installation and routing, install airframe electrical wiring, switches, or protective devices, secure wire bundles, inspect components in an electrical system (AM.II.K.S1, AM.II.K.S7, AM.II.K.S8, AM.II.K.S15)
      Given: Piper PA-32 AMM.
      Performance: The student will inspect and check components of the aircraft electrical system, inspect wiring for installation and routing, fabricate and install a wire bundle, and install an assigned switch or protective device.
      Standard: The student will successfully complete all tasks to return-to-service standards.

Day 5: Lighting and Soldering

- Lecture (3 hours):
    - Aircraft lighting systems (AM.II.K.K12)
    - Soldering preparation, types of solder, and flux usage (AM.II.K.K14)
    - Risk management: Effects of soldering (AM.II.K.R8)
    - Risk management: Soldering practices (AM.II.K.R9)
- Lab (3 hours):
    - L208.7: Inspect and check anti-collision, position, and landing lights for proper operation (AM.II.K.S14)
      Given: Aircraft Electrical System Trainer.

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Performance: The student will inspect and check the anti-collision lights, position lights, and landing lights for proper operation.
Standard: The student will successfully inspect and check the lights for operation.

Day 6: Troubleshooting and Testing

- Lecture (3 hours):
    - Electrical system troubleshooting (AM.II.K.K13)
    - Electrical system measurement, adjustment, and testing (AM.II.K.K16)
    - Aircraft battery troubleshooting and maintenance (AM.II.K.K17)
    - Risk management: Testing/troubleshooting electrical systems or components (AM.II.K.R1)
- Lab (3 hours):
    - L208.3: Troubleshoot an airframe electrical circuit, check resistance, perform continuity test, test for short to ground and to other conductors (AM.II.K.S6, AM.II.K.S12, AM.II.K.S18, AM.II.K.S19, AM.II.K.S20)
      Given: Aircraft Electrical System Trainer.
      Performance: The student will perform a continuity test on a selected circuit, take a resistance reading through the landing light, test for short to ground, and test for short to other conductors.
      Standard: The student will successfully perform all tests to return-to-service standards.

Day 7: Electrical Schematics, Electrical Loads and Generators

- Lecture (2 hours):
    - Risk management: Maintenance on energized circuits/systems (AM.II.K.R3)
    - Risk management: Connecting or disconnecting external power (AM.II.K.R2)
    - Determine an electrical load in a given aircraft system (AM.II.K.S9)
    - Check output voltage of a DC generator (AM.II.K.S11)
- Lab (4 hours):
    - L208.5: Use a wiring circuit diagram to identify components, troubleshoot a DC electrical system supplied by an AC system, identify components where AC is rectified to DC (AM.II.K.S4, AM.II.K.S16, AM.II.K.S17)
      Given: B767 Fault Isolation Manual and Wire Diagram Manual.
      Performance: Given the scenario of B767 EICAS message “T-R UNIT,” the student will navigate to the troubleshooting procedure in the FIM and WDM, determine faults and steps, and answer questions on component identification (Aircraft effectivity: DAL 705).

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Standard: The student will navigate to FIM 23-32 Fault Tree 803 pg 104, WDM DAL 24-32-11 pg 4, and correctly answer questions.

Day 8: Final Review and Examination

- Lecture (3 hours):
    - Comprehensive review of aircraft electrical systems, wiring, power distribution, lighting, and troubleshooting
- Lab (2 hours):
    - L208.4 (continued): Final electrical system practice
      Given: Piper PA-32 AMM, aircraft electrical system.
      Performance: The student will perform final inspections and installations of wiring and components.
      Standard: All work will meet return-to-service standards.
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

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AMA208.2 NIGHT Course Schedule

4-hour instructional days, with each day including lecture and lab components, totaling 15 days to complete 59 hours of instruction plus 1 hour for the final exam.

Day 1: DC Generation Systems

- Lecture (1 hour):
    - Generators, DC generation systems, and DC power distribution systems (AM.II.K.K1)
- Lab (3 hours):
    - L208.1: Inspect generator brush serviceability and brush spring tension (AM.II.K.S13)
      Given: Rockwell Turbo Commander AMM.
      Performance: The student will inspect and check starter generator brush serviceability and spring tension.
      Standard: The student will successfully inspect and check starter generator brush serviceability and spring tension.

Day 2: Starter Generators

- Lecture (1 hour):
    - Starter generators (AM.II.K.K3)
- Lab (3 hours):
    - L208.2: Check output voltage of a DC generator (AM.II.K.S11)
      Given: Electrical Generator Mockup.
      Performance: The student will check the output of a DC Generator.
      Standard: The student will successfully check the output of a DC Generator.

Day 3: Voltage Regulation

- Lecture (1 hour):
    - Voltage regulators and over-volt and overcurrent protection (AM.II.K.K5)
- Lab (3 hours):
    - L208.1 (continued): Inspect voltage regulator components
      Given: Rockwell Turbo Commander AMM, electrical system mockup.
      Performance: The student will inspect voltage regulator components for proper function.
      Standard: The inspection will meet return-to-service standards per the AMM.

Day 4: AC Generation Systems

- Lecture (1 hour):
    - Alternators, AC generation systems, and AC power distribution systems (AM.II.K.K2)
- Lab (3 hours):

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- L208.2 (continued): Inspect AC generation components
  Given: Electrical Generator Mockup.
  Performance: The student will inspect alternator components for proper operation.
  Standard: The inspection will align with FAA-H-8083-31B standards.

Day 5: CSD and IDG Systems

- Lecture (1 hour):
  - Constant speed drive (CSD) and integrated drive generator (IDG) systems and components (AM.II.K.K4)
- Lab (3 hours):
  - L208.2 (continued): Inspect CSD/IDG components
    Given: Electrical system mockup, technical data.
    Performance: The student will inspect CSD/IDG components for wear and function.
    Standard: The inspection will meet return-to-service standards.

Day 6: Inverter Systems and Wiring and Electrical protection

- Lecture (2 hours):
  - Inverter systems (AM.II.K.K6)
  - Aircraft wiring sizes, types, selection, and installation (AM.II.K.K7)
  - Risk management: Routing and securing wires and wire bundles (AM.II.K.R5)
  - Aircraft wiring shielding (AM.II.K.K9)
  - Aircraft bonding and protection (AM.II.K.K11)
  - Risk management: Maintenance in areas containing air
- Lab (2 hours):
  - L208.6: Perform wire terminating and splicing (AM.II.K.S2)
    Given: A selection of aircraft wire, terminal lugs, splices.
    Performance: The student will install terminal lugs and butt splices on wires.
    Standard: The installations will meet return-to-service standards.
  - L208.6 (continued): Install bonding jumpers (AM.II.K.S10)
    Given: Bonding strap material.
    Performance: The student will fabricate and install a bonding strap.
    Standard: The installation will meet return-to-service standards.

Day 7: Connectors and Switches

- Lecture (2 hours):
  - Aircraft electrical connectors, splices, terminals, and switches (AM.II.K.K15)

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- Derating factors in switch selection (AM.II.K.K8)
- Risk management: Selection or installation of wire terminals (AM.II.K.R7)
- Aircraft lighting systems (AM.II.K.K12)
- Aircraft lightning protection (AM.II.K.K10)

- Lab (2 hours):
  - L208.6 (continued): Assemble an aircraft electrical connector (AM.II.K.S3)
    Given: Aircraft electrical connectors.
    Performance: The student will assemble an aircraft electrical connector.
    Standard: The assembly will meet return-to-service standards.
  - L208.7: Inspect and check anti-collision, position, and landing lights for proper operation (AM.II.K.S14)
    Given: Aircraft Electrical System Trainer.
    Performance: The student will inspect and check the anti-collision lights, position lights, and landing lights for proper operation.
    Standard: The student will successfully inspect and check the lights for operation.
  -

Day 8: Soldering Techniques
- Lecture (2 hours):
  - Soldering preparation, types of solder, and flux usage (AM.II.K.K14)
  - Risk management: Effects of soldering (AM.II.K.R8)
  - Risk management: Soldering practices (AM.II.K.R9)
- Lab (2 hours):
  - L208.6 (continued): Solder aircraft wiring (AM.II.K.S5)
    Given: Aircraft wire, soldering equipment.
    Performance: The student will perform a solder splice on aircraft wire.
    Standard: The solder splice will meet return-to-service standards.

Day 9: Troubleshooting Basics and Electrical Testing
- Lecture (2 hours):
  - Electrical system troubleshooting (AM.II.K.K13)
  - Risk management: Testing/troubleshooting electrical systems or components (AM.II.K.R1)

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- Electrical system measurement, adjustment, and testing (AM.II.K.K16)

- Lab (2 hours):
  - L208.3: Troubleshoot an airframe electrical circuit (AM.II.K.S6)
    Given: Aircraft Electrical System Trainer.
    Performance: The student will troubleshoot an airframe electrical circuit.
    Standard: The troubleshooting will resolve faults to return-to-service standards.
  - L208.3 (continued): Check resistance, perform continuity test, test for shorts (AM.II.K.S12, AM.II.K.S18, AM.II.K.S19, AM.II.K.S20)
    Given: Aircraft Electrical System Trainer.
    Performance: The student will take a resistance reading through the landing light, perform a continuity test, test for short to ground, and test for short to other conductors.
    Standard: The tests will be completed to return-to-service standards.
  -

Day 10: Electrical Schematics
- Lecture (2 hours):
  - Risk management: Connecting or disconnecting external power (AM.II.K.R2)
  - Risk management: Maintenance on energized circuits/systems (AM.II.K.R3)
- Lab (2 hours):
  - L208.5: Use a wiring circuit diagram to identify components, troubleshoot a DC electrical system supplied by an AC system, identify components where AC is rectified to DC (AM.II.K.S4, AM.II.K.S16, AM.II.K.S17)
    Given: B767 Fault Isolation Manual and Wire Diagram Manual.
    Performance: Given the scenario of B767 EICAS message “T-R UNIT,” the student will navigate to the troubleshooting procedure in the FIM and WDM, determine faults and steps, and answer questions on component identification (Aircraft effectivity: DAL 705).
    Standard: The student will navigate to FIM 23-32 Fault Tree 803 pg 104, WDM DAL 24-32-11 pg 4, and correctly answer questions.

Day 11: Electrical Loads and Battery Maintenance
- Lecture (2 hours):
  - Aircraft battery troubleshooting and maintenance (AM.II.K.K17)
  - Risk management: Selecting the size of wire in an electrical circuit (AM.II.K.R6)
- Lab (2 hours):

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- L208.4: Inspect components in an electrical system, install airframe electrical wiring, switches, or protective devices, secure wire bundles (AM.II.K.S1, AM.II.K.S7, AM.II.K.S8)
  Given: Piper PA-32 AMM.
  Performance: The student will inspect components, fabricate and install a wire bundle, and install an assigned switch or protective device.
  Standard: The tasks will meet return-to-service standards.

Day 12: Final Review and Examination

- Lecture (2 hours):
  - Comprehensive review of aircraft electrical systems, wiring, power distribution, lighting, and troubleshooting
- Lab (1 hour):
  - L208.4 (continued): Final electrical system practice
    Given: Piper PA-32 AMM, aircraft electrical system.
    Performance: The student will perform final inspections and installations of wiring and components.
    Standard: All work will meet return-to-service standards.
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks.

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AMA209.2: Aircraft Instrument Systems

Course Overview

- Course Code: AMA209.2
- Course Title: Aircraft Instrument Systems
- Total Hours: 36 (12 Lecture, 24 Lab)
- Target Audience: Aviation Maintenance Technician students preparing for FAA certification
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe (FAA, 2023), Chapter 10 Aircraft Systems

Description

This course examines aircraft instrument systems, including flight, engine, and navigation instruments. Lab work focuses on installation, calibration, and troubleshooting to ensure accurate operation and compliance with airworthiness standards.

Learning Objectives

- Understand the operation of aircraft instrument systems.
- Install and calibrate flight and engine instruments.
- Troubleshoot instrument system malfunctions.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L209.1, L209.2, L209.3, L209.4, L209.5, L209.6, L209.8, L209.9). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper handling of instruments and electrostatic-sensitive devices, are emphasized throughout all lab activities.

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AMA209.2 DAY Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 6 days to complete 36 hours. The final examination is included in the academic (lecture) hours on Day 6.

Day 1: Introduction to Aircraft Instrument Systems

- Lecture (3 hours):
  - Annunciator indicating systems and warning lights (AM.II.H.K1)
  - Magnetic compass inspection and operation (AM.II.H.K2)
  - Magnetic compass swinging procedures (AM.II.H.K3)
  - Pressure indicating instruments (AM.II.H.K4)
  - Temperature indicating instruments (AM.II.H.K5)
  - Risk management: Use of pressurized air and water during maintenance or cleaning of aircraft instrument systems (AM.II.H.R1)
- Lab (3 hours):
  - L209.6: Inspect a magnetic compass (AM.II.H.S6)
    Given: Piper PA-28 Warrior or PA-32 AMM.
    Performance: The student will reference the correct AMM chapter to perform an inspection of the magnetic compass, including security, fluid level, leakage, and compass deviation placards.
    Standard: The student will successfully reference the correct AMM chapter, perform the inspection, and report all findings to the instructor.

Day 2: Flight and Position Instruments

- Lecture (3 hours):
  - Position indication sensors and instruments (AM.II.H.K6)
  - Gyroscopic instruments (AM.II.H.K7)
  - Direction indicating instruments (AM.II.H.K8)
  - Risk management: Actions in response to a reported intermittent warning or caution annunciator light illumination (AM.II.H.R2)
- Lab (3 hours):
  - L209.9: Install range marks on an instrument glass, check for proper range markings (AM.II.H.S3, AM.II.H.S5)
    Given: Piper PA-32 Saratoga AMM/POH.
    Performance: The student will reference the correct AMM/POH to inspect the aircraft airspeed indicator for correct range markings and install range marks, including a slippage mark, on an airspeed indicator training aid glass for a selected aircraft.
    Standard: The student will successfully reference the correct AMM/POH, inspect the airspeed indicator, and install range marks to standards.

Day 3: Vacuum, Pitot-Static, and Fuel Systems

- Lecture (3 hours):
  - Instrument vacuum and pneumatic systems (AM.II.H.K9)
  - Pitot-static system (AM.II.H.K10)

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  - Fuel quantity indicating systems (AM.II.H.K11)
  - Risk management: Performing maintenance on equipment identified as electrostatic-sensitive (AM.II.H.R3)
- Lab (3 hours):
  - L209.1: Perform a static system leak test, remove and install an instrument, determine barometric pressure using an altimeter, select proper altimeter, inspect alternate air source (AM.II.H.S1, AM.II.H.S2, AM.II.H.S4, AM.II.H.S8, AM.II.H.S12)
    Given: Piper PA-32 Saratoga AMM.
    Performance: The student will reference the correct AMM to perform a static system leak test, inspect the alternate static source valve, select an altimeter for installation, install the altimeter, and determine barometric pressure using an altimeter.
    Standard: The student will successfully reference AMM 34-10-00 and perform all tasks to standards.
  - L209.5: Locate procedures for troubleshooting vacuum-operated instrument system, inspect vacuum system filter, adjust gyro/instrument air pressure/vacuum (AM.II.H.S7, AM.II.H.S10, AM.II.H.S11)
    Given: Piper PA-32 Saratoga AMM.
    Performance: The student will reference the correct AMM to inspect the vacuum system filter, adjust the vacuum regulator, locate vacuum system troubleshooting procedures, and answer questions on vacuum system problems.
    Standard: The student will successfully reference AMM 37-10-00, perform inspections and adjustments, and answer questions with at least 70% accuracy.

Day 4: Instrument Markings and Electronic Systems

- Lecture (3 hours):
  - Instrument range markings (AM.II.H.K12)
  - Electronic displays (AM.II.H.K13)
  - Electrostatic sensitive devices (AM.II.H.K14)
  - Built-in test equipment (AM.II.H.K15)
  - Risk management: Handling of mechanical gyros or instruments containing mechanical gyros (AM.II.H.R4)
- Lab (3 hours):
  - L209.3: Identify exhaust gas temperature system components (AM.II.H.S9)
    Given: PA-32 AMM/IPC.
    Performance: The student will reference the correct AMM chapter to identify exhaust gas components installed on the aircraft and label them on an unlabeled drawing.
    Standard: The student will successfully reference AMM 74-00-00 and identify components with at least 70% accuracy.
  - L209.4: Inspect outside air temperature gauge for condition and operation (AM.II.H.S14)
    Given: PA-28 or PA-32 AMM.
    Performance: The student will reference the correct AMM chapter to identify outside air temperature components and perform an inspection for condition and operation.
    Standard: The student will successfully reference AMM 34-10-00 and perform the inspection.

Day 5: Advanced Instrument Systems

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- Lecture (3 hours):
  - Electronic flight instrument system (AM.II.H.K16)
  - Engine indication and crew alerting system (AM.II.H.K17)
  - Heads-up guidance system (AM.II.H.K18)
  - 14 CFR parts 43 and 91 requirements for static system leak checks (AM.II.H.K19)
  - Instrument limitations, conditions, and characteristics (AM.II.H.K20)
  - Risk management: Performing a pitot/static system test (AM.II.H.R5)
- Lab (3 hours):
  - L209.2: Locate and explain the adjustment procedures for a stall warning system (AM.II.H.S13)
    Given: B737-200 AMM and Piper PA-32 AMM.
    Performance: The student will reference the correct B737-200 AMM chapter to locate and explain the Stall Warning System Test and components, and locate the PA-32 AMM reference for allowable stall warning adjustments.
    Standard: The student will successfully reference B737-200 AMM 27-32-0 and PA-32 AMM 27-30-00, and answer questions with at least 70% success rate.
  - L209.8: Locate and explain autopilot inspection procedures, list autopilot major components (AM.II.H.S2, AM.II.H.S3)
    Given: PA-32 AMM.
    Performance: The student will locate and list the major autopilot components and explain the autopilot inspection procedure.
    Standard: The student will successfully locate and list the major autopilot components and explain the inspection procedure.

Day 6: Warning Systems and Final Review

- Lecture (2 hours):
  - Transponder/encoder system (AM.II.H.K21)
  - Angle of attack and stall warning systems (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.K25)
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (3 hours):
  - L209.4 (continued): Inspect outside air temperature gauge for condition and operation (AM.II.H.S14)
    Given: PA-28 or PA-32 AMM.
    Performance: The student will continue practicing inspection of outside air temperature components for condition and operation.
    Standard: The student will successfully reference AMM 34-10-00 and perform the inspection.

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AMA209.2 NIGHT Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 9 days to complete 36 hours. The final examination (1 hour) is included in the lecture hours on Day 9.

Day 1: Introduction to Aircraft Instrument Systems

- Lecture (2 hours):
  - Annunciator indicating systems and warning lights (AM.II.H.K1)
  - Magnetic compass inspection and operation (AM.II.H.K2)
- Lab (2 hours):
  - L209.6: Inspect a magnetic compass (AM.II.H.S6)
    Given: Piper PA-28 Warrior or PA-32 AMM.
    Performance: The student will reference the correct AMM chapter to perform an inspection of the magnetic compass, including security, fluid level, leakage, and compass deviation placards.
    Standard: The student will successfully reference the correct AMM chapter, perform the inspection, and report all findings to the instructor.

Day 2: Compass and Pressure Instruments

- Lecture (2 hours):
  - Magnetic compass swinging procedures (AM.II.H.K3)
  - Pressure indicating instruments (AM.II.H.K4)
  - Risk management: Use of pressurized air and water during maintenance or cleaning of aircraft instrument systems (AM.II.H.R1)
- Lab (2 hours):
  - L209.6 (continued): Inspect a magnetic compass (AM.II.H.S6)
    Given: Piper PA-28 Warrior or PA-32 AMM.
    Performance: The student will continue practicing the inspection of the magnetic compass, focusing on accuracy and documentation.
    Standard: The student will successfully complete the inspection and report findings per AMM standards.

Day 3: Flight and Position Instruments

- Lecture (2 hours):
  - Temperature indicating instruments (AM.II.H.K5)
  - Position indication sensors and instruments (AM.II.H.K6)
- Lab (2 hours):
  - L209.9: Install range marks on an instrument glass, check for proper range markings (AM.II.H.S3, AM.II.H.S5)
    Given: Piper PA-32 Saratoga AMM/POH.
    Performance: The student will reference the correct AMM/POH to inspect the aircraft airspeed indicator for correct range markings and install range marks, including a slippage mark, on an airspeed indicator training aid glass for a selected aircraft.

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Standard: The student will successfully reference the correct AMM/POH, inspect the airspeed indicator, and install range marks to standards.

Day 4: Gyroscopic and Direction Instruments

- Lecture (2 hours):
  - Gyroscopic instruments (AM.II.H.K7)
  - Direction indicating instruments (AM.II.H.K8)
  - Risk management: Actions in response to a reported intermittent warning or caution annunciator light illumination (AM.II.H.R2)
- Lab (2 hours):
  - L209.9 (continued): Check for proper range markings on an instrument (AM.II.H.S5)
    Given: Piper PA-32 Saratoga AMM/POH.
    Performance: The student will continue verifying range markings on the airspeed indicator for accuracy.
    Standard: The student will successfully verify range markings per AMM/POH standards.

Day 5: Vacuum and Pitot-Static Systems

- Lecture (2 hours):
  - Instrument vacuum and pneumatic systems (AM.II.H.K9)
  - Pitot-static system (AM.II.H.K10)
  - Risk management: Performing a pitot/static system test (AM.II.H.R5)
- Lab (2 hours):
  - L209.1: Perform a static system leak test, inspect alternate air source (AM.II.H.S1, AM.II.H.S12)
    Given: Piper PA-32 Saratoga AMM.
    Performance: The student will reference AMM 34-10-00 to perform a static system leak test and inspect the alternate static source valve.
    Standard: The student will successfully perform the leak test and inspection per AMM standards.

Day 6: Instrument Installation and Calibration

- Lecture (2 hours):
  - Fuel quantity indicating systems (AM.II.H.K11)
  - Instrument range markings (AM.II.H.K12)
  - Risk management: Performing maintenance on equipment identified as electrostatic-sensitive (AM.II.H.R3)
- Lab (2 hours):
  - L209.1 (continued): Remove and install an instrument, select proper altimeter, determine barometric pressure using an altimeter (AM.II.H.S2, AM.II.H.S4, AM.II.H.S8)
    Given: Piper PA-32 Saratoga AMM.
    Performance: The student will select an altimeter for installation, install the altimeter, and determine barometric pressure using an altimeter.
    Standard: The student will successfully complete all tasks per AMM 34-10-00 standards.

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Day 7: Vacuum Systems and Troubleshooting

- Lecture (2 hours):
  - Electronic displays (AM.II.H.K13)
  - Built-in test equipment (AM.II.H.K15)
  - Risk management: Handling of mechanical gyros or instruments containing mechanical gyros (AM.II.H.R4)
- Lab (2 hours):
  - L209.5: Locate procedures for troubleshooting a vacuum-operated instrument system, inspect vacuum system filter, adjust gyro/instrument air pressure/vacuum (AM.II.H.S7, AM.II.H.S10, AM.II.H.S11)
    Given: Piper PA-32 Saratoga AMM.
    Performance: The student will reference AMM 37-10-00 to inspect the vacuum system filter, adjust the vacuum regulator, locate troubleshooting procedures, and answer questions on vacuum system problems.
    Standard: The student will successfully perform inspections and adjustments, and answer questions with at least 70% accuracy.

Day 8: Engine and Warning Systems

- Lecture (2 hours):
  - Electronic flight instrument system (AM.II.H.K16)
  - Engine indication and crew alerting system (AM.II.H.K17)
  - Angle of attack and stall warning systems (AM.II.H.K22)
- Lab (2 hours):
  - L209.2: Locate and explain the adjustment procedures for a stall warning system (AM.II.H.S13)
    Given: B737-200 AMM and Piper PA-32 AMM.
    Performance: The student will reference B737-200 AMM 27-32-0 to locate and explain the Stall Warning System Test and components, and PA-32 AMM 27-30-00 for allowable stall warning adjustments.
    Standard: The student will successfully reference both AMMs and answer questions with at least 70% success rate.
  - L209.3: Identify exhaust gas temperature system components (AM.II.H.S9)
    Given: PA-32 AMM/IPC.
    Performance: The student will reference AMM 74-00-00 to identify exhaust gas components and label them on an unlabeled drawing.
    Standard: The student will identify components with at least 70% accuracy.

Day 9: Advanced Systems and Final Review

- Lecture (1 hour):
  - Heads-up guidance system (AM.II.H.K18)
  - 14 CFR parts 43 and 91 requirements for static system leak checks (AM.II.H.K19)
  - Transponder/encoder system (AM.II.H.K21)
  - Takeoff and landing gear configuration warning systems (AM.II.H.K23)
  - Aircraft bonding and protection (AM.II.H.K24)

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    - Instrument or instrument panel removal and installation (AM.II.H.K25)
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (2 hours):
    - L209.4: Inspect outside air temperature gauge for condition and operation (AM.II.H.S14)
      Given: PA-28 or PA-32 AMM.
      Performance: The student will reference AMM 34-10-00 to identify outside air temperature components and perform an inspection for condition and operation.
      Standard: The student will successfully perform the inspection per AMM standards.
    - L209.8: Locate and explain autopilot inspection procedures, list autopilot major components (AM.II.H.S2, AM.II.H.S3)
      Given: PA-32 AMM.
      Performance: The student will locate and list the major autopilot components and explain the autopilot inspection procedure.
      Standard: The student will successfully locate and list components and explain the inspection procedure.

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AMA210.2: Aircraft Fuel Systems

Course Overview

- Course Code: AMA208.2
- Course Title: Aircraft Fuel Systems
- Total Hours: 48 (24 Lecture, 24 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 14: Aircraft Fuel Systems (FAA, 2023)

Description

This course focuses on the design, maintenance, and inspection of aircraft fuel systems, including tanks, pumps, and lines. Lab work emphasizes hands-on maintenance, inspection, and troubleshooting to ensure fuel system integrity and safety.

Learning Objectives

- Understand aircraft fuel system components and operation.
- Perform maintenance and inspections on fuel systems.
- Ensure fuel system integrity and safety.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L208.1, L208.2, L208.3, L208.7, L208.8, L208.13, L208.15). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 14, for additional examples and diagrams on aircraft fuel systems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including fuel spill prevention, contamination control, and safe tank entry procedures, are emphasized throughout all lab activities.

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AMT210.2.2 Day Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 8 days to complete 48 hours. The final examination (1 hour) is included in the lecture hours on Day 8.

Day 1: Fuel System Fundamentals

- Lecture (3 hours):
  - Fuel system types (AM.II.J.K1)
  - Fuel system components, including filters and selector valves (AM.II.J.K2)
  - Characteristics of fuel types (AM.II.J.K7)
  - Risk management: Fuel system contamination (AM.II.J.R2)
- Lab (3 hours):
  - L208.1: Inspect a fuel selector valve, inspect and check manually operated fuel valves (AM.II.J.S4, AM.II.J.S5)
    Given: PA-32 AMM.
    Performance: The student will use AMM 28-20-00 to locate the fuel selector valve, remove, reinstall, and inspect it for proper operation and leaks.
    Standard: The student will successfully locate, remove, reinstall, and inspect the fuel selector valve per AMM standards.

Day 2: Fuel Tanks and Flow

- Lecture (3 hours):
  - Aircraft fuel tanks/cells (AM.II.J.K3)
  - Fuel flow (AM.II.J.K4)
  - Risk management: Fuel spills (AM.II.J.R3)
- Lab (3 hours):
  - L208.2: Troubleshoot a fuel valve problem, troubleshoot and repair aircraft fuel system (AM.II.J.S3, AM.II.J.S6)
    Given: Boeing 767 AMM/WDM.
    Performance: The student will use AMM 28-22-02 page 401 and WDM 28-22-31 page 1 for effectivity 002-004 to troubleshoot a fuel crossfeed inoperative issue and determine corrective procedures.
    Standard: The student will successfully troubleshoot the issue and identify corrective procedures per AMM and WDM.

Day 3: Fuel Transfer and Defueling

- Lecture (3 hours):
  - Fuel transfer, fueling, and defueling (AM.II.J.K5)
  - Fuel jettisoning/dump systems (AM.II.J.K6)
  - Risk management: Defueling aircraft (AM.II.J.R5)
- Lab (3 hours):
  - L208.1 (continued): Inspect and check manually operated fuel valves (AM.II.J.S5)
    Given: PA-32 AMM.
    Performance: The student will continue inspecting manually operated fuel valves for

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proper operation and leaks.
Standard: The student will complete inspections per AMM 28-20-00 standards.

Day 4: Fuel System Maintenance

- Lecture (3 hours):
  - Fuel system maintenance and inspection (AM.II.J.K8)
  - Risk management: Fuel system maintenance (AM.II.J.R1)
- Lab (3 hours):
  - L208.3: Inspect a fuel quantity indicating system, remove and install a fuel quantity transmitter, troubleshoot fuel quantity indicating system (AM.II.J.S9, AM.II.J.S17, AM.II.J.S18)
    Given: PA-32 Saratoga and AMM.
    Performance: The student will use AMM 28-40-00 to inspect the fuel quantity indicating system, troubleshoot it, and remove and replace the fuel quantity transmitter.
    Standard: The student will successfully inspect, troubleshoot, and replace the transmitter per AMM standards.

Day 5: Fuel Quantity and Indications

- Lecture (3 hours):
  - Fuel quantity indication (AM.II.J.K9)
  - Risk management: Fuel system maintenance requiring fuel tank entry (AM.II.J.R4)
- Lab (3 hours):
  - L208.3 (continued): Troubleshoot fuel quantity indicating system (AM.II.J.S18)
    Given: PA-32 Saratoga and AMM.
    Performance: The student will continue troubleshooting the fuel quantity indicating system per AMM 28-40-00.
    Standard: The student will successfully troubleshoot the system with accurate results.

Day 6: Fuel System Procedures

- Lecture (3 hours):
  - Fuel system operating instructions (AM.II.J.S10)
  - Fuel system inspection procedures (AM.II.J.S11)
  - Fuel system crossfeed procedures (AM.II.J.S12)
- Lab (3 hours):
  - L208.7: Drain fuel system sump(s) (AM.II.J.S7)
    Given: PA-32 AMM.
    Performance: The student will reference the appropriate AMM chapter to drain fuel system sumps.
    Standard: The student will successfully drain sumps per AMM standards.
  - L208.8: Service a fuel system strainer (AM.II.J.S8)
    Given: PA-32 AMM.
    Performance: The student will reference the appropriate AMM chapter to service a fuel system strainer.
    Standard: The student will successfully service the strainer per AMM standards.

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Day 7: Troubleshooting and Placards

- Lecture (3 hours):
  - Fuel system required placards (AM.II.J.S13)
  - Fuel system defueling procedures (AM.II.J.S14)
  - Troubleshooting procedures for fuel temperature systems (AM.II.J.S16)
- Lab (3 hours):
  - L208.2 (continued): Troubleshoot and repair aircraft fuel system (AM.II.J.S3)
    Given: Boeing 767 AMM/WDM.
    Performance: The student will continue troubleshooting a fuel system issue using AMM and WDM references.
    Standard: The student will identify corrective procedures per AMM and WDM standards.
  - L208.13: Locate fuel system required placards (AM.II.J.S13)
    Given: PA-32 AMM.
    Performance: The student will reference the AMM to locate required fuel system placards.
    Standard: The student will successfully locate placards per AMM standards.

Day 8: Warning Systems and Final Review

- Lecture (2 hours):
  - Troubleshoot fuel pressure warning system (AM.II.J.S15)
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (3 hours):
  - L208.2: Inspect a metal, bladder, or integral fuel tank (AM.II.J.S2)
    Given: PA-32 AMM.
    Performance: The student will reference the appropriate AMM chapter to inspect a metal, bladder, or integral fuel tank.
    Standard: The student will successfully inspect the fuel tank per AMM standards.
  - L208.15: Troubleshoot fuel pressure warning system (AM.II.J.S15)
    Given: PA-32 AMM.
    Performance: The student will reference the AMM to troubleshoot a fuel pressure warning system issue.
    Standard: The student will successfully troubleshoot the system per AMM standards.

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AMT210.2 Night Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 12 days to complete 48 hours. The final examination (1 hour) is included in the lecture hours on Day 12.

Day 1: Fuel System Fundamentals

- Lecture (2 hours):
  - Fuel system types (AM.II.J.K1)
  - Fuel system components, including filters and selector valves (AM.II.J.K2)
- Lab (2 hours):
  - L208.1: Inspect a fuel selector valve (AM.II.J.S4)
    Given: PA-32 AMM.
    Performance: The student will use AMM 28-20-00 to locate and inspect the fuel selector valve.
    Standard: The student will successfully locate and inspect the fuel selector valve per AMM standards.

Day 2: Fuel Valves and Contamination

- Lecture (2 hours):
  - Characteristics of fuel types (AM.II.J.K7)
  - Risk management: Fuel system contamination (AM.II.J.R2)
- Lab (2 hours):
  - L208.1 (continued): Inspect and check manually operated fuel valves (AM.II.J.S5)
    Given: PA-32 AMM.
    Performance: The student will remove, reinstall, and inspect manually operated fuel valves for proper operation and leaks.
    Standard: The student will complete inspections per AMM 28-20-00 standards.

Day 3: Fuel Tanks

- Lecture (2 hours):
  - Aircraft fuel tanks/cells (AM.II.J.K3)
  - Risk management: Fuel spills (AM.II.J.R3)
- Lab (2 hours):
  - L208.2: Inspect a metal, bladder, or integral fuel tank (AM.II.J.S2)
    Given: PA-32 AMM.
    Performance: The student will reference the appropriate AMM chapter to inspect a metal, bladder, or integral fuel tank.
    Standard: The student will successfully inspect the fuel tank per AMM standards.

Day 4: Fuel Flow and Crossfeed

- Lecture (2 hours):
  - Fuel flow (AM.II.J.K4)
  - Fuel system crossfeed procedures (AM.II.J.S12)

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- Lab (2 hours):
    - L208.2: Troubleshoot a fuel valve problem (AM.II.J.S6)
      Given: Boeing 767 AMM/WDM.
      Performance: The student will use AMM 28-22-02 page 401 and WDM 28-22-31 page 1 for effectivity 002-004 to troubleshoot a fuel crossfeed inoperative issue.
      Standard: The student will successfully troubleshoot the issue per AMM and WDM.

Day 5: Fuel Transfer and Defueling

- Lecture (2 hours):
    - Fuel transfer, fueling, and defueling (AM.II.J.K5)
    - Risk management: Defueling aircraft (AM.II.J.R5)
- Lab (2 hours):
    - L208.14: Locate fuel system defueling procedures (AM.II.J.S14)
      Given: PA-32 AMM.
      Performance: The student will reference the AMM to locate fuel system defueling procedures.
      Standard: The student will successfully locate defueling procedures per AMM standards.

Day 6: Fuel Jettisoning and Maintenance

- Lecture (2 hours):
    - Fuel jettisoning/dump systems (AM.II.J.K6)
    - Fuel system maintenance and inspection (AM.II.J.K8)
- Lab (2 hours):
    - L208.2 (continued): Troubleshoot and repair aircraft fuel system (AM.II.J.S3)
      Given: Boeing 767 AMM/WDM.
      Performance: The student will continue troubleshooting a fuel system issue using AMM and WDM references.
      Standard: The student will identify corrective procedures per AMM and WDM standards.

Day 7: Fuel Quantity Indication

- Lecture (2 hours):
    - Fuel quantity indication (AM.II.J.K9)
    - Risk management: Fuel system maintenance (AM.II.J.R1)
- Lab (2 hours):
    - L208.3: Inspect a fuel quantity indicating system (AM.II.J.S9)
      Given: PA-32 Saratoga and AMM.
      Performance: The student will use AMM 28-40-00 to inspect the fuel quantity indicating system.
      Standard: The student will successfully inspect the system per AMM standards.

Day 8: Fuel Quantity Transmitter

- Lecture (2 hours):

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    - Risk management: Fuel system maintenance requiring fuel tank entry (AM.II.J.R4)
- Lab (2 hours):
    - L208.3 (continued): Remove and install a fuel quantity transmitter, troubleshoot fuel quantity indicating system (AM.II.J.S17, AM.II.J.S18)
      Given: PA-32 Saratoga and AMM.
      Performance: The student will use AMM 28-40-00 to remove and replace the fuel quantity transmitter and troubleshoot the fuel quantity indicating system.
      Standard: The student will successfully complete tasks per AMM standards.

Day 9: Fuel System Operations

- Lecture (2 hours):
    - Fuel system operating instructions (AM.II.J.S10)
    - Fuel system inspection procedures (AM.II.J.S11)
- Lab (2 hours):
    - L208.7: Drain fuel system sump(s) (AM.II.J.S7)
      Given: PA-32 AMM.
      Performance: The student will reference the appropriate AMM chapter to drain fuel system sumps.
      Standard: The student will successfully drain sumps per AMM standards.

Day 10: Fuel System Servicing

- Lecture (2 hours):
    - Fuel system required placards (AM.II.J.S13)
- Lab (2 hours):
    - L208.8: Service a fuel system strainer (AM.II.J.S8)
      Given: PA-32 AMM.
      Performance: The student will reference the appropriate AMM chapter to service a fuel system strainer.
      Standard: The student will successfully service the strainer per AMM standards.

Day 11: Fuel Warning Systems

- Lecture (2 hours):
    - Troubleshoot fuel pressure warning system (AM.II.J.S15)
- Lab (2 hours):
    - L208.15: Troubleshoot fuel pressure warning system (AM.II.J.S15)
      Given: PA-32 AMM.
      Performance: The student will reference the AMM to troubleshoot a fuel pressure warning system issue.
      Standard: The student will successfully troubleshoot the system per AMM standards.

Day 12: Fuel Temperature and Final Review

- Lecture (1 hour):
    - Troubleshoot fuel temperature systems (AM.II.J.S16)

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- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (2 hours):
    - L208.13: Locate fuel system required placards (AM.II.J.S13)
      Given: PA-32 AMM.
      Performance: The student will reference the AMM to locate required fuel system placards.
      Standard: The student will successfully locate placards per AMM standards.

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AMA211.2: Ice and Rain Control Systems

Course Overview

- Course Code: AMA209.2
- Course Title: Ice and Rain Control Systems
- Total Hours: 24 (6 Lecture, 18 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 15: Ice and Rain Protection (FAA, 2023)

Description

This course explores systems for managing ice and rain on aircraft, including de-icing and anti-icing systems. Lab work focuses on inspection, maintenance, and operational checks to ensure proper function of ice protection systems.

Learning Objectives

- Understand the operation of ice and rain control systems.
- Perform maintenance on de-icing and anti-icing equipment.
- Ensure proper function of ice protection systems.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L209.1, L209.2, L209.3, L209.4, L209.5, L209.6, L209.10, L209.11, L209.12). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 15, for additional examples and diagrams on ice and rain protection systems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper handling of deicing fluids and cleaning materials for heated windshields, are emphasized throughout all lab activities.

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AMT211.2 Day Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 18 hours of lab, totalin4 days to complete 24 hours. The final examination (1 hour) is included in the lecture hours on Day 4.

Day 1: Ice Detection and Anti-Icing Systems

- Lecture (3 hours):
  - Aircraft icing causes/effects (AM.II.L.K1)
  - Ice detection systems (AM.II.L.K2)
  - Aircraft and powerplant anti-ice systems and components (AM.II.L.K3)
  - Risk management: System testing or maintenance (AM.II.L.R1)
  - Risk management: Storage and handling of deicing fluids (AM.II.L.R2)
- Lab (3 hours):
  - L209.1: Inspect and operationally check pitot-static anti-ice system (AM.II.L.S1)
    Given: Piper PA-32 Saratoga AMM.
    Performance: The student will use AMM 30-30-00 page 1 to inspect and operationally check the pitot-static anti-ice system.
    Standard: The student will successfully inspect and check the system per AMM standards.
  - L209.2: Troubleshoot an electrically heated pitot system (AM.II.L.S4)
    Given: PA-32 AMM.
    Performance: The student will use the correct wiring diagram from AMM 91-3-30 page 1 to troubleshoot an instructor-induced fault in the pitot heat system.
    Standard: The student will successfully troubleshoot the fault per AMM standards.
  - L209.3: Inspect thermal anti-ice systems (AM.II.L.S5)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 30-11-01 to answer questions on a worksheet regarding the description, operation, inspection, and maintenance of the wing thermal anti-ice system.
    Standard: The student will answer worksheet questions with at least 70% accuracy.

Day 2: Ice Detection and Anti-Icing Systems (continued)

- Lab (6 hours):
  - L209.2: Troubleshoot an electrically heated pitot system (AM.II.L.S4)
    Given: PA-32 AMM.
    Performance: The student will use the correct wiring diagram from AMM 91-3-30 page 1 to troubleshoot an instructor-induced fault in the pitot heat system.
    Standard: The student will successfully troubleshoot the fault per AMM standards.
  - L209.3: Inspect thermal anti-ice systems (AM.II.L.S5)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 30-11-01 to answer questions on a worksheet regarding the description, operation, inspection, and maintenance of the wing thermal anti-ice system.
    Standard: The student will answer worksheet questions with at least 70% accuracy.

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Day 3: De-Icing and Rain Control Systems

- Lecture (2 hours):
  - De-ice systems and components (AM.II.L.K4)
  - Wiper blade, chemical, and pneumatic bleed air rain control systems (AM.II.L.K5)
  - Anti-icing and de-icing system maintenance (AM.II.L.K6)
  - Environmental conditions that degrade vision (AM.II.L.K7)
  - Risk management: Selection and use of cleaning materials for heated windshields (AM.II.L.R3)
- Lab (3 hours):
  - L209.4: Clean a pneumatic deicer boot (AM.II.L.S3)
    Given: Piper PA-46 Malibu wing training aids.
    Performance: The student will clean a pneumatic deicer boot.
    Standard: The student will successfully clean the deicer boot.
  - L209.5: Inspect and operationally check deicer boot (AM.II.L.S2)
    Given: Beechcraft King Air 350 AMM.
    Performance: The student will use AMM 30-10-00 page 201 to locate and explain procedures for inspecting and operationally checking deicer boots, answering worksheet questions.
    Standard: The student will answer questions with at least 70% accuracy.
  - L209.6: Locate and explain procedures for inspecting an electrically-operated windshield wiper system (AM.II.L.S7)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 30-42-00 page 101 to troubleshoot and explain procedures for inspecting the windshield wiper system, answering worksheet questions.
    Standard: The student will answer questions with at least 70% accuracy.

Day 4: De-Icing and Rain Control Systems (continued) and Review and final Exam

- Lab (3 hours):
  - L209.10: Locate and explain procedures for replacing blades on a windshield wiper system (AM.II.L.S8)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 30-42-11 page 401 to locate and explain procedures for removal/replacement of the windshield wiper assembly and adjustment/test, answering worksheet questions.
    Standard: The student will answer questions with at least 70% accuracy.
  - L209.11: Locate and explain procedures for inspecting a pneumatic rain removal system (AM.II.L.S9)
    Given: Lear 35 AMM.

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Performance: The student will use AMM 30-40-00 page 1 to locate and explain procedures for inspecting a pneumatic rain removal system, answering worksheet questions.
Standard: The student will answer questions with at least 70% accuracy.

- L209.12: Inspect and operationally check an electrically-heated windshield (AM.II.L.S6)
  Given: Boeing 737-300/400/500 AMM.
  Performance: The student will use AMM 30-41-00 to answer questions on a worksheet regarding the description, operation, inspection, and maintenance of the control cabin window heat system.
  Standard: The student will answer worksheet questions with at least 70% accuracy

- Review (2 hours): Comprehensive exam covering all course material.

- Final Examination (1 hour): Comprehensive exam covering all course material.

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AMT211.2 Night Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling63 days to complete 24 hours. The final examination (1 hour) is included in the lecture hours on Day 3.

Day 1: Ice Detection and Anti-Icing Systems

- Lecture (2 hours):
  - Aircraft icing causes/effects (AM.II.L.K1)
  - Ice detection systems (AM.II.L.K2)
  - Aircraft and powerplant anti-ice systems and components (AM.II.L.K3)
  - Risk management: System testing or maintenance (AM.II.L.R1)
- Lab (2 hours):
  - L209.1: Inspect and operationally check pitot-static anti-ice system (AM.II.L.S1)
    Given: Piper PA-32 Saratoga AMM.
    Performance: The student will use AMM 30-30-00 page 1 to inspect and operationally check the pitot-static anti-ice system.
    Standard: The student will successfully inspect and check the system per AMM standards.
  - L209.2: Troubleshoot an electrically heated pitot system (AM.II.L.S4)
    Given: PA-32 AMM.
    Performance: The student will use the wiring diagram from AMM 91-3-30 page 1 to troubleshoot an instructor-induced fault in the pitot heat system.
    Standard: The student will successfully troubleshoot the fault per AMM standards.

Day 2: De-Icing Systems and Maintenance

- Lecture (2 hours):
  - De-ice systems and components (AM.II.L.K4)
  - Anti-icing and de-icing system maintenance (AM.II.L.K6)
  - Risk management: Storage and handling of deicing fluids (AM.II.L.R2)
- Lab (2 hours):
  - L209.3: Inspect thermal anti-ice systems (AM.II.L.S5)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 30-11-01 to answer questions on a worksheet regarding the description, operation, inspection, and maintenance of the wing thermal anti-ice system.
    Standard: The student will answer worksheet questions with at least 70% accuracy.

Day 3: De-Icing Systems and Maintenance (continued)

- Lab (4 hours):
  - L209.4: Clean a pneumatic deicer boot (AM.II.L.S3)
    Given: Piper PA-46 Malibu wing training aids.
    Performance: The student will clean a pneumatic deicer boot.
    Standard: The student will successfully clean the deicer boot.

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- L209.5: Inspect and operationally check deicer boot (AM.II.L.S2)
  Given: Beechcraft King Air 350 AMM.
  Performance: The student will use AMM 30-10-00 page 201 to locate and explain procedures for inspecting and operationally checking deicer boots, answering worksheet questions.
  Standard: The student will answer questions with at least 70% accuracy.

Day 4: Rain Control Systems and Final Review

- Lecture (2 housr):
  - Wiper blade, chemical, and pneumatic bleed air rain control systems (AM.II.L.K5)
  - Environmental conditions that degrade vision (AM.II.L.K7)
  - Risk management: Selection and use of cleaning materials for heated windshields (AM.II.L.R3)
- Lab (2 hours):
  - L209.6: Locate and explain procedures for inspecting an electrically-operated windshield wiper system (AM.II.L.S7)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 30-42-00 page 101 to troubleshoot and explain procedures for inspecting the windshield wiper system, answering worksheet questions.
    Standard: The student will answer questions with at least 70% accuracy.

Day 5: Rain Control Systems (continued)

- Lab (4 hours):
  - L209.10: Locate and explain procedures for replacing blades on a windshield wiper system (AM.II.L.S8)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 30-42-11 page 401 to locate and explain procedures for removal/replacement of the windshield wiper assembly and adjustment/test, answering worksheet questions.
    Standard: The student will answer questions with at least 70% accuracy.
  - L209.11: Locate and explain procedures for inspecting a pneumatic rain removal system (AM.II.L.S9)
    Given: Lear 35 AMM.
    Performance: The student will use AMM 30-40-00 page 1 to locate and explain procedures for inspecting a pneumatic rain removal system, answering worksheet questions.
    Standard: The student will answer questions with at least 70% accuracy.
  - L209.12: Inspect and operationally check an electrically-heated windshield (AM.II.L.S6)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 30-41-00 to answer questions on a worksheet regarding the description, operation, inspection, and maintenance of the control cabin

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window heat system.
Standard: The student will answer worksheet questions with at least 70% accuracy.

Day 6: Review and Final Examination

- Review (3 hours): Comprehensive review covering all course material.
- Final Examination (1 hour): Comprehensive exam covering all course material.

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AMA212.2: Airframe Fire Protection Systems

Course Overview

- Course Code: AMA210.2
- Course Title: Airframe Fire Protection Systems
- Total Hours: 12 (6 Lecture, 6 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 17: Fire Protection Systems (FAA, 2023, available free online at FAA website)

Description

This course covers the design and maintenance of fire detection and suppression systems in aircraft airframes. Lab work focuses on inspection, troubleshooting, and operational checks to ensure compliance with fire safety regulations.

Learning Objectives

- Understand fire detection and suppression system components.
- Perform maintenance and testing of fire protection systems.
- Ensure compliance with fire safety regulations.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L210.1, L210.2, L210.3, L210.4, L210.5, L210.6, L210.7, L210.8). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 17, for additional examples and diagrams on fire protection systems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including PPE use and handling of fire extinguishing agents, are emphasized throughout all lab activities.

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AMA212.2 Day Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 2 days to complete 12 hours. The final examination (1 hour) is included in the lecture hours on Day 2.

Day 1: Fire Detection and Suppression Basics

- Lecture (3 hours):
  - Types of fires and aircraft fire zones (AM.II.M.K1)
  - Overheat and fire detection and warning systems (AM.II.M.K2)
  - Overheat and fire detection system maintenance and inspection (AM.II.M.K3)
  - Smoke and carbon monoxide detection systems (AM.II.M.K4)
  - Risk management: Use of PPEs when working on or testing fire extinguishing systems (AM.II.M.R2)
- Lab (3 hours):
  - L210.2: Locate and explain the procedures for inspecting an overheat detection system (AM.II.M.S7)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 26-18-00 to answer worksheet questions on the description, operation, inspection, and maintenance of the wing and lower aft body overheat detection system.
    Standard: The student will answer questions with at least 70% accuracy.
  - L210.4: Inspect a smoke and toxic gas detection system, locate and explain procedures for checking a smoke detection system (AM.II.M.S4, AM.II.M.S6)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 26-18-00 to answer worksheet questions on the description, operation, inspection, and maintenance of the lavatory smoke detection system.
    Standard: The student will answer questions with at least 70% accuracy.
  - L210.7: Inspect a carbon monoxide detector (AM.II.M.S5)
    Given: Piper PA-28 Warrior.
    Performance: The student will locate the carbon monoxide detector and determine its condition and serviceability.
    Standard: The student will successfully locate the detector and report its condition and serviceability to the instructor.

Day 2: Fire Extinguishing Systems and Final Review

- Lecture (2 hours):
  - Fire extinguishing agents (AM.II.M.K5)
  - Types of fire extinguishing systems (AM.II.M.K6)
  - Fire extinguishing system maintenance and inspection requirements (AM.II.M.K7)
  - Risk management: Maintenance on circuits associated with fire bottle squibs (AM.II.M.R1)
  - Risk management: Fire extinguishing agents (AM.II.M.R3)
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (3 hours):

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- L210.1: Troubleshoot an aircraft fire detection or extinguishing system, identify maintenance procedures, determine proper container pressure (AM.II.M.S1, AM.II.M.S3, AM.II.M.S2)
  Given: Boeing 737-300/400/500 AMM.
  Performance: The student will use AMM 26-11-00 and 26-21-11 to answer worksheet questions on the engine fire detection system and locate the engine fire extinguisher bottle pressure-temperature curve chart to determine serviceability.
  Standard: The student will answer questions with at least 70% accuracy.
- L210.3: Inspect fire detection/protection system, perform operational check of fire detection/protection system (AM.II.M.S9, AM.II.M.S10)
  Given: Fire Detection and Extinguishing system trainer.
  Performance: The student will inspect the fire detection/protection system and perform an operational check.
  Standard: The student will successfully inspect and perform the operational check.
- L210.5: Inspect fire extinguishing agent bottle discharge cartridge (AM.II.M.S11)
  Given: Boeing 727-200 AMM.
  Performance: The student will use AMM 26-21-71 to answer worksheet questions on the description, operation, inspection, and maintenance of the fire extinguishing system indicator discs.
  Standard: The student will answer questions with at least 70% accuracy.
- L210.6: Inspect a continuous-loop type fire detection system (AM.II.M.S12)
  Given: Boeing 727-200 AMM.
  Performance: The student will use AMM 26-21-71 to answer worksheet questions on the description, operation, inspection, and maintenance of the continuous loop fire detection system.
  Standard: The student will answer questions with at least 70% accuracy.
- L210.8: Inspect fire protection system cylinders and check for hydrostatic test date (AM.II.M.S8)
  Given: Fire Detection and Extinguishing system trainer.
  Performance: The student will inspect the fire extinguishing agent cylinder for serviceability and check the hydrostatic due date.
  Standard: The student will successfully inspect the cylinder and check the hydrostatic date.

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AMT212.2 Night Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 3 days to complete 12 hours. The final examination (1 hour) is included in the lecture hours on Day 3.

Day 1: Fire Types and Detection Systems

- Lecture (2 hours):
  - Types of fires and aircraft fire zones (AM.II.M.K1)
  - Overheat and fire detection and warning systems (AM.II.M.K2)
  - Overheat and fire detection system maintenance and inspection (AM.II.M.K3)
  - Smoke and carbon monoxide detection systems (AM.II.M.K4)
  - Risk management: Use of PPEs when working on or testing fire extinguishing systems (AM.II.M.R2)
- Lab (2 hours):
  - L210.2: Locate and explain the procedures for inspecting an overheat detection system (AM.II.M.S7)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 26-18-00 to answer worksheet questions on the description, operation, inspection, and maintenance of the wing and lower aft body overheat detection system.
    Standard: The student will answer questions with at least 70% accuracy.
  - L210.4: Inspect a smoke and toxic gas detection system, locate and explain procedures for checking a smoke detection system (AM.II.M.S4, AM.II.M.S6)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 26-18-00 to answer worksheet questions on the description, operation, inspection, and maintenance of the lavatory smoke detection system.
    Standard: The student will answer questions with at least 70% accuracy.
  - L210.7: Inspect a carbon monoxide detector (AM.II.M.S5)
    Given: Piper PA-28 Warrior.
    Performance: The student will locate the carbon monoxide detector and determine its condition and serviceability.
    Standard: The student will successfully locate the detector and report its condition and serviceability to the instructor.

Day 2: Fire Extinguishing Systems

- Lecture (2 hours):
  - Fire extinguishing agents (AM.II.M.K5)
  - Types of fire extinguishing systems (AM.II.M.K6)
  - Fire extinguishing system maintenance and inspection requirements (AM.II.M.K7)
  - Risk management: Maintenance on circuits associated with fire bottle squibs (AM.II.M.R1)
  - Risk management: Fire extinguishing agents (AM.II.M.R3)
- Lab (2 hours):

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- L210.1: Troubleshoot an aircraft fire detection or extinguishing system, identify maintenance procedures, determine proper container pressure (AM.II.M.S1, AM.II.M.S3, AM.II.M.S2)
  Given: Boeing 737-300/400/500 AMM.
  Performance: The student will use AMM 26-11-00 and 26-21-11 to answer worksheet questions on the engine fire detection system and locate the engine fire extinguisher bottle pressure-temperature curve chart to determine serviceability.
  Standard: The student will answer questions with at least 70% accuracy.
- L210.5: Inspect fire extinguishing agent bottle discharge cartridge (AM.II.M.S11)
  Given: Boeing 727-200 AMM.
  Performance: The student will use AMM 26-21-71 to answer worksheet questions on the description, operation, inspection, and maintenance of the fire extinguishing system indicator discs.
  Standard: The student will answer questions with at least 70% accuracy.
- L210.8: Inspect fire protection system cylinders and check for hydrostatic test date (AM.II.M.S8)
  Given: Fire Detection and Extinguishing system trainer.
  Performance: The student will inspect the fire extinguishing agent cylinder for serviceability and check the hydrostatic due date.
  Standard: The student will successfully inspect the cylinder and check the hydrostatic date.

Day 3: Fire Detection and Final Review

- Lecture (1 hour):
  - Review of fire detection and extinguishing systems
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (2 hours):
  - L210.3: Inspect fire detection/protection system, perform operational check of fire detection/protection system (AM.II.M.S9, AM.II.M.S10)
    Given: Fire Detection and Extinguishing system trainer.
    Performance: The student will inspect the fire detection/protection system and perform an operational check.
    Standard: The student will successfully inspect and perform the operational check.
  - L210.6: Inspect a continuous-loop type fire detection system (AM.II.M.S12)
    Given: Boeing 727-200 AMM.
    Performance: The student will use AMM 26-21-71 to answer worksheet questions on the description, operation, inspection, and maintenance of the continuous loop fire detection system.
    Standard: The student will answer questions with at least 70% accuracy.

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AMA213.2: Environmental Systems

Course Overview

- Course Code: AMA212.2
- Course Title: Environmental Systems
- Total Hours: 60 (12 Lecture, 48 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 16: Cabin Environmental Systems (FAA, 2023)

Description

This course covers aircraft environmental control systems, including heating, cooling, and pressurization systems. Lab work focuses on maintenance, troubleshooting, and inspections to ensure passenger and crew comfort and safety.

Learning Objectives

- Understand the operation of environmental control systems.
- Perform maintenance and troubleshooting on HVAC and pressurization systems.
- Ensure passenger and crew comfort through system maintenance.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L212.1, L212.2, L212.3, L212.4, L212.5, L212.6, L212.7). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 16, for additional examples and diagrams on cabin environmental systems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper handling of compressed gas cylinders and refrigerant recovery, are emphasized throughout all lab activities.

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AMT213.2 Day Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 10 days to complete 60 hours. The final examination (1 hour) is included in the lecture hours on Day 10.

Day 1: Pressurization and Heating Systems

- Lecture (3 hours):
  - Pressurization systems (AM.II.G.K1)
  - Bleed air heating (AM.II.G.K2)
  - Risk management: Maintenance of combustion heaters (AM.II.G.R6)
- Lab (3 hours):
  - L212.7: Inspect a cabin heater system equipped with an exhaust heat exchanger for cracks (AM.II.G.S13)
    Given: PA-32 Saratoga AMM.
    Performance: The student will use AMM 21-40-00 and 78-00-00 to perform an inspection of the cabin heat system and present all findings to the instructor.
    Standard: The student will successfully reference the correct AMM chapters and complete the inspection.

Day 2: Instrument Cooling and Heat Exchangers

- Lecture (3 hours):
  - Aircraft instrument cooling (AM.II.G.K3)
  - Exhaust heat exchanger and system component(s) function, operation, and inspection procedures (AM.II.G.K4)
  - Risk management: Storage, handling, and use of compressed gas cylinder and high pressure systems (AM.II.G.R4)
- Lab (3 hours):
  - L212.6: Inspect a combustion heater fuel system for leaks, locate procedures to troubleshoot a combustion heater (AM.II.G.S10, AM.II.G.S8)
    Given: Combustion heat trainer, Beechcraft Baron Service Manual.
    Performance: The student will use Section 10-12 to locate inspection procedures for the combustion heater fuel system and answer questions on troubleshooting, answering at least 70% correctly.
    Standard: The student will successfully locate procedures and answer questions with at least 70% accuracy.

Day 3: Combustion and Vapor-Cycle Systems

- Lecture (3 hours):
  - Combustion heater and system component(s) function, operation, and inspection procedures (AM.II.G.K5)
  - Vapor-cycle system and system component(s) operation, servicing, and inspection procedures (AM.II.G.K6)
  - Risk management: Recovery of vapor-cycle refrigerant (AM.II.G.R2)
- Lab (3 hours):

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- L212.5: Locate the procedures for servicing a refrigerant (vapor-cycle) system (AM.II.G.S9)
  Given: Piaggio P.180 Avanti II Maintenance Manual.
  Performance: The student will use 21-51-0 to locate servicing procedures for the vapor-cycle air conditioning system and answer questions with at least 70% accuracy.
  Standard: The student will successfully locate procedures and answer questions correctly.

Day 4: Air-Cycle and Cabin Pressurization

- Lecture (3 hours):
  - Air-cycle system and system component(s) operation and inspection procedures (AM.II.G.K7)
  - Cabin pressurization and system component(s) operation and inspection procedures (AM.II.G.K8)
  - Risk management: Manufacturer's recommended servicing procedures, including refrigerant types (AM.II.G.R5)
- Lab (3 hours):
  - L212.4: Locate troubleshooting procedures for an air-cycle system, troubleshoot an air-cycle air conditioning system (AM.II.G.S11, AM.II.G.S12)
    Given: Boeing 737-200 AMM.
    Performance: The student will use 21-51-0 to locate troubleshooting procedures for an air-cycle machine and answer questions on faults and corrective actions per the fault isolation matrix (21-51-0 page 103).
    Standard: The student will successfully locate procedures and answer questions correctly.

Day 5: Oxygen Systems

- Lecture (3 hours):
  - Types of oxygen systems and oxygen system component(s) operation (e.g., chemical generator, pressure cylinder) (AM.II.G.K9)
  - Oxygen system maintenance and inspection procedures (AM.II.G.K10)
  - Risk management: Oxygen system maintenance (AM.II.G.R1)
- Lab (3 hours):
  - L212.1: Inspect an oxygen system, purge an oxygen system prior to servicing, service an oxygen system, clean and inspect a pilot emergency oxygen mask and supply hoses, inspect oxygen system pressure regulator, inspect oxygen system cylinder (AM.II.G.S1, AM.II.G.S2, AM.II.G.S3, AM.II.G.S4, AM.II.G.S5, AM.II.G.S6)
    Given: Piper PA-32 AMM.
    Performance: The student will use AMM 35-10-00 to inspect the oxygen system, including regulator, cylinder, pilot’s oxygen mask and hoses, clean and purge the system, and then service it.
    Standard: The student will successfully complete all tasks per AMM standards with return-to-service quality.

Day 6: Chemical Oxygen Generators

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- Lecture (3 hours):
  - Risk management: Handling or performing maintenance on chemical oxygen generating systems (AM.II.G.R3)
- Lab (3 hours):
  - L212.2: Inspect a chemical oxygen generator for serviceability and safe handling (AM.II.G.S7)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 21-40-00 and 78-00-00 to answer questions on inspection, deactivation, activation, removal, and replacement of chemical oxygen generators with at least 70% accuracy.
    Standard: The student will answer questions with at least 70% success rate.

Day 7: Pressurization Valves

- Lecture (3 hours):
  - Cabin pressurization and system component(s) operation and inspection procedures (AM.II.G.K8)
- Lab (3 hours):
  - L212.3: Clean and inspect an outflow valve for a pressurization system, locate troubleshooting procedures for a pressurization system (AM.II.G.S14, AM.II.G.S15)
    Given: Piper PA-46 AMM.
    Performance: The student will use AMM 21-30-00 to clean the cabin outflow valve and answer questions on troubleshooting procedures (pages 3 to 5).
    Standard: The student will successfully clean the valve and answer questions correctly.

Day 8: Air-Cycle Troubleshooting Review

- Lecture (3 hours):
  - Review of air-cycle systems and troubleshooting
- Lab (3 hours):
  - L212.4 (continued): Troubleshoot an air-cycle air conditioning system (AM.II.G.S12)
    Given: Boeing 737-200 AMM.
    Performance: The student will continue practicing troubleshooting an air-cycle machine using 21-51-0 and the fault isolation matrix.
    Standard: The student will successfully identify faults and corrective actions.

Day 9: Vapor-Cycle Servicing Review

- Lecture (3 hours):
  - Review of vapor-cycle systems and servicing
- Lab (3 hours):
  - L212.5 (continued): Locate procedures for servicing a refrigerant (vapor-cycle) system (AM.II.G.S9)
    Given: Piaggio P.180 Avanti II Maintenance Manual.
    Performance: The student will continue locating servicing procedures for the vapor-cycle system and answer additional questions.
    Standard: The student will answer questions with at least 70% accuracy.

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Day 10: Final Review and Examination

- Lecture (2 hours):
  - Review of combustion heaters and oxygen systems
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (3 hours):
  - L212.6 (continued): Inspect a combustion heater fuel system for leaks (AM.II.G.S10)
    Given: Combustion heat trainer, Beechcraft Baron Service Manual.
    Performance: The student will continue inspecting the combustion heater fuel system for leaks using Section 10-12.
    Standard: The student will successfully complete the inspection.
  - L212.7 (continued): Inspect a cabin heater system (AM.II.G.S13)
    Given: PA-32 Saratoga AMM.
    Performance: The student will continue performing an inspection of the cabin heat system using 21-40-00 and 78-00-00.
    Standard: The student will complete the inspection and report findings.

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AMA213.2 Night Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 15 days to complete 60 hours. The final examination (1 hour) is included in the lecture hours on Day 15.

Day 1: Pressurization Systems

- Lecture (2 hours):
  - Pressurization systems (AM.II.G.K1)
  - Risk management: Storage, handling, and use of compressed gas cylinder and high pressure systems (AM.II.G.R4)
- Lab (2 hours):
  - L212.3: Clean and inspect an outflow valve for a pressurization system (AM.II.G.S14)
    Given: Piper PA-46 AMM.
    Performance: The student will use AMM 21-30-00 to clean the cabin outflow valve.
    Standard: The student will successfully clean the valve per AMM standards.

Day 2: Bleed Air Heating

- Lecture (2 hours):
  - Bleed air heating (AM.II.G.K2)
  - Risk management: Maintenance of combustion heaters (AM.II.G.R6)
- Lab (2 hours):
  - L212.7: Inspect a cabin heater system equipped with an exhaust heat exchanger for cracks (AM.II.G.S13)
    Given: PA-32 Saratoga AMM.
    Performance: The student will use AMM 21-40-00 and 78-00-00 to perform an inspection of the cabin heat system and present findings to the instructor.
    Standard: The student will successfully complete the inspection.

Day 3: Combustion Heaters

- Lecture (2 hours):
  - Combustion heater and system component(s) function, operation, and inspection procedures (AM.II.G.K5)
- Lab (2 hours):
  - L212.6: Inspect a combustion heater fuel system for leaks, locate procedures to troubleshoot a combustion heater (AM.II.G.S10, AM.II.G.S8)
    Given: Combustion heat trainer, Beechcraft Baron Service Manual.
    Performance: The student will use Section 10-12 to locate inspection procedures for the combustion heater fuel system and answer questions on troubleshooting with at least 70% accuracy.
    Standard: The student will successfully locate procedures and answer questions correctly.

Day 4: Instrument Cooling

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- Lecture (2 hours):
  - Aircraft instrument cooling (AM.II.G.K3)
  - Exhaust heat exchanger and system component(s) function, operation, and inspection procedures (AM.II.G.K4)
- Lab (2 hours):
  - L212.6 (continued): Inspect a combustion heater fuel system for leaks (AM.II.G.S10)
    Given: Combustion heat trainer, Beechcraft Baron Service Manual.
    Performance: The student will continue inspecting the combustion heater fuel system for leaks.
    Standard: The student will successfully complete the inspection.

Day 5: Vapor-Cycle Systems

- Lecture (2 hours):
  - Vapor-cycle system and system component(s) operation, servicing, and inspection procedures (AM.II.G.K6)
  - Risk management: Recovery of vapor-cycle refrigerant (AM.II.G.R2)
- Lab (2 hours):
  - L212.5: Locate the procedures for servicing a refrigerant (vapor-cycle) system (AM.II.G.S9)
    Given: Piaggio P.180 Avanti II Maintenance Manual.
    Performance: The student will use 21-51-0 to locate servicing procedures for the vapor-cycle air conditioning system and answer questions with at least 70% accuracy.
    Standard: The student will successfully locate procedures and answer questions correctly.

Day 6: Air-Cycle Systems

- Lecture (2 hours):
  - Air-cycle system and system component(s) operation and inspection procedures (AM.II.G.K7)
  - Risk management: Manufacturer's recommended servicing procedures, including refrigerant types (AM.II.G.R5)
- Lab (2 hours):
  - L212.4: Locate troubleshooting procedures for an air-cycle system (AM.II.G.S11)
    Given: Boeing 737-200 AMM.
    Performance: The student will use 21-51-0 to locate troubleshooting procedures for an air-cycle machine and answer questions on faults and corrective actions per the fault isolation matrix (21-51-0 page 103).
    Standard: The student will successfully locate procedures and answer questions correctly.

Day 7: Air-Cycle Troubleshooting

- Lecture (2 hours):
  - Review of air-cycle systems and troubleshooting
- Lab (2 hours):

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- L212.4 (continued): Troubleshoot an air-cycle air conditioning system (AM.II.G.S12)
  Given: Boeing 737-200 AMM.
  Performance: The student will continue troubleshooting an air-cycle machine using 21-51-0 and the fault isolation matrix.
  Standard: The student will successfully identify faults and corrective actions.

Day 8: Cabin Pressurization

- Lecture (2 hours):
  - Cabin pressurization and system component(s) operation and inspection procedures (AM.II.G.K8)
- Lab (2 hours):
  - L212.3 (continued): Locate troubleshooting procedures for a pressurization system (AM.II.G.S15)
    Given: Piper PA-46 AMM.
    Performance: The student will use AMM 21-30-00 pages 3 to 5 to answer questions on troubleshooting procedures for a pressurization system.
    Standard: The student will answer questions with at least 70% accuracy.

Day 9: Oxygen Systems

- Lecture (2 hours):
  - Types of oxygen systems and oxygen system component(s) operation (e.g., chemical generator, pressure cylinder) (AM.II.G.K9)
  - Risk management: Oxygen system maintenance (AM.II.G.R1)
- Lab (2 hours):
  - L212.1: Inspect an oxygen system, clean and inspect a pilot emergency oxygen mask and supply hoses, inspect oxygen system pressure regulator (AM.II.G.S1, AM.II.G.S4, AM.II.G.S5)
    Given: Piper PA-32 AMM.
    Performance: The student will use AMM 35-10-00 to inspect the oxygen system, including regulator and pilot's oxygen mask and hoses.
    Standard: The student will successfully complete inspections per AMM standards.

Day 10: Oxygen System Servicing

- Lecture (2 hours):
  - Oxygen system maintenance and inspection procedures (AM.II.G.K10)
- Lab (2 hours):
  - L212.1 (continued): Purge an oxygen system prior to servicing, service an oxygen system, inspect an oxygen system cylinder (AM.II.G.S2, AM.II.G.S3, AM.II.G.S6)
    Given: Piper PA-32 AMM.
    Performance: The student will use AMM 35-10-00 to clean, purge, and service the oxygen system and inspect the oxygen system cylinder.
    Standard: The student will successfully complete tasks per AMM standards with return-to-service quality.

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Day 11: Chemical Oxygen Generators

- Lecture (2 hours):
  - Risk management: Handling or performing maintenance on chemical oxygen generating systems (AM.II.G.R3)
- Lab (2 hours):
  - L212.2: Inspect a chemical oxygen generator for serviceability and safe handling (AM.II.G.S7)
    Given: Boeing 737-300/400/500 AMM.
    Performance: The student will use AMM 21-40-00 and 78-00-00 to answer questions on inspection, deactivation, activation, removal, and replacement of chemical oxygen generators with at least 70% accuracy.
    Standard: The student will answer questions with at least 70% success rate.

Day 12: Pressurization System Review

- Lecture (2 hours):
  - Review of pressurization systems
- Lab (2 hours):
  - L212.3 (continued): Clean and inspect an outflow valve for a pressurization system (AM.II.G.S14)
    Given: Piper PA-46 AMM.
    Performance: The student will continue cleaning and inspecting the cabin outflow valve using AMM 21-30-00.
    Standard: The student will successfully complete the task per AMM standards.

Day 13: Air-Cycle System Review

- Lecture (2 hours):
  - Review of air-cycle systems
- Lab (2 hours):
  - L212.4 (continued): Troubleshoot an air-cycle air conditioning system (AM.II.G.S12)
    Given: Boeing 737-200 AMM.
    Performance: The student will continue troubleshooting an air-cycle machine using 21-51-0 and the fault isolation matrix.
    Standard: The student will successfully identify faults and corrective actions.

Day 14: Vapor-Cycle System Review

- Lecture (2 hours):
  - Review of vapor-cycle systems
- Lab (2 hours):
  - L212.5 (continued): Locate procedures for servicing a refrigerant (vapor-cycle) system (AM.II.G.S9)
    Given: Piaggio P.180 Avanti II Maintenance Manual.
    Performance: The student will continue locating servicing procedures for the vapor-cycle

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system and answer additional questions.
Standard: The student will answer questions with at least 70% accuracy.

Day 15: Combustion Heater and Final Review

- Lecture (1 hour):
  - Review of combustion heaters and oxygen systems
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (2 hours):
  - L212.6 (continued): Inspect a combustion heater fuel system for leaks (AM.II.G.S10)
    Given: Combustion heat trainer, Beechcraft Baron Service Manual.
    Performance: The student will continue inspecting the combustion heater fuel system for leaks using Section 10-12.
    Standard: The student will successfully complete the inspection.
  - L212.7 (continued): Inspect a cabin heater system (AM.II.G.S13)
    Given: PA-32 Saratoga AMM.
    Performance: The student will continue performing an inspection of the cabin heat system using 21-40-00 and 78-00-00.
    Standard: The student will complete the inspection and report findings.

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AMA214.2: Hydraulic and Pneumatic Systems

Course Overview

- Course Code: AMA213.2
- Course Title: Hydraulic and Pneumatic Systems
- Total Hours: 60 (12 Lecture, 48 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 12: Hydraulic & Pneumatic Power Systems (FAA, 2023)

Description

This course focuses on the maintenance and repair of hydraulic and pneumatic systems used in aircraft for actuation and control. Lab work emphasizes hands-on maintenance, troubleshooting, and inspections to ensure system reliability and safety.

Learning Objectives

- Understand the principles of hydraulic and pneumatic systems.
- Perform maintenance and troubleshooting on system components.
- Ensure system reliability and safety.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L213.1, L213.2, L213.3, L213.4, L213.5, L213.9, L213.11, L213.13, L213.14, L213.15). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 12, for additional examples and diagrams on hydraulic and pneumatic power systems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including relieving system pressure and handling hydraulic fluids, are emphasized throughout all lab activities.

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AMT214.2 Day Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 10 days to complete 60 hours. The final examination (1 hour) is included in the lecture hours on Day 10.

Day 1: Hydraulic System Basics

- Lecture (3 hours):
  - Hydraulic system components and fluids (AM.II.F.K1)
  - Hydraulic system operation (AM.II.F.K2)
  - Hydraulic system servicing requirements (AM.II.F.K3)
  - Risk management: Relieving system pressure prior to system servicing or disassembly (AM.II.F.R1)
- Lab (3 hours):
  - L213.1: Identify different types of hydraulic fluids (AM.II.F.S1)
    Given: Samples of phosphate-ester base, petroleum base, and vegetable base hydraulic fluids, a written statement or sample placard from a hydraulic reservoir associated with each type of fluid.
    Performance: The student will identify the sample fluids by color, odor, and specification number, select the proper fluid for each placard or reservoir, and describe characteristics, advantages, and disadvantages of each type.
    Standard: All three types of fluid will be identified correctly, and all reference information and placards will be correctly associated with each type.

Day 2: Hydraulic Seals and Components

- Lecture (3 hours):
  - Types of hydraulic/pneumatic seals and fluid/seal compatibility (AM.II.F.K8)
  - Hoses, lines, and fittings (AM.II.F.K9)
  - Risk management: Cross-contamination of hydraulic fluids (AM.II.F.R4)
  - Risk management: Compatibility between hydraulic seals and hydraulic fluids (AM.II.F.R5)
- Lab (3 hours):
  - L213.2: Identify different packing seals, install seals and backup rings in a hydraulic component, locate installation procedures for a seal, backup ring, or gasket (AM.II.F.S2, AM.II.F.S3, AM.II.F.S16)
    Given: PA-32 Saratoga and Cleveland CMM Retract Actuator Assembly.
    Performance: The student will locate overhaul/installation procedures in PA-32 AMM 32-30-00 and CMM manual, remove and overhaul an assigned retract actuator assembly, identify correct seals and packings, install seals and backup rings, and reinstall the actuator.
    Standard: The student will successfully complete all tasks per AMM and CMM standards with return-to-service quality.

Day 3: Hydraulic System Inspection and Troubleshooting

- Lecture (3 hours):

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  - Hydraulic system inspection, check, servicing, and troubleshooting (AM.II.F.K4)
  - Risk management: High pressure gases and fluids (AM.II.F.R2)
- Lab (3 hours):
  - L213.4: Remove and install a selector valve, service a hydraulic system reservoir, remove, install, and perform an operational check of a hydraulic pump, purge air from a hydraulic system, inspect for leaks, troubleshoot for leaks, locate hydraulic fluid servicing instructions (AM.II.F.S4, AM.II.F.S8, AM.II.F.S9, AM.II.F.S11, AM.II.F.S13, AM.II.F.S14, AM.II.F.S15)
    Given: Written specifications, manufacturer's service manual or technical data, an airplane or mock-up with operable hydraulic and pneumatic power system including reservoir, pump, actuating cylinder, check valve, selector valve, relief valve, regulator, accumulator, hydraulic fuse, sequence valve, shuttle valve, pressure gauge, and tools.
    Performance: The student will correct a defective condition identified by the instructor, interpret manufacturer's instructions, recommend and accomplish corrective actions to restore the hydraulic/pneumatic power system to operational condition.
    Standard: Troubleshooting will be correct, and repairs will bring the system to a simulated return-to-service condition.

Day 4: Pneumatic Systems

- Lecture (3 hours):
  - Pneumatic system types and components (AM.II.F.K5)
  - Pneumatic system servicing requirements (AM.II.F.K6)
  - Pressure regulators, restrictors, and valves (AM.II.F.K10)
  - Risk management: Storage and handling of hydraulic fluids (AM.II.F.R3)
- Lab (3 hours):
  - L213.5: Locate procedures for checking pneumatic/bleed air overheat warning systems (AM.II.F.S10)
    Given: B727-200 AMM.
    Performance: The student will locate and identify the correct chapter and reference for performing an adjustment test of the engine bleed temperature indication and thermal switch adjustment test (36-22-0 and 36-22-1 page 501) and answer questions about the procedure.
    Standard: The student will successfully locate the reference and answer questions correctly.

Day 5: Filters and Accumulators

- Lecture (3 hours):
  - Filter maintenance procedures (AM.II.F.K11)
  - Servicing, function, and operation of accumulators (AM.II.F.K7)
- Lab (3 hours):
  - L213.3: Remove, clean, inspect, and install a hydraulic system filter (AM.II.F.S6)
    Given: PA-32 AMM.
    Performance: The student will remove, clean, inspect, and install a hydraulic system filter per AMM standards.
    Standard: The student will successfully complete the task per AMM.

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- L213.7: Service a hydraulic system accumulator (AM.II.F.S7)
  Given: PA-32 AMM.
  Performance: The student will service a hydraulic system accumulator per AMM standards.
  Standard: The student will successfully service the accumulator.

Day 6: Valves and Regulators

- Lecture (3 hours):
  - Pressure regulators, restrictors, and valves (AM.II.F.K10)
- Lab (3 hours):
  - L213.4 (continued): Check a pressure regulator and adjust as necessary (AM.II.F.S5)
    Given: Airplane or mock-up with hydraulic/pneumatic system.
    Performance: The student will check and adjust a pressure regulator as necessary.
    Standard: The adjustment will meet technical data specifications.
  - L213.12: Remove and install a system pressure relief valve (AM.II.F.S12)
    Given: Airplane or mock-up with hydraulic/pneumatic system.
    Performance: The student will remove and install a system pressure relief valve.
    Standard: The installation will meet technical data standards.

Day 7: System Troubleshooting

- Lecture (3 hours):
  - Hydraulic system inspection, check, servicing, and troubleshooting (AM.II.F.K4)
- Lab (3 hours):
  - L213.2 (continued): Inspect a hydraulic or pneumatic system for leaks (AM.II.F.S13)
    Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga.
    Performance: The student will inspect the landing gear hydraulic system for leaks.
    Standard: The student will successfully inspect per AMM 29-10-00.
  - L213.14: Troubleshoot a hydraulic or pneumatic system for leaks (AM.II.F.S14)
    Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga.
    Performance: Upon discovery of instructor-induced leaks, the student will troubleshoot the cause.
    Standard: The student will correctly identify and troubleshoot leaks per AMM standards.

Day 8: Hydraulic Pump and Valve Maintenance

- Lecture (3 hours):
  - Review of hydraulic pumps and valves
- Lab (3 hours):
  - L213.9: Remove, install, and perform an operational check of a hydraulic pump (AM.II.F.S9)
    Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga.
    Performance: The student will remove and reinstall the hydraulic pump.
    Standard: The student will successfully complete the task per AMM 29-10-00 with return-to-service standards.
  - L213.4: Remove and install a selector valve (AM.II.F.S4)
    Given: Airplane or mock-up with hydraulic/pneumatic system.

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Performance: The student will remove and install a selector valve.
Standard: The student will successfully complete the task per technical data.

Day 9: Fluid Servicing and Final Review

- Lecture (3 hours):
  - Hydraulic fluid servicing instructions and fluid selection (AM.II.F.S15)
- Lab (3 hours):
  - L213.15: Locate and explain hydraulic fluid servicing instructions and identify/select fluid for a given aircraft (AM.II.F.S15)
    Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga AMM.
    Performance: The student will locate and explain servicing procedures and select the appropriate fluid.
    Standard: The student will correctly locate and explain procedures per AMM.
  - L213.11: Purge air from a hydraulic system (AM.II.F.S11)
    Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga.
    Performance: The student will purge air from the hydraulic system.
    Standard: The student will successfully purge air per AMM 29-10-00.

Day 10: Pneumatic Systems and Final Examination

- Lecture (2 hours):
  - Pneumatic system types and components (AM.II.F.K5)
  - Pneumatic system servicing requirements (AM.II.F.K6)
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (3 hours):
  - L213.10: Locate procedures for checking pneumatic/bleed air overheat warning systems (AM.II.F.S10)
    Given: B727-200 AMM.
    Performance: The student will locate procedures for checking pneumatic/bleed air overheat warning systems and answer questions.
    Standard: The student will correctly locate procedures and answer questions.
  - L213.5: Locate procedures for checking pneumatic/bleed air overheat warning systems (AM.II.F.S10)
    Given: B727-200 AMM.
    Performance: The student will continue practicing locating procedures for pneumatic systems.
    Standard: The student will successfully complete the task.

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AMA214.2 Night Course Schedule

Assuming 4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 15 days to complete 60 hours. The final examination (1 hour) is included in the lecture hours on Day 15.

Day 1: Hydraulic System Basics

- Lecture (2 hours):
    - Hydraulic system components and fluids (AM.II.F.K1)
    - Risk management: Relieving system pressure prior to system servicing or disassembly (AM.II.F.R1)
- Lab (2 hours):
    - L213.1: Identify different types of hydraulic fluids (AM.II.F.S1)
      Given: Samples of phosphate-ester base, petroleum base, and vegetable base hydraulic fluids, a written statement or sample placard from a hydraulic reservoir associated with each type of fluid.
      Performance: The student will identify the sample fluids by color, odor, and specification number, select the proper fluid for each placard or reservoir, and describe characteristics, advantages, and disadvantages of each type.
      Standard: All three types of fluid will be identified correctly, and all reference information and placards will be correctly associated with each type.

Day 2: Hydraulic System Operation

- Lecture (2 hours):
    - Hydraulic system operation (AM.II.F.K2)
    - Hydraulic system servicing requirements (AM.II.F.K3)
- Lab (2 hours):
    - L213.15: Locate and explain hydraulic fluid servicing instructions and identify/select fluid for a given aircraft (AM.II.F.S15)
      Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga AMM.
      Performance: The student will locate and explain servicing procedures and select the appropriate fluid.
      Standard: The student will correctly locate and explain procedures per AMM.

Day 3: Hydraulic Seals

- Lecture (2 hours):
    - Types of hydraulic/pneumatic seals and fluid/seal compatibility (AM.II.F.K8)
    - Risk management: Compatibility between hydraulic seals and hydraulic fluids (AM.II.F.R5)

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- Lab (2 hours):
    - L213.2: Identify different packing seals, locate installation procedures for a seal, backup ring, or gasket (AM.II.F.S2, AM.II.F.S16)
      Given: PA-32 Saratoga and Cleveland CMM Retract Actuator Assembly.
      Performance: The student will locate overhaul/installation procedures in PA-32 AMM 32-30-00 and CMM manual, and identify the correct seals and packings required.
      Standard: The student will successfully locate procedures and identify seals per AMM and CMM standards.

Day 4: Seal Installation

- Lecture (2 hours):
    - Hoses, lines, and fittings (AM.II.F.K9)
    - Risk management: Cross-contamination of hydraulic fluids (AM.II.F.R4)
- Lab (2 hours):
    - L213.3: Install seals and backup rings in a hydraulic component (AM.II.F.S3)
      Given: PA-32 Saratoga and Cleveland CMM Retract Actuator Assembly.
      Performance: The student will remove and overhaul an assigned retract actuator assembly, install seals and backup rings, and reinstall the actuator.
      Standard: The student will successfully complete the task per AMM 32-30-00 and CMM standards with return-to-service quality.

Day 5: Hydraulic System Inspection

- Lecture (2 hours):
    - Hydraulic system inspection, check, servicing, and troubleshooting (AM.II.F.K4)
    - Risk management: High pressure gases and fluids (AM.II.F.R2)
- Lab (2 hours):
    - L213.13: Inspect a hydraulic or pneumatic system for leaks (AM.II.F.S13)
      Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga.
      Performance: The student will inspect the landing gear hydraulic system for leaks.
      Standard: The student will successfully inspect per AMM 29-10-00.

Day 6: Hydraulic System Troubleshooting

- Lecture (2 hours):
    - Hydraulic system inspection, check, servicing, and troubleshooting (AM.II.F.K4)
- Lab (2 hours):
    - L213.14: Troubleshoot a hydraulic or pneumatic system for leaks (AM.II.F.S14)
      Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga.

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Performance: Upon discovery of instructor-induced leaks, the student will troubleshoot the cause.
Standard: The student will correctly identify and troubleshoot leaks per AMM standards.

Day 7: Pneumatic Systems

- Lecture (2 hours):
    - Pneumatic system types and components (AM.II.F.K5)
    - Pneumatic system servicing requirements (AM.II.F.K6)
- Lab (2 hours):
    - L213.5: Locate procedures for checking pneumatic/bleed air overheat warning systems (AM.II.F.S10)
      Given: B727-200 AMM.
      Performance: The student will locate and identify the correct chapter and reference for performing an adjustment test of the engine bleed temperature indication and thermal switch adjustment test (36-22-0 and 36-22-1 page 501) and answer questions about the procedure.
      Standard: The student will successfully locate the reference and answer questions correctly.

Day 8: Pneumatic System Review

- Lecture (2 hours):
    - Pressure regulators, restrictors, and valves (AM.II.F.K10)
- Lab (2 hours):
    - L213.10: Locate procedures for checking pneumatic/bleed air overheat warning systems (AM.II.F.S10)
      Given: B727-200 AMM.
      Performance: The student will continue practicing locating procedures for checking pneumatic/bleed air overheat warning systems.
      Standard: The student will successfully complete the task.

Day 9: Hydraulic Filters

- Lecture (2 hours):
    - Filter maintenance procedures (AM.II.F.K11)
    - Risk management: Storage and handling of hydraulic fluids (AM.II.F.R3)
- Lab (2 hours):
    - L213.6: Remove, clean, inspect, and install a hydraulic system filter (AM.II.F.S6)
      Given: PA-32 AMM.
      Performance: The student will remove, clean, inspect, and install a hydraulic system

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filter per AMM standards.
Standard: The student will successfully complete the task per AMM.

Day 10: Accumulators

- Lecture (2 hours):
    - Servicing, function, and operation of accumulators (AM.II.F.K7)
- Lab (2 hours):
    - L213.7: Service a hydraulic system accumulator (AM.II.F.S7)
      Given: PA-32 AMM.
      Performance: The student will service a hydraulic system accumulator per AMM standards.
      Standard: The student will successfully service the accumulator.

Day 11: Pressure Regulators

- Lecture (2 hours):
    - Pressure regulators, restrictors, and valves (AM.II.F.K10)
- Lab (2 hours):
    - L213.5: Check a pressure regulator and adjust as necessary (AM.II.F.S5)
      Given: Airplane or mock-up with hydraulic/pneumatic system.
      Performance: The student will check and adjust a pressure regulator as necessary.
      Standard: The adjustment will meet technical data specifications.

Day 12: Selector Valves

- Lecture (2 hours):
    - Review of hydraulic and pneumatic valves
- Lab (2 hours):
    - L213.4: Remove and install a selector valve (AM.II.F.S4)
      Given: Airplane or mock-up with hydraulic/pneumatic system.
      Performance: The student will remove and install a selector valve.
      Standard: The student will successfully complete the task per technical data.

Day 13: Pressure Relief Valves

- Lecture (2 hours):
    - Review of pressure relief valves and system troubleshooting
- Lab (2 hours):
    - L213.12: Remove and install a system pressure relief valve (AM.II.F.S12)
      Given: Airplane or mock-up with hydraulic/pneumatic system.

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Performance: The student will remove and install a system pressure relief valve.
Standard: The installation will meet technical data standards.

Day 14: Hydraulic Pumps

- Lecture (2 hours):
    - Review of hydraulic pumps and system servicing
- Lab (2 hours):
    - L213.9: Remove, install, and perform an operational check of a hydraulic pump (AM.II.F.S9)
      Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga.
      Performance: The student will remove and reinstall the hydraulic pump.
      Standard: The student will successfully complete the task per AMM 29-10-00 with return-to-service standards.

Day 15: System Servicing and Final Examination

- Lecture (1 hour):
    - Review of hydraulic and pneumatic system servicing
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (2 hours):
    - L213.11: Purge air from a hydraulic system (AM.II.F.S11)
      Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga.
      Performance: The student will purge air from the hydraulic system.
      Standard: The student will successfully purge air per AMM 29-10-00.
    - L213.2: Service a hydraulic system reservoir (AM.II.F.S8)
      Given: Piper PA-46 Malibu/Matrix or PA-32 Saratoga.
      Performance: The student will service the hydraulic system reservoir.
      Standard: The student will successfully service the reservoir per AMM 29-10-00.

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AMA215.2: Landing Gear Systems

Course Overview

- Course Code: AMA214.2
- Course Title: Landing Gear Systems
- Total Hours: 48 (12 Lecture, 48 Lab)
- Prerequisite: Completion of APMI AMT General Program
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, Chapter 13: Aircraft Landing Gear Systems (FAA, 2023)

Description

This course covers the design, maintenance, and inspection of aircraft landing gear systems, including wheels, brakes, and retraction mechanisms. Lab work focuses on hands-on maintenance, troubleshooting, and inspections to ensure safe operation.
Learning Objectives

- Perform maintenance and inspections on landing gear components.
- Troubleshoot landing gear system issues.
- Ensure safe operation of landing gear systems.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities (L214.1, L214.2, L214.3, L214.4, L214.5, L214.6, L214.7, L214.8, L214.29). All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade is 70%.

Notes

- All labs align with FAA Airman Certification Standards (ACS) for Aviation Maintenance Technicians.
- Students are encouraged to refer to the FAA-H-8083-31B handbook, Chapter 13, for additional examples and diagrams on landing gear systems.
- Practical exercises emphasize real-world aviation maintenance scenarios to prepare students for FAA certification.
- Safety protocols, including proper use of jacks, handling high-pressure fluids, and operating retractable landing gear systems, are emphasized throughout all lab activities.

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AMA215.2 Day Course Schedule

6-hour instructional days, with each day including 3 hours of lecture and 3 hours of lab, totaling 8 days to complete 48 hours. The final examination (1 hour) is included in the lecture hours on Day 8.

Day 1: Landing Gear Systems and Safety

- Lecture (3 hours):
    - Fixed and retractable landing gear systems (AM.II.E.K1)
    - Fixed and retractable landing gear components (AM.II.E.K2)
    - Risk management: Landing gear and tire and wheel practices/precautions (AM.II.E.R1)
    - Risk management: Use of aircraft jacks (AM.II.E.R2)
- Lab (3 hours):
    - L214.2: Jack aircraft (AM.II.E.S5)
      Given: Piper Saratoga or Piper Malibu/Matrix.
      Performance: The student will use the appropriate aircraft maintenance manuals to jack the aircraft.
      Standard: The student will successfully jack the aircraft per AMM standards with return-to-service quality.
    - L214.8: Inspect and service landing gear (AM.II.E.S1)
      Given: Cessna landing gear trainer, Cessna 150 service manual.
      Performance: The student will perform a landing gear inspection per the Cessna 150 service manual.
      Standard: The student will successfully complete the inspection per AMM standards.

Day 2: Strut Servicing and Steering Systems

- Lecture (3 hours):
    - Landing gear strut servicing/lubrication (AM.II.E.K3)
    - Steering systems (AM.II.E.K5)
    - Risk management: High pressure fluids and gases (AM.II.E.R3)
- Lab (3 hours):
    - L214.1: Service landing gear air/oil shock strut, replace air/oil shock strut air valve (AM.II.E.S9, AM.II.E.S15)
      Given: Piper Warrior, Piper Saratoga, or Piper Malibu/Matrix.
      Performance: The student will use the appropriate AMM to service an air/oil shock strut and replace the air valve.
      Standard: The student will successfully service the strut and replace the valve per AMM standards.

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- L214.4: Inspect nose-wheel steering system for proper adjustment, service a nose-wheel shimmy damper (AM.II.E.S17, AM.II.E.S18)
  Given: Piper Warrior, Saratoga, or Malibu/Mirage.
  Performance: The student will use the appropriate AMM to inspect the nose-wheel steering system and service the shimmy damper.
  Standard: The student will successfully complete the tasks per AMM standards.

Day 3: Brake Systems and Anti-Skid

- Lecture (3 hours):
  - Brake assembly servicing and inspection (AM.II.E.K7)
  - Anti-skid system components and operation (AM.II.E.K8)
  - Risk management: Storage and handling of hydraulic fluids (AM.II.E.R4)
  - Brake actuating systems (AM.II.E.K12)
  - Risk management: High pressure strut or system disassembly (AM.II.E.R5)

- Lab (3 hours):
  - L214.5: Remove and replace brake lining(s), remove, inspect, and install a wheel brake assembly (AM.II.E.S8, AM.II.E.S12)
    Given: Piper Warrior, Saratoga, or Malibu/Matrix.
    Performance: The student will use the appropriate AMM to remove, inspect, and install a wheel brake assembly and replace brake linings.
    Standard: The student will successfully complete the tasks per AMM standards with return-to-service quality.
  - L214.5: Bleed air from a hydraulic brake system, troubleshoot hydraulic brake systems (AM.II.E.S10, AM.II.E.S11)
    Given: Piper Warrior, Saratoga, or Malibu/Matrix.
    Performance: The student will use the appropriate AMM to bleed air from a hydraulic brake system and troubleshoot the system.
    Standard: The student will successfully complete the tasks per AMM standards.
  - L214.6: Replace master brake cylinder packing seals (AM.II.E.S20)
    Given: Piper Warrior, Saratoga, or Malibu/Matrix.
    Performance: The student will use the appropriate AMM to overhaul and replace the master brake packing seals.
    Standard: The student will successfully complete the task per AMM standards.
  -

Day 4: Landing Gear Position and Warning Systems and Landing Gear Retraction and Alignment

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- Lecture (3 hours):
    - Landing gear position and warning system inspection, check, and servicing (AM.II.E.K6)
    - Risk management: Operation of retractable landing gear systems around personnel (AM.II.E.R6)
    - Inspection of bungee and spring steel landing gear systems (AM.II.E.K4)

- Lab (3 hours):
    - L214.2: Troubleshoot landing gear position and warning systems, inspect and repair landing gear position indicating system, adjust the operation of a landing gear warning system, remove, install, and adjust a landing gear down-lock switch (AM.II.E.S23, AM.II.E.S24, AM.II.E.S25, AM.II.E.S26)
      Given: Piper Saratoga or Piper Malibu/Matrix.
      Performance: The student will use the appropriate AMM to troubleshoot an instructor-induced fault in the landing gear position system, perform the indicated repair, replace a down-lock switch, and adjust it for proper operation of the warning system.
      Standard: The student will successfully complete the tasks per AMM standards with return-to-service quality.
    - L214.2: Troubleshoot a landing gear retraction check (AM.II.E.S6)
      Given: Piper Saratoga or Piper Malibu/Matrix.
      Performance: The student will use the appropriate AMM to perform a landing gear retraction test and troubleshoot an instructor-induced fault.
      Standard: The student will successfully complete the task per AMM standards.
    - L214.3: Locate and explain the process for checking landing gear alignment (AM.II.E.S19)
      Given: Cessna 172 Service Manual 1977 thru 1986 series.
      Performance: The student will use Paragraph 5-29, pages 5-19 and 5-20, to describe the landing gear alignment check.
      Standard: The student will successfully navigate to the correct reference and describe the procedure.

Day 5: Tires and Wheels

- Lecture (3 hours):
    - Wheel, brake, and tire construction (AM.II.E.K9)
    - Tire storage, care, and servicing (AM.II.E.K10)
    - Landing gear and tire and wheel safety and inspection (AM.II.E.K11)
- Lab (3 hours):

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- L214.7: Inspect a tire for defects, locate tire storage practices (AM.II.E.S13, AM.II.E.S14)
  Given: Piper Warrior, Saratoga, or Malibu/Matrix, Goodyear Aircraft Tire Care and Maintenance handbook.
  Performance: The student will use the appropriate AMM and Goodyear handbook to perform a tire inspection for condition and defects and locate proper tire storage procedures.
  Standard: The student will successfully complete the tasks per AMM and handbook standards.

Day 6: Anti-Skid Systems

- Lecture (3 hours):
  - Anti-skid system components and operation (AM.II.E.K8)
- Lab (3 hours):
  - L214.8: Inspect wheels, brakes, bearings, and tires (AM.II.E.S7)
    Given: Cessna landing gear trainer, Cessna 150 service manual.
    Performance: The student will perform an inspection of wheels, brakes, bearings, and tires for condition and defects.
    Standard: The student will successfully complete the inspection per AMM standards.
  - L214.9: Inspect tube landing gear for damage (AM.II.E.S29)
    Given: Cessna landing gear trainer, Cessna 150 service manual.
    Performance: The student will inspect the tube landing gear for damage and condition.
    Standard: The student will successfully complete the inspection per AMM standards.

Day 7: Nose-Wheel Shimmy and Steering

- Lecture (3 hours):
  - Review of steering systems and troubleshooting
- Lab (3 hours):
  - L214.4: Troubleshoot nose-wheel shimmy, troubleshoot aircraft steering system (AM.II.E.S21, AM.II.E.S28)
    Given: Piper Warrior, Saratoga, or Malibu/Mirage.
    Performance: The student will use the appropriate AMM to troubleshoot a nose-wheel shimmy and the steering system.
    Standard: The student will successfully troubleshoot per AMM standards.

Day 8: Final Review and Examination

- Lecture (2 hours):
  - Alternative landing gear systems (e.g., skis, floats) (AM.II.E.K13)
  - Review of landing gear systems and troubleshooting

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- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (3 hours):
    - L214.1: Troubleshoot an air/oil shock strut (AM.II.E.S16)
      Given: Piper Warrior, Piper Saratoga, or Piper Malibu/Matrix.
      Performance: The student will use the appropriate AMM to troubleshoot a leaking air/oil oleo strut and overhaul if required.
      Standard: The student will successfully troubleshoot and overhaul per AMM standards.
    - L214.8: Inspect and service landing gear (AM.II.E.S1)
      Given: Cessna landing gear trainer, Cessna 150 service manual.
      Performance: The student will continue inspecting and servicing the landing gear system.
      Standard: The student will successfully complete the tasks per AMM standards.

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AMT215.2 Night Course Schedule

4-hour instructional days, with each day including 2 hours of lecture and 2 hours of lab, totaling 12 days to complete 48 hours. The final examination (1 hour) is included in the lecture hours on Day 12.

Day 1: Landing Gear Systems Overview

- Lecture (2 hours):
    - Fixed and retractable landing gear systems (AM.II.E.K1)
    - Risk management: Use of aircraft jacks (AM.II.E.R2)
- Lab (2 hours):
    - L214.2: Jack aircraft (AM.II.E.S5)
      Given: Piper Saratoga or Piper Malibu/Matrix.
      Performance: The student will use the appropriate aircraft maintenance manuals to jack the aircraft.
      Standard: The student will successfully jack the aircraft per AMM standards with return-to-service quality.

Day 2: Landing Gear Components

- Lecture (2 hours):
    - Fixed and retractable landing gear components (AM.II.E.K2)
    - Risk management: Landing gear and tire and wheel practices/precautions (AM.II.E.R1)
- Lab (2 hours):
    - L214.8: Inspect and service landing gear (AM.II.E.S1)
      Given: Cessna landing gear trainer, Cessna 150 service manual.
      Performance: The student will perform a landing gear inspection per the Cessna 150 service manual.
      Standard: The student will successfully complete the inspection per AMM standards.

Day 3: Strut Servicing and Strut Servicing

- Lecture (2 hours):
    - Landing gear strut servicing/lubrication (AM.II.E.K3)
    - Risk management: High pressure fluids and gases (AM.II.E.R3)
    - Inspection of bungee and spring steel landing gear systems (AM.II.E.K4)
- Lab (2 hours):
    - L214.1: Service landing gear air/oil shock strut, replace air/oil shock strut air valve (AM.II.E.S9, AM.II.E.S15)

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Given: Piper Warrior, Piper Saratoga, or Piper Malibu/Matrix.
Performance: The student will use the appropriate AMM to service an air/oil shock strut and replace the air valve.
Standard: The student will successfully service the strut and replace the valve per AMM standards.

- L214.1: Troubleshoot an air/oil shock strut (AM.II.E.S16)
  Given: Piper Warrior, Piper Saratoga, or Piper Malibu/Matrix.
  Performance: The student will use the appropriate AMM to troubleshoot a leaking air/oil oleo strut and overhaul if required.
  Standard: The student will successfully troubleshoot and overhaul per AMM standards.

Day 4: Steering Systems and Nose-Wheel Troubleshooting

- Lecture (2 hours):
  - Steering systems (AM.II.E.K5)
  - Risk management: Operation of retractable landing gear systems around personnel (AM.II.E.R6)
  - Review of steering systems and troubleshooting

- Lab (2 hours):
  - L214.4: Inspect nose-wheel steering system for proper adjustment, service a nose-wheel shimmy damper (AM.II.E.S17, AM.II.E.S18)
    Given: Piper Warrior, Saratoga, or Malibu/Mirage.
    Performance: The student will use the appropriate AMM to inspect the nose-wheel steering system and service the shimmy damper.
    Standard: The student will successfully complete the tasks per AMM standards.
  - L214.4: Troubleshoot nose-wheel shimmy, troubleshoot aircraft steering system (AM.II.E.S21, AM.II.E.S28)
    Given: Piper Warrior, Saratoga, or Malibu/Mirage.
    Performance: The student will use the appropriate AMM to troubleshoot a nose-wheel shimmy and the steering system.
    Standard: The student will successfully troubleshoot per AMM standards.

Day 5: Brake Systems

- Lecture (2 hours):
  - Brake assembly servicing and inspection (AM.II.E.K7)

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- Risk management: Storage and handling of hydraulic fluids (AM.II.E.R4)

- Lab (2 hours):
  - L214.5: Remove and replace brake lining(s), remove, inspect, and install a wheel brake assembly (AM.II.E.S8, AM.II.E.S12)
    Given: Piper Warrior, Saratoga, or Malibu/Matrix.
    Performance: The student will use the appropriate AMM to remove, inspect, and install a wheel brake assembly and replace brake linings.
    Standard: The student will successfully complete the tasks per AMM standards with return-to-service quality.

Day 6: Brake Actuating Systems
- Lecture (2 hours):
  - Brake actuating systems (AM.II.E.K12)
  - Risk management: High pressure strut or system disassembly (AM.II.E.R5)
- Lab (2 hours):
  - L214.5: Bleed air from a hydraulic brake system, troubleshoot hydraulic brake systems (AM.II.E.S10, AM.II.E.S11)
    Given: Piper Warrior, Saratoga, or Malibu/Matrix.
    Performance: The student will use the appropriate AMM to bleed air from a hydraulic brake system and troubleshoot the system.
    Standard: The student will successfully complete the tasks per AMM standards.

Day 7: Master Brake Cylinder
- Lecture (2 hours):
  - Review of brake systems
- Lab (2 hours):
  - L214.6: Replace master brake cylinder packing seals (AM.II.E.S20)
    Given: Piper Warrior, Saratoga, or Malibu/Matrix.
    Performance: The student will use the appropriate AMM to overhaul and replace the master brake packing seals.
    Standard: The student will successfully complete the task per AMM standards.

Day 8: Tires and Wheels
- Lecture (2 hours):
  - Wheel, brake, and tire construction (AM.II.E.K9)
  - Tire storage, care, and servicing (AM.II.E.K10)
- Lab (2 hours):

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- L214.7: Inspect a tire for defects, locate tire storage practices (AM.II.E.S13, AM.II.E.S14)
  Given: Piper Warrior, Saratoga, or Malibu/Matrix, Goodyear Aircraft Tire Care and Maintenance handbook.
  Performance: The student will use the appropriate AMM and Goodyear handbook to perform a tire inspection for condition and defects and locate proper tire storage procedures.
  Standard: The student will successfully complete the tasks per AMM and handbook standards.

Day 9: Landing Gear Inspection

- Lecture (2 hours):
  - Landing gear and tire and wheel safety and inspection (AM.II.E.K11)
- Lab (2 hours):
  - L214.8: Inspect wheels, brakes, bearings, and tires, inspect tube landing gear for damage (AM.II.E.S7, AM.II.E.S29)
    Given: Cessna landing gear trainer, Cessna 150 service manual.
    Performance: The student will perform an inspection of wheels, brakes, bearings, tires, and tube landing gear for condition and defects.
    Standard: The student will successfully complete the inspection per AMM standards.

Day 10: Landing Gear Alignment

- Lecture (2 hours):
  - Review of landing gear alignment procedures
- Lab (2 hours):
  - L214.3: Locate and explain the process for checking landing gear alignment (AM.II.E.S19)
    Given: Cessna 172 Service Manual 1977 thru 1986 series.
    Performance: The student will use Paragraph 5-29, pages 5-19 and 5-20, to describe the landing gear alignment check.
    Standard: The student will successfully navigate to the correct reference and describe the procedure.

Day 11: Landing Gear Position Systems and Landing Gear Warning Systems

- Lecture (2 hours):
  - Landing gear position and warning system inspection, check, and servicing (AM.II.E.K6)
  - Review of landing gear position and warning systems
- Lab (2 hours):

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- L214.2: Troubleshoot landing gear position and warning systems, inspect and repair landing gear position indicating system (AM.II.E.S23, AM.II.E.S24)
  Given: Piper Saratoga or Piper Malibu/Matrix.
  Performance: The student will use the appropriate AMM to troubleshoot an instructor-induced fault in the landing gear position system and perform the indicated repair.
  Standard: The student will successfully complete the tasks per AMM standards.

- L214.2: Adjust the operation of a landing gear warning system, remove, install, and adjust a landing gear down-lock switch (AM.II.E.S25, AM.II.E.S26)
  Given: Piper Saratoga or Piper Malibu/Matrix.
  Performance: The student will use the appropriate AMM to replace a down-lock switch and adjust it for proper operation of the warning system.

Day 12: Final Review and Examination

- Lecture (1 hour):
  - Alternative landing gear systems (e.g., skis, floats) (AM.II.E.K13)
  - Review of landing gear systems
- Final Examination (1 hour): Comprehensive exam covering all course material.
- Lab (2 hours):
  - L214.8: Inspect and service landing gear (AM.II.E.S1)
    Given: Cessna landing gear trainer, Cessna 150 service manual.
    Performance: The student will continue inspecting and servicing the landing gear system.
    Standard: The student will successfully complete the tasks per AMM standards.

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AMA-RE: Airframe Review and Exam

Course Overview

- Course Code: AMA-RE
- Course Title: Airframe Review and Exam
- Total Hours: 24 (24 Lecture, 0 Lab)
- Prerequisite: Completion of all AMA courses (AMA201.1, AMA202.1, AMA203.1, AMA204.1, AMA205.1, AMA206.1, AMA207.2, AMA208.2, AMA209.2, AMA210.2, AMA211.2, AMA212.2, AMA213.2, AMA214.2, AMA215.2)
- Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe (FAA, 2023)

Description

This course provides a comprehensive review of all AMA courses, preparing students for the final airframe examination. It focuses on reinforcing key concepts, addressing knowledge gaps, and ensuring readiness for FAA certification.

Learning Objectives

- Synthesize knowledge from all AMA courses.
- Demonstrate mastery of airframe maintenance concepts.
- Successfully complete the program's final examination.

Assessment

- Airframe Program Final Exam (25% of total Airframe Program Grade):
    - 100-question multiple-choice exam covering all AMA courses (AMA201.1 to AMA215.2).
    - Minimum passing grade is 70%.

Notes

- The course synthesizes content from all AMA courses to ensure comprehensive preparation for the FAA Airframe certification.
- Students are encouraged to refer to the FAA-H-8083-31B handbook for detailed review across all relevant chapters.
- Practice questions and discussions during lectures are designed to address knowledge gaps and reinforce critical concepts.
- Students should review their notes and lab

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AMA-RE Day Course Schedule

6-hour instructional days, with each day consisting entirely of lecture, totaling 4 days to complete 24 hours. The final examination (1 hour) is included in the lecture hours on Day 4.

Day 1: Structural and Control Systems Review

- Lecture (6 hours):
    - Review of AMA201.1: Metallic Structures
        - Key concepts: Sheet metal fabrication, riveting, corrosion prevention, structural repairs (AM.II.A.K1-K7).
        - Risk management: Safe handling of materials, tool usage (AM.II.A.R1-R2).
    - Review of AMA202.1: Non-Metallic Structures
        - Key concepts: Composite materials, wood structures, fabric covering, inspection techniques (AM.II.B.K1-K6).
        - Risk management: Handling composite materials, environmental hazards (AM.II.B.R1-R3).
    - Review of AMA203.1: Flight Controls
        - Key concepts: Control surfaces, rigging, balancing, inspection (AM.II.C.K1-K5).
        - Risk management: Rigging errors, control system maintenance (AM.II.C.R1-R2).
    - Review of AMA204.1: Rotorcraft Fundamentals
        - Key concepts: Rotor systems, blade tracking, vibration analysis (AM.I.C.K1-K5).
        - Risk management: Rotor maintenance safety, dynamic component hazards (AM.I.C.R1-R2).
    - Practice questions and discussion to address knowledge gaps.
    - Day 2: Review of AMA205.1: Communication and Navigation Systems
        - Key concepts: Antennas, transponders, navigation systems, troubleshooting (AM.II.K.K1-K5).
        - Risk management: Electromagnetic interference, installation errors (AM.II.K.R1-R3).
    - Practice questions and discussion to address weak areas.
    - Review of AMA206.1: Water and Waste Systems
        - Key concepts: Potable water, lavatory systems, hygiene compliance (AM.II.O.K1-K3).

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        - Risk management: Servicing safety, contamination prevention (AM.II.O.R1).
    - Practice questions and discussion to address weak areas.
    - Review of AMA207.1: Airframe Inspection
        - Key concepts: Inspection techniques, regulatory compliance, recordkeeping (AM.II.D.K1-K9).
        - Risk management: Inspection errors, documentation accuracy (AM.II.D.R1-R5).
    - Practice questions and final Q&A to prepare for the exam.

Day 3: Support Systems Review

- Lecture (6 hours):

Electrical, Instruments, Aircraft Fuel , and Ice and Rain Control Systems Review

- Lecture (6 hours):
    - Review of AMA208.2: Aircraft Electrical Systems
        - Key concepts: Wiring, circuit protection, power distribution, troubleshooting (AM.II.I.K1-K8).
        - Risk management: Electrical safety, grounding procedures (AM.II.I.R1-R3).
    - Review of AMA209.2: Aircraft Instrument Systems
        - Key concepts: Pitot-static, gyroscopic, and electronic instruments, calibration (AM.II.J.K1-K5).
        - Risk management: Instrument maintenance errors, calibration safety (AM.II.J.R1-R2).
    - Review of AMA210.2: Aircraft Fuel Systems
        - Key concepts: Fuel system components, servicing, leak detection (AM.II.L.K1-K6).
        - Risk management: Fuel handling safety, contamination prevention (AM.II.L.R1-R4).
    - Review of AMA211.2: Ice and Rain Control Systems
        - Key concepts: De-icing systems, wiper maintenance, system inspections (AM.II.M.K1-K4).
        - Risk management: Chemical handling, system operation safety (AM.II.M.R1-R2).

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Day 4: Environmental, Hydraulic, Landing Gear, and Inspection Review

- Lecture (4 hours):
    - Review of AMA212.2: Airframe Fire Protection Systems
        - Key concepts: Fire detection, extinguishing systems, maintenance procedures (AM.II.N.K1-K4).
        - Risk management: Handling extinguishing agents, system testing safety (AM.II.N.R1-R3).
    - Review of AMA213.2: Environmental Systems
        - Key concepts: Pressurization, heating, cooling, oxygen systems (AM.II.G.K1-K10).
        - Risk management: High-pressure systems, refrigerant handling (AM.II.G.R1-R6).
    - Review of AMA214.2: Hydraulic and Pneumatic Systems
        - Key concepts: Hydraulic/pneumatic components, servicing, troubleshooting (AM.II.F.K1-K11).
        - Risk management: High-pressure fluids, fluid compatibility (AM.II.F.R1-R5).
    - Review of AMA215.2: Landing Gear Systems
        - Key concepts: Landing gear components, brakes, retraction systems (AM.II.E.K1-K13).
        - Risk management: Jacking safety, high-pressure struts (AM.II.E.R1-R6).
- Final Examination (2 hours):
    - 100-question multiple-choice exam covering all required knowledge for the Airframe program.

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AMA-RE Night Course Schedule

4-hour instructional days, with each day consisting entirely of lecture, totaling 6 days to complete 24 hours. The final examination (1 hour) is included in the lecture hours on Day 6.

Day 1: Metallic and Non-Metallic Structures Review

- Lecture (4 hours):
    - Review of AMA201.1: Metallic Structures
        - Key concepts: Sheet metal fabrication, riveting, corrosion prevention, structural repairs (AM.II.A.K1-K7).
        - Risk management: Safe handling of materials, tool usage (AM.II.A.R1-R2).
    - Review of AMA202.1: Non-Metallic Structures
        - Key concepts: Composite materials, wood structures, fabric covering, inspection techniques (AM.II.B.K1-K6).
        - Risk management: Handling composite materials, environmental hazards (AM.II.B.R1-R3).
    - Practice questions and discussion to address knowledge gaps.

Day 2: Flight Controls and Rotorcraft, Communications and Navigation Systems Review

- Lecture (4 hours):
    - Review of AMA203.1: Flight Controls
        - Key concepts: Control surfaces, rigging, balancing, inspection (AM.II.C.K1-K5).
        - Risk management: Rigging errors, control system maintenance (AM.II.C.R1-R2).
    - Review of AMA204.1: Rotorcraft Fundamentals
        - Key concepts: Rotor systems, blade tracking, vibration analysis (AM.I.C.K1-K5).
        - Risk management: Rotor maintenance safety, dynamic component hazards (AM.I.C.R1-R2).
    - Practice questions and discussion to reinforce key concepts.
    - Review of AMA205.1: Communication and Navigation Systems
        - Key concepts: Antennas, transponders, navigation systems, troubleshooting (AM.II.K.K1-K5).
        - Risk management: Electromagnetic interference, installation errors (AM.II.K.R1-R3).
    - Practice questions and discussion to address weak areas.

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Day 3: Water and Waste Systems, Airframe Inspection Review

- Lecture (4 hours):
    - Practice questions and discussion to address weak areas.
    - Review of AMA206.1: Water and Waste Systems
        - Key concepts: Potable water, lavatory systems, hygiene compliance (AM.II.O.K1-K3).
        - Risk management: Servicing safety, contamination prevention (AM.II.O.R1).
    - Practice questions and discussion to address weak areas.
    - Review of AMA207.1: Airframe Inspection
        - Key concepts: Inspection techniques, regulatory compliance, recordkeeping (AM.II.D.K1-K9).
        - Risk management: Inspection errors, documentation accuracy (AM.II.D.R1-R5).
    - Practice questions and final Q&A to prepare for the exam.

Day 4: Aircraft Electrical Systems, Aircraft Instrument Systems, Aircraft Fuel Systems Review

- Lecture (4 hours):
    - Review of AMA208.2: Aircraft Electrical Systems
        - Key concepts: Wiring, circuit protection, power distribution, troubleshooting (AM.II.I.K1-K8).
        - Risk management: Electrical safety, grounding procedures (AM.II.I.R1-R3).
    - Review of AMA209.2: Aircraft Instrument Systems
        - Key concepts: Pitot-static, gyroscopic, and electronic instruments, calibration (AM.II.J.K1-K5).
        - Risk management: Instrument maintenance errors, calibration safety (AM.II.J.R1-R2).
    - Review of AMA210.2: Aircraft Fuel Systems
        - Key concepts: Fuel system components, servicing, leak detection (AM.II.L.K1-K6).
        - Risk management: Fuel handling safety, contamination prevention (AM.II.L.R1-R4).

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Day 5: Ice and Rain Control, Airframe Fire Protection and Environmental Systems Review

- Lecture (4 hours):
    - Review of AMA211.2: Ice and Rain Control Systems
        - Key concepts: De-icing systems, wiper maintenance, system inspections (AM.II.M.K1-K4).
        - Risk management: Chemical handling, system operation safety (AM.II.M.R1-R2).
        - Risk management: Servicing safety, contamination prevention (AM.II.O.R1).
    - Review of AMA212.2: Airframe Fire Protection Systems
        - Key concepts: Fire detection, extinguishing systems, maintenance procedures (AM.II.N.K1-K4).
        - Risk management: Handling extinguishing agents, system testing safety (AM.II.N.R1-R3).
    - Review of AMA213.2: Environmental Systems
        - Key concepts: Pressurization, heating, cooling, oxygen systems (AM.II.G.K1-K10).

Day 6: Hydraulic and Pneumatic Systems, Landing Gear Systems Review, and Final Examination

- Lecture (2 hours):
    - Review of AMA214.2: Hydraulic and Pneumatic Systems
        - Key concepts: Hydraulic/pneumatic components, servicing, troubleshooting (AM.II.F.K1-K11).
        - Risk management: High-pressure fluids, fluid compatibility (AM.II.F.R1-R5).
    - Review of AMA215.2: Landing Gear Systems
        - Key concepts: Landing gear components, brakes, retraction systems (AM.II.E.K1-K13).
        - Risk management: Jacking safety, high-pressure struts (AM.II.E.R1-R6).
    - Practice questions and final Q&A to prepare for the exam.
- Final Examination (2 hours):
    - 100-question multiple-choice exam covering all required knowledge for the Airframe program.

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Powerplant Program Curriculum Content

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AMP301.1: Reciprocating Engines

Course Overview

Course Code: AMP301.1
Course Title: Reciprocating Engines
Total Hours: 108 (36 Lecture, 72 Lab)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 1 Aircraft Engines

Description:

Covers the design, operation, maintenance, and overhaul of reciprocating engines used in aircraft. Extensive lab work focuses on disassembly, inspection, and reassembly.

Learning Objectives:

- Understand the principles and operation of reciprocating engines.
- Perform maintenance and overhaul procedures on reciprocating engines.
- Troubleshoot and repair reciprocating engine components.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Notes

- Each lab session is designed to meet the Airman Certification Standards (AM.III.A.S1–S9) and ensure hands-on proficiency.
- Students must complete and pass all labs to meet course requirements.
- The schedule balances lecture and lab time to meet the 36:72 hour requirement while incorporating all specified labs (L301.1–L301.5).
- Daily breaks (1 hour) are assumed within the 6-hour class period, except on the final exam day, which is fully dedicated to assessment.

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AMP301.1 Day Course Schedule

Day 1: Lecture (6 hours)

- Topics: Introduction to reciprocating engines, types of reciprocating engines (AM.III.A.K1), reciprocating engine operating principles/theory of operation (AM.III.A.K2, AM.III.A.K3).
- Activities: Overview of course objectives, textbook review (FAA-H-8083-32B, Chapter 1), discussion of engine types and principles.
- Objectives: Understand reciprocating engine types and operating principles.

Day 2: Lecture (6 hours)

- Topics: Horizontally-opposed engine construction and internal components (AM.III.A.K4), radial engine construction and internal components (AM.III.A.K5).
- Activities: Detailed study of engine construction, component identification, and case studies.
- Objectives: Learn construction and components of horizontally-opposed and radial engines.

Day 3: Lecture (6 hours)

- Topics: Reciprocating engine performance (e.g., PLANK, SFC) (AM.III.A.K7), diesel engine operating principles/theory of operation (AM.III.A.K10).
- Activities: Performance metrics analysis, diesel engine theory, and calculations.
- Objectives: Understand engine performance metrics and diesel engine principles.

Day 4: Lab L301.2 (6 hours)

- Lab: Identify the parts of a cylinder (AM.III.A.S4), identify the parts of a crankshaft (AM.III.A.S5).
- Given: Worksheet with various illustrations of cylinders and crankshafts.
- Performance: Students identify parts of cylinders and crankshafts with at least 70% accuracy.
- Standard: Successful identification of components using provided materials.
- Objectives: Develop skills in identifying critical engine components.

Day 5: Lecture (6 hours)

- Topics: Reciprocating engine maintenance and inspection (AM.III.A.K8), storage and preservation (AM.III.A.K6).
- Activities: Review maintenance procedures, inspection checklists, and preservation techniques.
- Objectives: Learn maintenance, inspection, and storage procedures for reciprocating engines.

Day 6: Lab L301.1 (6 hours)

- Lab: Perform a cylinder assembly inspection (AM.III.A.S1), install piston and knuckle/wrist pin(s) (AM.III.A.S3), identify and inspect various types of bearings (AM.III.A.S6), install a cylinder on a horizontally-opposed engine (AM.III.A.S9).

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- Given: Lycoming O-235 on maintenance stand.
- Performance: Students locate and reference the engine overhaul manual, remove a cylinder assembly, disassemble piston and connecting rod assembly, inspect bearings, piston, connecting rod, and cylinder assembly, then reinstall all.
- Standard: Successful completion using the correct manual section.
- Objectives: Perform cylinder assembly inspection, installation, and bearing inspection.

Day 7: Lab L301.1 (continued, 6 hours)

- Lab: Continuation of L301.1 to ensure all students complete the disassembly, inspection, and reassembly tasks.
- Objectives: Reinforce hands-on skills in cylinder and bearing maintenance.

Day 8: Lecture (6 hours)

- Topics: Reciprocating engine ground operations (AM.III.A.K9), risk management for maintenance requiring propeller movement (AM.III.A.R1), preparation for ground operation (AM.III.A.R2).
- Activities: Ground operation procedures, safety protocols, and risk assessment discussions.
- Objectives: Understand ground operations and associated risks.

Day 9: Lab L301.3 (6 hours)

- Lab: Inspect and rig cable and push-pull engine controls (AM.III.A.S7).
- Given: PA-32 Saratoga or PA-28 Warrior.
- Performance: Students use the correct section of the AMM (PA-28 section 8-25, PA-32 Chapter 76) to inspect and rig engine push-pull controls.
- Standard: Successful inspection and rigging of controls.
- Objectives: Develop skills in control system inspection and rigging.

Day 10: Lab L301.4 (6 hours)

- Lab: Locate top dead-center position of number one cylinder (AM.III.A.S8).
- Given: PA-32 Saratoga or PA-28 Warrior.
- Performance: Students use AC 43.13-1B to locate top dead-center and perform a compression check.
- Standard: Successful completion of tasks using the correct reference.
- Objectives: Master techniques for locating top dead-center and performing compression checks.

Day 11: Lab L301.5 (6 hours)

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- Lab: Operate and troubleshoot reciprocating engine (AM.III.A.S2), inspect an engine for leaks after maintenance (AM.III.C.S9), perform an engine start and inspect operational parameters (AM.III.C.S12).
- Given: Pratt & Whitney R-985 Radial engine on test stand.
- Performance: Students remove, inspect, and reinstall one oil crossover tube, perform a start of the PW R-985, monitor operational parameters, operate the engine, and inspect for leaks after shutdown.
- Standard: Successful completion of all tasks.
- Objectives: Gain proficiency in engine operation, troubleshooting, and leak inspection.

Day 12: Lab L301.5 (continued, 6 hours)

- Lab: Continuation of L301.5 to ensure all students complete engine operation and troubleshooting tasks.
- Objectives: Reinforce skills in engine operation and post-maintenance inspection.

Day 13: Lecture (6 hours)

- Topics: Risk management for reciprocating engine fire (AM.III.A.R3), use of non-manufacturer's procedures during maintenance (AM.III.A.R4).
- Activities: Case studies on engine fire scenarios, discussion of maintenance procedure risks, and review of FAA standards.
- Objectives: Understand risk mitigation for engine fires and non-standard procedures.

Day 14: Lecture (6 hours)

- Topics: Review of Airman Certification Standards (AM.III.A.K1–K10, AM.III.A.R1–R4, AM.III.A.S1–S9), exam preparation.
- Activities: Comprehensive review of knowledge, risk management, and skills objectives. Practice questions and scenarios.
- Objectives: Prepare students for the final exam.

Day 15: Lab Review (6 hours)

- Lab: Mixed lab session to revisit L301.1, L301.3, L301.4, and L301.5 for students needing additional practice.
- Objectives: Ensure proficiency in all lab skills before the final exam.

Day 16: Lab Review (6 hours)

- Lab: Continuation of mixed lab session to address any remaining deficiencies in lab performance.
- Objectives: Finalize hands-on skill mastery.

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Day 17: Lecture (6 hours)

- Topics: Final review of reciprocating engine maintenance, troubleshooting, and practical problem-solving.
- Activities: Mock exam scenarios, Q&A, and practical troubleshooting exercises.
- Objectives: Ensure readiness for the final exam.

Day 18: Final Exam (6 hours)

- Exam: Comprehensive final exam (1 hour written, 5 hours practical).
- Content: Covers all knowledge (AM.III.A.K1–K10), risk management (AM.III.A.R1–R4), and skills (AM.III.A.S1–S9) objectives, including practical problem-solving tasks.
- Standard: Minimum passing grade of 70%.
- Objectives: Assess mastery of reciprocating engine principles, maintenance, and troubleshooting.

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AMP301.1 Night Course Schedule

Day 1: Lecture (4 hours)

- Topics: Introduction to reciprocating engines, types of reciprocating engines (AM.III.A.K1), reciprocating engine operating principles/theory of operation (AM.III.A.K2).
- Activities: Overview of course objectives, textbook review (FAA-H-8083-32B, Chapter 1), discussion of engine types.
- Objectives: Understand reciprocating engine types and basic principles.

Day 2: Lecture (4 hours)

- Topics: Internal combustion engine operating principles/theory of operation (AM.III.A.K3), horizontally-opposed engine construction and internal components (AM.III.A.K4).
- Activities: Study of engine construction and internal combustion principles.
- Objectives: Learn internal combustion theory and horizontally-opposed engine components.

Day 3: Lecture (4 hours)

- Topics: Radial engine construction and internal components (AM.III.A.K5), reciprocating engine performance (e.g., PLANK, SFC) (AM.III.A.K7).
- Activities: Explore radial engine components and performance metrics.
- Objectives: Understand radial engine construction and performance calculations.

Day 4: Lecture (4 hours)

- Topics: Diesel engine operating principles/theory of operation (AM.III.A.K10), storage and preservation (AM.III.A.K6).
- Activities: Review diesel engine theory and preservation techniques.
- Objectives: Learn diesel engine principles and storage procedures.

Day 5: Lecture (4 hours)

- Topics: Reciprocating engine maintenance and inspection (AM.III.A.K8).
- Activities: Study maintenance procedures and inspection checklists.
- Objectives: Understand maintenance and inspection protocols.

Day 6: Lab L301.2 (4 hours)

- Lab: Identify the parts of a cylinder (AM.III.A.S4), identify the parts of a crankshaft (AM.III.A.S5).
- Given: Worksheet with various illustrations of cylinders and crankshafts.
- Performance: Students identify parts of cylinders and crankshafts with at least 70% accuracy.
- Standard: Successful identification of components using provided materials.

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- Objectives: Develop skills in identifying critical engine components.

Day 7: Lab L301.2 (continued, 4 hours)

- Lab: Continuation of L301.2 to ensure all students complete component identification tasks.
- Objectives: Reinforce skills in identifying cylinder and crankshaft parts.

Day 8: Lab L301.1 (4 hours)

- Lab: Perform a cylinder assembly inspection (AM.III.A.S1), install piston and knuckle/wrist pin(s) (AM.III.A.S3).
- Given: Lycoming O-235 on maintenance stand.
- Performance: Students locate and reference the engine overhaul manual, remove a cylinder assembly, disassemble piston and connecting rod assembly.
- Standard: Successful completion using the correct manual section.
- Objectives: Begin cylinder assembly inspection and piston installation.

Day 9: Lab L301.1 (continued, 4 hours)

- Lab: Identify and inspect various types of bearings (AM.III.A.S6), install a cylinder on a horizontally-opposed engine (AM.III.A.S9).
- Performance: Students inspect bearings, piston, connecting rod, and cylinder assembly, then reinstall all.
- Standard: Successful completion using the correct manual section.
- Objectives: Complete cylinder and bearing inspection and reassembly.

Day 10: Lab L301.1 (continued, 4 hours)

- Lab: Continuation of L301.1 to ensure all students complete disassembly, inspection, and reassembly tasks.
- Objectives: Finalize hands-on skills in cylinder and bearing maintenance.

Day 11: Lecture (4 hours)

- Topics: Reciprocating engine ground operations (AM.III.A.K9), risk management for maintenance requiring propeller movement (AM.III.A.R1).
- Activities: Ground operation procedures and safety protocols.
- Objectives: Understand ground operations and propeller-related risks.

Day 12: Lecture (4 hours)

- Topics: Risk management for preparation and ground operation of a reciprocating engine (AM.III.A.R2), reciprocating engine fire (AM.III.A.R3).
- Activities: Case studies on engine fire scenarios and ground operation risks.

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- Objectives: Learn risk mitigation for ground operations and engine fires.

Day 13: Lab L301.3 (4 hours)

- Lab: Inspect and rig cable and push-pull engine controls (AM.III.A.S7).
- Given: PA-32 Saratoga or PA-28 Warrior.
- Performance: Students use the correct section of the AMM (PA-28 section 8-25, PA-32 Chapter 76) to inspect and rig engine push-pull controls.
- Standard: Successful inspection and rigging of controls.
- Objectives: Develop skills in control system inspection and rigging.

Day 14: Lab L301.3 (continued, 4 hours)

- Lab: Continuation of L301.3 to ensure all students complete control rigging tasks.
- Objectives: Reinforce control system inspection and rigging skills.

Day 15: Lab L301.4 (4 hours)

- Lab: Locate top dead-center position of number one cylinder (AM.III.A.S8).
- Given: PA-32 Saratoga or PA-28 Warrior.
- Performance: Students use AC 43.13-1B to locate top dead-center and perform a compression check.
- Standard: Successful completion of tasks using the correct reference.
- Objectives: Master techniques for locating top dead-center and compression checks.

Day 16: Lab L301.4 (continued, 4 hours)

- Lab: Continuation of L301.4 to ensure all students complete top dead-center and compression check tasks.
- Objectives: Finalize skills in compression testing.

Day 17: Lab L301.5 (4 hours)

- Lab: Operate and troubleshoot reciprocating engine (AM.III.A.S2), inspect an engine for leaks after maintenance (AM.III.C.S9).
- Given: Pratt & Whitney R-985 Radial engine on test stand.
- Performance: Students remove, inspect, and reinstall one oil crossover tube, perform a start of the PW R-985.
- Standard: Successful completion of tasks.
- Objectives: Begin engine operation and leak inspection skills.

Day 18: Lab L301.5 (continued, 4 hours)

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- Lab: Perform an engine start and inspect operational parameters (AM.III.C.S12).
- Performance: Students monitor operational parameters, operate the engine, and inspect for leaks after shutdown.
- Standard: Successful completion of tasks.
- Objectives: Complete engine operation and troubleshooting skills.

Day 19: Lab L301.5 (continued, 4 hours)

- Lab: Continuation of L301.5 to ensure all students complete engine operation and troubleshooting tasks.
- Objectives: Finalize proficiency in engine operation and post-maintenance inspection.

Day 20: Lecture (4 hours)

- Topics: Risk management for use of non-manufacturer's procedures during maintenance (AM.III.A.R4).
- Activities: Discussion of non-standard procedures and FAA standards.
- Objectives: Understand risks of non-manufacturer maintenance procedures.

Day 21: Lecture (4 hours)

- Topics: Review of Airman Certification Standards (AM.III.A.K1–K10, AM.III.A.R1–R4).
- Activities: Review knowledge and risk management objectives, practice questions.
- Objectives: Prepare students for the final exam.

Day 22: Lab Review (4 hours)

- Lab: Mixed lab session to revisit L301.1, L301.3, L301.4, and L301.5 for students needing additional practice.
- Objectives: Ensure proficiency in all lab skills.

Day 23: Lab Review (4 hours)

- Lab: Continuation of mixed lab session to address remaining deficiencies in lab performance.
- Objectives: Finalize hands-on skill mastery.

Day 24: Lecture (4 hours)

- Topics: Review of skills objectives (AM.III.A.S1–S9) and practical problem-solving.
- Activities: Mock exam scenarios and troubleshooting exercises.
- Objectives: Prepare for practical exam components.

Day 25: Lab Review (4 hours)

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- Lab: Final lab session to reinforce L301.1, L301.3, L301.4, and L301.5 skills.
- Objectives: Ensure all students are proficient in lab tasks.

Day 26: Lecture (4 hours)

- Topics: Final review of reciprocating engine maintenance, troubleshooting, and exam preparation.
- Activities: Comprehensive Q&A, practice scenarios, and exam strategies.
- Objectives: Ensure readiness for the final exam.

Day 27: Final Exam (4 hours)

- Exam: Comprehensive final exam (1 hour written, 3 hours practical).
- Content: Covers all knowledge (AM.III.A.K1–K10), risk management (AM.III.A.R1–R4), and skills (AM.III.A.S1–S9) objectives, including practical problem-solving tasks.
- Standard: Minimum passing grade of 70%.
- Objectives: Assess mastery of reciprocating engine principles, maintenance, and troubleshooting.

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AMP302.1: Engine Inspection

Course Overview

Course Code: AMP302.1
Course Title: Engine Inspection
Total Hours: 84 (12 Lecture, 72 Lab)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 10 Engine Maintenance & Operation

Description

Focuses on inspection techniques for aircraft engines, including visual, non-destructive testing, and documentation per regulatory standards.

Learning Objectives

- Conduct thorough engine inspections using various techniques.
- Document inspection findings accurately and in compliance with regulations.
- Ensure engine airworthiness through proper inspection procedures.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Notes

- Each lab session is designed to meet the Airman Certification Standards (AM.III.C.S1–S14) and ensure hands-on proficiency.
- Students must complete and pass all labs to meet course requirements.
- The schedule balances lecture and lab time to meet the 12:72 hour requirement while incorporating all specified labs (L302.1–L302.6).

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AMP302.1 Day Course Schedule

Day 1: Lecture (6 hours)

- Topics: Inspection requirements under 14 CFR part 43 and 14 CFR part 91 (AM.III.C.K1), use of FAA-approved data (AM.III.C.K4), maintenance recordkeeping requirements under 14 CFR part 43 (AM.III.C.K6).
- Activities: Overview of course objectives, textbook review (FAA-H-8083-32B, Chapter 10), discussion of regulatory inspection and documentation standards.
- Objectives: Understand inspection regulations and recordkeeping requirements.

Day 2: Lecture (6 hours)

- Topics: Identification of life-limited parts and their replacement interval (AM.III.C.K2), special inspections (AM.III.C.K3), compliance with service letters, service bulletins, instructions for continued airworthiness, ADs, or TCDSs (AM.III.C.K5).
- Activities: Case studies on life-limited parts, special inspections, and compliance with FAA and manufacturer data.
- Objectives: Learn to identify life-limited parts, special inspections, and compliance requirements.

Day 3: Lab L302.1 (6 hours)

- Lab: Perform a powerplant records inspection (AM.III.C.S3), inspect for compliance with applicable ADs (AM.III.C.S4), determine engine installation eligibility (AM.III.C.S5), inspect engine records for time or cycles on life-limited parts (AM.III.C.S11).
- Given: Records for GE CF700/s/n 245-318.
- Performance: Students answer a worksheet on AD compliance, SB compliance, time/cycles on life-limited parts, and use the Dynamic Regulatory System to obtain the TCDS for the Falcon 20 to determine installation eligibility.
- Standard: Complete the exercise with a minimum 70% success rate.
- Objectives: Develop skills in records inspection and compliance verification.

Day 4: Lab L302.1 (continued, 6 hours)

- Lab: Continuation of L302.1 to ensure all students complete the records inspection and compliance tasks.
- Objectives: Reinforce skills in powerplant records and compliance evaluation.

Day 5: Lab L302.2 (6 hours)

- Lab: Evaluate powerplant for compliance with FAA-approved or manufacturer data (AM.III.C.S2).
- Given: Piper Saratoga.

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- Performance: Students use the PA-32 TCDS, AMM, and IPC to complete a worksheet evaluating the engine and accessories for compliance with FAA-approved and manufacturer data.
- Standard: Successfully complete the worksheet.
- Objectives: Gain proficiency in evaluating powerplant compliance.

Day 6: Lab L302.3 (6 hours)

- Lab: Inspect an engine mount to determine serviceability (AM.III.C.S14).
- Given: Piper Saratoga.
- Performance: Students use the PA-32 AMM to inspect engine motor mounts for serviceability.
- Standard: Successfully inspect engine mounts.
- Objectives: Develop skills in inspecting engine mounts.

Day 7: Lab L302.4 (6 hours)

- Lab: Perform a portion of a required inspection on an engine (AM.III.C.S7), check engine controls for proper operation and adjustment (AM.III.C.S8), perform a portion of a 100-hour inspection on an engine per Part 43 (AM.III.C.S13).
- Given: Piper Saratoga.
- Performance: Students use the PA-32 AMM to perform a general visual inspection of the engine (hoses, belts, etc.), inspect for leaks, and check engine controls for operation and adjustment.
- Standard: Successfully complete the inspection and control checks.
- Objectives: Master engine inspection and control adjustment techniques.

Day 8: Lab L302.4 (continued, 6 hours)

- Lab: Continuation of L302.4 to ensure all students complete the engine inspection and control adjustment tasks.
- Objectives: Reinforce skills in visual inspections and control checks.

Day 9: Lab L302.5 (6 hours)

- Lab: Inspect an aircraft engine accessory for serviceability (AM.III.C.S10).
- Given: Piper Saratoga.
- Performance: Students use the PA-32 AMM to inspect a given engine accessory for serviceability.
- Standard: Successfully inspect the accessory.
- Objectives: Develop skills in accessory inspection.

Day 10: Lab L302.6 (6 hours)

- Lab: Determine compliance with engine specifications, TCDS, or engine listings (AM.III.C.S6).

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- Given: Piper PA-28 Warrior.
- Performance: Students use the PA-28 AMM and TCDS to inspect the engine for compliance with the TCDS.
- Standard: Successfully inspect the engine for compliance.
- Objectives: Gain proficiency in TCDS compliance checks.

Day 11: Lab L302.6 (continued, 6 hours)

- Lab: Continuation of L302.6 to ensure all students complete the TCDS compliance inspection tasks.
- Objectives: Finalize skills in engine compliance verification.

Day 12: Lecture (6 hours)

- Topics: Engine component inspection, checking, and servicing (AM.III.C.K7), engine mounts, mounting hardware, and inspection (AM.III.C.K8), risk management for compression tests (AM.III.C.R1), maintenance on operating reciprocating and turbine engines (AM.III.C.R2, AM.III.C.R3).
- Activities: Review component inspection techniques, risk management scenarios, and safety protocols for engine maintenance.
- Objectives: Understand component inspection and associated risks.

Day 13: Lab Review (6 hours)

- Lab: Mixed lab session to revisit L302.1, L302.2, L302.3, L302.4, L302.5, and L302.6 for students needing additional practice.
- Objectives: Ensure proficiency in all lab skills before the final exam.

Day 14: Final Exam (6 hours)

- Exam: Comprehensive final exam (1 hour written, 5 hours practical).
- Content: Covers all knowledge (AM.III.C.K1–K8), risk management (AM.III.C.R1–R3), and skills (AM.III.C.S1–S14) objectives, including practical problem-solving tasks.
- Standard: Minimum passing grade of 70%.
- Objectives: Assess mastery of engine inspection techniques, documentation, and airworthiness.

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AMP302.1 Night Course Schedule

Day 1: Lecture (4 hours)

- Topics: Inspection requirements under 14 CFR part 43 and 14 CFR part 91 (AM.III.C.K1), use of FAA-approved data (AM.III.C.K4).
- Activities: Overview of course objectives, textbook review (FAA-H-8083-32B, Chapter 10), discussion of regulatory inspection standards.
- Objectives: Understand inspection regulations and FAA-approved data usage.

Day 2: Lecture (4 hours)

- Topics: Maintenance recordkeeping requirements under 14 CFR part 43 (AM.III.C.K6), identification of life-limited parts and their replacement interval (AM.III.C.K2).
- Activities: Study recordkeeping protocols and life-limited parts identification.
- Objectives: Learn recordkeeping and life-limited parts management.

Day 3: Lecture (4 hours)

- Topics: Special inspections (AM.III.C.K3), compliance with service letters, service bulletins, instructions for continued airworthiness, ADs, or TCDSs (AM.III.C.K5).
- Activities: Case studies on special inspections and compliance requirements.
- Objectives: Understand special inspections and compliance with FAA and manufacturer data.

Day 4: Lab L302.1 (4 hours)

- Lab: Perform a powerplant records inspection (AM.III.C.S3), inspect for compliance with applicable ADs (AM.III.C.S4).
- Given: Records for GE CF700/s/n 245-318.
- Performance: Students answer a worksheet on AD compliance and SB compliance using powerplant records.
- Standard: Complete the exercise with a minimum 70% success rate.
- Objectives: Develop skills in records inspection and AD compliance.

Day 5: Lab L302.1 (continued, 4 hours)

- Lab: Determine engine installation eligibility (AM.III.C.S5), inspect engine records for time or cycles on life-limited parts (AM.III.C.S11).
- Performance: Students use the Dynamic Regulatory System to obtain the TCDS for the Falcon 20 and answer questions on installation eligibility and life-limited parts.
- Standard: Complete the exercise with a minimum 70% success rate.
- Objectives: Finalize skills in installation eligibility and life-limited parts inspection.

Day 6: Lab L302.2 (4 hours)

- Lab: Evaluate powerplant for compliance with FAA-approved or manufacturer data (AM.III.C.S2).
- Given: Piper Saratoga.

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- Performance: Students use the PA-32 TCDS, AMM, and IPC to complete a worksheet evaluating the engine and accessories for compliance.
- Standard: Successfully complete the worksheet.
- Objectives: Gain proficiency in evaluating powerplant compliance.

Day 7: Lab L302.2 (continued, 4 hours)

- Lab: Continuation of L302.2 to ensure all students complete the compliance evaluation tasks.
- Objectives: Reinforce powerplant compliance evaluation skills.

Day 8: Lab L302.3 (4 hours)

- Lab: Inspect an engine mount to determine serviceability (AM.III.C.S14).
- Given: Piper Saratoga.
- Performance: Students use the PA-32 AMM to inspect engine motor mounts for serviceability.
- Standard: Successfully inspect engine mounts.
- Objectives: Develop skills in inspecting engine mounts.

Day 9: Lab L302.4 (4 hours)

- Lab: Perform a portion of a required inspection on an engine (AM.III.C.S7), check engine controls for proper operation and adjustment (AM.III.C.S8).
- Given: Piper Saratoga.
- Performance: Students use the PA-32 AMM to perform a general visual inspection of the engine (hoses, belts, etc.) and check engine controls.
- Standard: Successfully complete the inspection and control checks.
- Objectives: Begin engine inspection and control adjustment techniques.

Day 10: Lab L302.4 (continued, 4 hours)

- Lab: Perform a portion of a 100-hour inspection on an engine per Part 43 (AM.III.C.S13).
- Performance: Students use the PA-32 AMM to inspect for leaks and complete the 100-hour inspection tasks.
- Standard: Successfully complete the inspection.
- Objectives: Finalize skills in visual inspections and 100-hour inspection procedures.

Day 11: Lab L302.5 (4 hours)

- Lab: Inspect an aircraft engine accessory for serviceability (AM.III.C.S10).
- Given: Piper Saratoga.
- Performance: Students use the PA-32 AMM to inspect a given engine accessory for serviceability.
- Standard: Successfully inspect the accessory.
- Objectives: Develop skills in accessory inspection.

Day 12: Lab L302.5 (continued, 4 hours)

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- Lab: Continuation of L302.5 to ensure all students complete the accessory inspection tasks.
- Objectives: Reinforce accessory inspection skills.

Day 13: Lab L302.6 (4 hours)

- Lab: Determine compliance with engine specifications, TCDS, or engine listings (AM.III.C.S6).
- Given: Piper PA-28 Warrior.
- Performance: Students use the PA-28 AMM and TCDS to inspect the engine for compliance with the TCDS.
- Standard: Successfully inspect the engine for compliance.
- Objectives: Begin TCDS compliance verification skills.

Day 14: Lab L302.6 (continued, 4 hours)

- Lab: Continuation of L302.6 to ensure all students complete the TCDS compliance inspection tasks.
- Objectives: Finalize skills in engine compliance verification.

Day 15: Lab Review (4 hours)

- Lab: Mixed lab session to revisit L302.1, L302.2, L302.3, L302.4, L302.5, and L302.6 for students needing additional practice.
- Objectives: Ensure proficiency in all lab skills.

Day 16: Lab Review (4 hours)

- Lab: Continuation of mixed lab session to address remaining deficiencies in lab performance.
- Objectives: Reinforce hands-on skill mastery.

Day 17: Lecture (4 hours)

- Topics: Engine component inspection, checking, and servicing (AM.III.C.K7), engine mounts, mounting hardware, and inspection (AM.III.C.K8).
- Activities: Review component inspection techniques and engine mount inspection protocols.
- Objectives: Understand component and mount inspection processes.

Day 18: Lecture (4 hours)

- Topics: Risk management for compression tests (AM.III.C.R1), maintenance on operating reciprocating and turbine engines (AM.III.C.R2, AM.III.C.R3).
- Activities: Discuss risk management scenarios and safety protocols for engine maintenance.
- Objectives: Learn risk mitigation for engine maintenance tasks.

Day 19: Lab Review (4 hours)

- Lab: Final lab session to reinforce L302.1, L302.2, L302.3, L302.4, L302.5, and L302.6 skills.
- Objectives: Ensure all students are proficient in lab tasks.

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Day 20: Lecture (4 hours)

- Topics: Review of Airman Certification Standards (AM.III.C.K1–K8, AM.III.C.R1–R3, AM.III.C.S1–S14), exam preparation.
- Activities: Comprehensive review of knowledge, risk management, and skills objectives, practice questions, and scenarios.
- Objectives: Prepare students for the final exam.

Day 21: Final Exam (4 hours)

- Exam: Comprehensive final exam (1 hour written, 3 hours practical).
- Content: Covers all knowledge (AM.III.C.K1–K8), risk management (AM.III.C.R1–R3), and skills (AM.III.C.S1–S14) objectives, including practical problem-solving tasks.
- Standard: Minimum passing grade of 70%.
- Objectives: Assess mastery of engine inspection techniques, documentation, and airworthiness.

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AMP303.1: Engine Electrical Systems

Course Overview

Course Code: AMP303.1
Course Title: Engine Electrical Systems
Total Hours: 48 (24 Lecture, 24 Lab)
Daily Class Duration: 6 hours (5 hours instruction + 1 hour break, except for final exam day)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 4 Engine Ignition & Electrical Systems

Description

Explores the installation, maintenance, and troubleshooting of electrical systems specific to aircraft engines, including starters and generators.

Learning Objectives

Install and maintain engine electrical system components.

- Troubleshoot electrical faults in engine systems.
- Apply safety protocols for engine electrical maintenance.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Notes

- Each lab session is designed to meet the Airman Certification Standards (AM.III.F.S1–S15) and ensure hands-on proficiency.
- Students must complete and pass all labs to meet course requirements.
- The schedule balances lecture and lab time to meet the 24:24 hour requirement while incorporating all specified labs (L303.1, L303.3, L303.4, L303.5, L303.6).
- Lab L303.6 (bonding jumper fabrication) is combined with L303.3 to optimize lab time, as it is a shorter task.

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AMP303.1 Day Course Schedule

Day 1: Lecture (6 hours)

- Topics: Generators (AM.III.F.K1), alternators (AM.III.F.K2), starter generators (AM.III.F.K3), voltage regulators and overvoltage/overcurrent protection (AM.III.F.K4).
- Activities: Overview of course objectives, textbook review (FAA-H-8083-32B, Chapter 4), discussion of generator and alternator principles.
- Objectives: Understand the function and operation of generators, alternators, and voltage regulation systems.

Day 2: Lecture (6 hours)

- Topics: DC generation systems (AM.III.F.K5), AC generation systems (AM.III.F.K6), procedure for locating correct electrical cable/wire size (AM.III.F.K7).
- Activities: Study DC and AC systems, wire sizing procedures, and case studies.
- Objectives: Learn DC/AC generation systems and wire sizing techniques.

Day 3: Lecture (6 hours)

- Topics: Paralleling dual-generator electrical systems (AM.III.F.K8), CSD and IDG systems/components (AM.III.F.K9), engine electrical wiring, switches, and protective devices (AM.III.F.K10).
- Activities: Explore paralleling procedures, CSD/IDG systems, and wiring/switch configurations.
- Objectives: Understand advanced electrical system components and configurations.

Day 4: Lecture (6 hours)

- Topics: Risk management for polarity in electrical maintenance (AM.III.F.R1), response to warning/caution annunciator lights (AM.III.F.R2), maintenance on energized circuits (AM.III.F.R3), routing/securing wiring near flammable fluid lines (AM.III.F.R4).
- Activities: Discuss risk management scenarios, safety protocols, and best practices.
- Objectives: Learn to identify and mitigate risks in electrical system maintenance.

Day 5: Lab L303.1 (6 hours)

- Lab: Determine suitability of a replacement component by part number (AM.III.F.S2), replace an engine-driven generator or alternator (AM.III.F.S3), inspect an engine-driven generator or alternator per manufacturer’s instructions (AM.III.F.S4).
- Given: Piper PA-32 Saratoga AMM and IPC.
- Performance: Students locate alternator removal/replacement procedures in the AMM, remove the alternator, inspect for condition and part number applicability using the IPC, and reinstall.
- Standard: Complete the task with at least a 70% success rate.

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- Objectives: Develop skills in alternator inspection, replacement, and part verification.

Day 6: Lab L303.3 & L303.6 (6 hours)

- Lab: Remove and install an engine direct-drive electric starter (AM.III.F.S6), troubleshoot a direct-drive electric starter system (AM.III.F.S7), fabricate a bonding jumper (AM.III.F.S13).
- Given: Piper PA-32 Saratoga, PA-26 Warrior, or PA-46 Malibu/Matrix (for L303.3); AC 43.13-1B (for L303.6).
- Performance: Students use the correct AMM to remove and replace the starter, answer troubleshooting questions using the wiring diagram, and fabricate a bonding jumper per AC 43.13-1B.
- Standard: Complete the tasks with at least a 70% success rate.
- Objectives: Gain proficiency in starter maintenance, troubleshooting, and bonding jumper fabrication.

Day 7: Lab L303.4 & L303.5 (6 hours)

- Lab: Inspect engine electrical wiring, switches, and protective devices (AM.III.F.S1), inspect an electrical system cable (AM.III.F.S8), determine wire size for engine electrical system (AM.III.F.S9), repair a broken engine electrical system wire (AM.III.F.S10), replace a wire bundle lacing (AM.III.F.S11), inspect a turbine engine starter generator (AM.III.F.S14), inspect engine electrical connectors (AM.III.F.S15).
- Given: Piper PA-32 Saratoga (for L303.4); Rockwell Aero Commander TPE 331 Engine training aid (for L303.5).
- Performance: Students use the PA-32 AMM to inspect wiring, switches, protective devices, repair a wire, replace lacing, and verify cable size; use the Aero Commander 680T AMM to remove, inspect, and replace the starter generator and inspect firewall connectors.
- Standard: Complete the tasks with at least a 70% success rate.
- Objectives: Master wiring inspection, repair, and starter generator maintenance.

Day 8: Final Exam (6 hours)

- Exam: Comprehensive final exam (1 hour written, 5 hours practical).
- Content: Covers all knowledge (AM.III.F.K1–K10), risk management (AM.III.F.R1–R4), and skills (AM.III.F.S1–S15) objectives, including practical problem-solving tasks (e.g., troubleshoot an electrical system using a schematic or wiring diagram, AM.III.F.S12).
- Standard: Minimum passing grade of 70%.
- Objectives: Assess mastery of engine electrical system installation, maintenance, and troubleshooting.

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AMP303.1 Night Course Schedule

Day 1: Lecture (4 hours)

- Topics: Generators (AM.III.F.K1), alternators (AM.III.F.K2), starter generators (AM.III.F.K3).
- Activities: Overview of course objectives, textbook review (FAA-H-8083-32B, Chapter 4), discussion of generator and alternator principles.
- Objectives: Understand the function and operation of generators, alternators, and starter generators.

Day 2: Lecture (4 hours)

- Topics: Voltage regulators and overvoltage/overcurrent protection (AM.III.F.K4), DC generation systems (AM.III.F.K5).
- Activities: Study voltage regulation and DC generation systems.
- Objectives: Learn voltage regulation and DC system operations.

Day 3: Lecture (4 hours)

- Topics: AC generation systems (AM.III.F.K6), procedure for locating correct electrical cable/wire size (AM.III.F.K7).
- Activities: Explore AC systems and wire sizing procedures.
- Objectives: Understand AC generation and wire sizing techniques.

Day 4: Lecture (4 hours)

- Topics: Paralleling dual-generator electrical systems (AM.III.F.K8), CSD and IDG systems/components (AM.III.F.K9).
- Activities: Discuss paralleling procedures and CSD/IDG systems.
- Objectives: Learn advanced electrical system configurations.

Day 5: Lecture (4 hours)

- Topics: Engine electrical wiring, switches, and protective devices (AM.III.F.K10), risk management for polarity in electrical maintenance (AM.III.F.R1).
- Activities: Review wiring/switch configurations and polarity risk management.
- Objectives: Understand wiring systems and polarity risks.

Day 6: Lecture (4 hours)

- Topics: Risk management for response to warning/caution annunciator lights (AM.III.F.R2), maintenance on energized circuits (AM.III.F.R3), routing/securing wiring near flammable fluid lines (AM.III.F.R4).

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- Activities: Discuss risk management scenarios and safety protocols.
- Objectives: Learn to identify and mitigate risks in electrical maintenance.

Day 7: Lab L303.1 (4 hours)

- Lab: Determine suitability of a replacement component by part number (AM.III.F.S2), replace an engine-driven generator or alternator (AM.III.F.S3), inspect an engine-driven generator or alternator per manufacturer's instructions (AM.III.F.S4).
- Given: Piper PA-32 Saratoga AMM and IPC.
- Performance: Students locate alternator removal/replacement procedures in the AMM, remove the alternator, inspect for condition and part number applicability using the IPC, and reinstall.
- Standard: Complete the task with at least a 70% success rate.
- Objectives: Develop skills in alternator inspection, replacement, and part verification.

Day 8: Lab L303.3 (4 hours)

- Lab: Remove and install an engine direct-drive electric starter (AM.III.F.S6), troubleshoot a direct-drive electric starter system (AM.III.F.S7).
- Given: Piper PA-32 Saratoga, PA-26 Warrior, or PA-46 Malibu/Matrix.
- Performance: Students use the correct AMM to remove and replace the starter, answer troubleshooting questions using the wiring diagram.
- Standard: Complete the task with at least a 70% success rate.
- Objectives: Gain proficiency in starter maintenance and troubleshooting.

Day 9: Lab L303.4 (4 hours)

- Lab: Inspect engine electrical wiring, switches, and protective devices (AM.III.F.S1), inspect an electrical system cable (AM.III.F.S8), determine wire size for engine electrical system (AM.III.F.S9), repair a broken engine electrical system wire (AM.III.F.S10), replace a wire bundle lacing (AM.III.F.S11).
- Given: Piper PA-32 Saratoga.
- Performance: Students use the PA-32 AMM to inspect wiring, switches, protective devices, repair a wire, replace lacing, and verify cable size.
- Standard: Complete the task with at least a 70% success rate.
- Objectives: Master wiring inspection, repair, and lacing replacement.

Day 10: Lab L303.5 (4 hours)

- Lab: Inspect a turbine engine starter generator (AM.III.F.S14), inspect engine electrical connectors (AM.III.F.S15).
- Given: Rockwell Aero Commander TPE 331 Engine training aid.

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- Performance: Students use the Aero Commander 680T AMM to remove, inspect, and replace the starter generator and inspect firewall connectors.
- Standard: Complete the task with at least a 70% success rate.
- Objectives: Develop skills in starter generator and connector inspection.

Day 11: Lab L303.6 & Review (4 hours)

- Lab: Fabricate a bonding jumper (AM.III.F.S13), review of previous labs.
- Given: AC 43.13-1B.
- Performance: Students fabricate a bonding jumper per AC 43.13-1B and revisit L303.1, L303.3, L303.4, L303.5 tasks for additional practice if needed.
- Standard: Complete the task with at least a 70% success rate.
- Objectives: Master bonding jumper fabrication and reinforce lab skills.

Day 12: Final Exam (4 hours)

- Exam: Comprehensive final exam (1 hour written, 3 hours practical).
- Content: Covers all knowledge (AM.III.F.K1–K10), risk management (AM.III.F.R1–R4), and skills (AM.III.F.S1–S15) objectives, including practical problem-solving tasks (e.g., troubleshoot an electrical system using a schematic or wiring diagram, AM.III.F.S12).
- Standard: Minimum passing grade of 70%.
- Objectives: Assess mastery of engine electrical system installation, maintenance, and troubleshooting.

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AMP304.1: Turbine Engines

Course Overview

Course Code: AMP304.1
Course Title: Turbine Engines
Total Hours: 48 (24 Lecture, 24 Lab)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 1 Aircraft Engines

Description

Covers the design, operation, and maintenance of turbine engines, including turbojets, turbofans, and turboprops. Lab work includes component inspection and repair.

Learning Objectives

- Understand the principles and operation of turbine engines.
- Perform maintenance and inspections on turbine engine components.
- Troubleshoot turbine engine malfunctions.

Assessment

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Notes

- Each lab session is designed to meet the Airman Certification Standards (AM.III.B.S1–S13) and ensure hands-on proficiency.
- Students must complete and pass all labs to meet course requirements.
- The schedule balances lecture and lab time to meet the 24:24 hour requirement while incorporating all specified labs (L304.1–L304.6).
- Labs are combined (L304.1 with L304.6, L304.2 with L304.3, L304.4 with L304.5) to optimize lab time while covering all required skills.

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AMP304.1 Day Course Schedule

Day 1: Lecture (6 hours)

- Topics: Turbine engine operating principles/theory of operation (AM.III.B.K1), types of turbine engines (AM.III.B.K2), turbine engine construction and internal components (AM.III.B.K3).
- Activities: Overview of course objectives, textbook review (FAA-H-8083-32B, Chapter 1), discussion of turbine engine types and principles.
- Objectives: Understand turbine engine operation and construction.

Day 2: Lecture (6 hours)

- Topics: Turbine engine performance and monitoring (AM.III.B.K4), causes for turbine engine performance loss (AM.III.B.K7), bleed air systems (AM.III.B.K8).
- Activities: Study performance metrics, performance loss causes, and bleed air system operations.
- Objectives: Learn performance monitoring and bleed air systems.

Day 3: Lecture (6 hours)

- Topics: Turbine engine troubleshooting, maintenance, and inspection procedures (AM.III.B.K5), procedures required after turbine engine installation (AM.III.B.K6), auxiliary power units (AM.III.B.K10).
- Activities: Review maintenance procedures, post-installation checks, and APU operations.
- Objectives: Understand maintenance, troubleshooting, and APU functions.

Day 4: Lecture (6 hours)

- Topics: Storage and preservation (AM.III.B.K9), turbine engine adjustment and testing (AM.III.B.K11), risk management for turbine engine operation (AM.III.B.R1), maintenance (AM.III.B.R2), fire (AM.III.B.R3), and foreign object damage (AM.III.B.R4).
- Activities: Discuss preservation techniques, engine testing, and risk management scenarios.
- Objectives: Learn preservation, testing, and risk mitigation strategies.

Day 5: Lab L304.1 & L304.6 (6 hours)

- Lab: Identify different turbine compressors (AM.III.B.S1), identify different types of turbine engine blades (AM.III.B.S2), identify components of turbine engines (AM.III.B.S3), map airflow direction and pressure changes in turbine engines (AM.III.B.S4), identify causes for turbine engine performance loss (AM.III.B.S12).
- Given: Worksheet (for L304.1); Boeing 737-300/400/500 AMM (for L304.6).
- Performance: Students complete a worksheet identifying turbine blades, compressors, components, and airflow/pressure changes; research Boeing 737 AMM for performance loss causes and answer troubleshooting questions.
- Standard: Complete tasks with at least a 70% success rate.

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- Objectives: Develop skills in component identification, airflow mapping, and performance loss troubleshooting.

Day 6: Lab L304.2 & L304.3 (6 hours)

- Lab: Remove and install a fuel nozzle in a turbine engine (AM.III.B.S5), inspect the first two stages of a turbine fan or compressor for foreign object damage (AM.III.B.S13), identify damaged turbine engine blades (AM.III.B.S11).
- Given: CF-700 EMM, PW JT-12A EMM, or TPE 331 EMM.
- Performance: Students remove and install a fuel nozzle and inspect the first two stages of a turbine fan/compressor for damage, reporting findings.
- Standard: Successfully complete tasks.
- Objectives: Gain proficiency in fuel nozzle maintenance and FOD inspection.

Day 7: Lab L304.4 & L304.5 (6 hours)

- Lab: Locate procedures for adjustment of a fuel control unit (AM.III.B.S7), locate installation or removal procedures for a turbine engine (AM.III.B.S9), locate and explain trimming procedures for a turbine engine (AM.III.B.S10), inspect a combustion liner (AM.III.B.S6).
- Given: McDonnell MD-80 AMM (for L304.4); CF700 EMM (for L304.5).
- Performance: Students research MD-80 AMM for engine removal/replacement, trimming, and fuel control adjustment procedures, answer a worksheet; research CF700 EMM for combustion liner inspection procedures, perform inspection, and answer questions.
- Standard: Complete tasks with at least a 70% accuracy.
- Objectives: Master procedures for engine maintenance and combustion liner inspection.

Day 8: Final Exam (6 hours)

- Exam: Comprehensive final exam (1 hour written, 5 hours practical).
- Content: Covers all knowledge (AM.III.B.K1–K11), risk management (AM.III.B.R1–R4), and skills (AM.III.B.S1–S13) objectives, including practical problem-solving tasks (e.g., perform turbine engine inlet guide vane and compressor blade inspection, AM.III.B.S8).
- Standard: Minimum passing grade of 70%.
- Objectives: Assess mastery of turbine engine principles, maintenance, and troubleshooting.

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AMP304.1 Night Course Schedule

Day 1: Lecture (4 hours)

- Topics: Turbine engine operating principles/theory of operation (AM.III.B.K1), types of turbine engines (AM.III.B.K2).
- Activities: Overview of course objectives, textbook review (FAA-H-8083-32B, Chapter 1), discussion of turbine engine types and principles.
- Objectives: Understand turbine engine operation and types.

Day 2: Lecture (4 hours)

- Topics: Turbine engine construction and internal components (AM.III.B.K3), turbine engine performance and monitoring (AM.III.B.K4).
- Activities: Study engine construction and performance metrics.
- Objectives: Learn turbine engine construction and performance monitoring.

Day 3: Lecture (4 hours)

- Topics: Causes for turbine engine performance loss (AM.III.B.K7), bleed air systems (AM.III.B.K8).
- Activities: Explore performance loss causes and bleed air system operations.
- Objectives: Understand performance loss and bleed air systems.

Day 4: Lecture (4 hours)

- Topics: Turbine engine troubleshooting, maintenance, and inspection procedures (AM.III.B.K5), procedures required after turbine engine installation (AM.III.B.K6).
- Activities: Review maintenance procedures and post-installation checks.
- Objectives: Learn maintenance and post-installation procedures.

Day 5: Lecture (4 hours)

- Topics: Auxiliary power units (AM.III.B.K10), storage and preservation (AM.III.B.K9).
- Activities: Discuss APU operations and preservation techniques.
- Objectives: Understand APU functions and engine preservation.

Day 6: Lecture (4 hours)

- Topics: Turbine engine adjustment and testing (AM.III.B.K11), risk management for turbine engine operation (AM.III.B.R1), maintenance (AM.III.B.R2), fire (AM.III.B.R3), and foreign object damage (AM.III.B.R4).
- Activities: Discuss testing procedures and risk management scenarios.
- Objectives: Learn engine testing and risk mitigation strategies.

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Week 2

Day 7: Lab L303.1 (4 hours)

- Lab: Identify different turbine compressors (AM.III.B.S1), identify different types of turbine engine blades (AM.III.B.S2), identify components of turbine engines (AM.III.B.S3), map airflow direction and pressure changes in turbine engines (AM.III.B.S4).
- Given: Worksheet.
- Performance: Students complete a worksheet identifying turbine blades, compressors, components, and airflow/pressure changes.
- Standard: Complete tasks with at least a 70% success rate.
- Objectives: Develop skills in component identification and airflow mapping.

Day 8: Lab L303.2 (4 hours)

- Lab: Remove and install a fuel nozzle in a turbine engine (AM.III.B.S5).
- Given: CF-700 EMM, PW JT-12A EMM, or TPE 331 EMM.
- Performance: Students remove and install a fuel nozzle in an assigned turbine engine.
- Standard: Successfully complete the task.
- Objectives: Gain proficiency in fuel nozzle maintenance.

Day 9: Lab L303.3 (4 hours)

- Lab: Inspect the first two stages of a turbine fan or compressor for foreign object damage (AM.III.B.S13), identify damaged turbine engine blades (AM.III.B.S11).
- Given: CF-700 EMM, PW JT-12A EMM, or TPE 331 EMM.
- Performance: Students inspect the first two stages of a turbine fan/compressor for damage and report findings.
- Standard: Successfully complete the task.
- Objectives: Develop skills in FOD inspection and blade damage identification.

Day 10: Lab L303.4 (4 hours)

- Lab: Locate procedures for adjustment of a fuel control unit (AM.III.B.S7), locate installation or removal procedures for a turbine engine (AM.III.B.S9), locate and explain trimming procedures for a turbine engine (AM.III.B.S10).
- Given: McDonnell MD-80 AMM.
- Performance: Students research MD-80 AMM for engine removal/replacement, trimming, and fuel control adjustment procedures, and answer a worksheet.

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- Standard: Complete tasks with at least a 70% accuracy.
- Objectives: Master procedures for engine maintenance and trimming.

Day 11: Lab L303.5 & L303.6 (4 hours)

- Lab: Inspect a combustion liner (AM.III.B.S6), identify causes for turbine engine performance loss (AM.III.B.S12).
- Given: CF700 EMM (for L303.5); Boeing 737-300/400/500 AMM (for L303.6).
- Performance: Students research CF700 EMM for combustion liner inspection procedures, perform inspection, and answer questions; research Boeing 737 AMM for performance loss causes and answer troubleshooting questions.
- Standard: Complete tasks with at least a 70% accuracy.
- Objectives: Master combustion liner inspection and performance loss troubleshooting.

Day 12: Final Exam (4 hours)

- Exam: Comprehensive final exam (1 hour written, 3 hours practical).
- Content: Covers all knowledge (AM.III.B.K1–K11), risk management (AM.III.B.R1–R4), and skills (AM.III.B.S1–S13) objectives, including practical problem-solving tasks (e.g., perform turbine engine inlet guide vane and compressor blade inspection, AM.III.B.S8).
- Standard: Minimum passing grade of 70%.
- Objectives: Assess mastery of turbine engine principles, maintenance, and troubleshooting.

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AMP305.1: Engine Fire Protection Systems

Course Overview

Course Code: AMP305.1
Course Title: Engine Fire Protection Systems
Total Contact Hours: 24 (12 Lecture, 12 Lab, including 1-hour final exam)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 9 Engine Fire Protection Systems

Assessment:

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Learning Objectives

- Understand the operation of engine fire protection systems.
- Perform maintenance and testing of fire detection and suppression components.
- Ensure compliance with fire safety regulations.

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AMP305.1 Day Course Schedule

Day 1: Introduction and Fire Detection Systems

- Lecture (3 hours):
  - Overview of engine fire protection systems and types of fires/engine fire zones (AM.III.E.K1).
  - Fire detection warning system operation and maintenance requirements (AM.III.E.K2, K3).
  - Textbook: Chapter 9, Sections on fire detection systems.
- Lab (3 hours):
  - Lab L305.5: Identify fire detection sensing units (AM.III.E.S2).
    - Activity: Complete worksheet identifying components from diagrams.
    - Standard: Complete with 70% success rate.
  - Lab L305.1: Inspect fire detection thermal switch or thermocouple system (AM.III.E.S4).
    - Activity: Use Rockwell Turbo Commander AMM to research and inspect components on TPE 331 training aid.
    - Standard: Successful inspection per AMM standards.

Day 2: Fire Detection Troubleshooting and Continuous-Loop Systems

- Lecture (3 hours):
  - Troubleshooting procedures and continuous-loop fire detection systems (AM.III.E.K2, K3).
  - Risk management: Container discharge cartridges (AM.III.E.R1).
  - Textbook: Chapter 9, Sections on troubleshooting and continuous-loop systems.
- Lab (3 hours):
  - Lab L305.2: Locate troubleshooting procedures and identify continuous-loop components (AM.III.E.S5, S14).
    - Activity: Use Boeing 737-200 AMM to locate procedures and complete worksheet on troubleshooting and component identification.
    - Standard: Successful completion of worksheet.
  - Lab L305.3: Inspect fire detection continuous loop system (AM.III.E.S3).
    - Activity: Inspect GE CF700 training aid and report findings.
    - Standard: Successful inspection and reporting.

Day 3: Fire Extinguishing Systems and Maintenance

- Lecture (3 hours):
  - Fire extinguishing agents, system types, and operation (AM.III.E.K4).
  - Fire extinguishing system maintenance and inspection (AM.III.E.K5).
  - Risk management: Extinguishing agents and discharge circuits (AM.III.E.R2, R3).
  - Textbook: Chapter 9, Sections on extinguishing systems.
- Lab (3 hours):
  - Lab L305.6: Inspect fire extinguisher container discharge cartridge (squib) (AM.III.E.S10).
    - Activity: Use Lear 35 AMM to locate maintenance practices, remove, inspect, and replace squib on training device.
    - Standard: Successful completion with 70% success rate.

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    - Lab L305.7: Inspect engine fire extinguisher system blowout plugs (AM.III.E.S6).
        - Activity: Use Lear 35 AMM to inspect blowout plugs on training device for security and condition.
        - Standard: Successful completion with 70% success rate.

Day 4: Troubleshooting, Repair, and Final Exam

- Lecture (2 hours):
    - Troubleshooting and repairing fire detection/extinguishing systems (AM.III.E.K3, K5).
    - Press-to-test functionality, fault diagnosis, and review of key concepts.
    - Textbook: Chapter 9, Sections on troubleshooting and repair.
- Lab (3 hours):
    - Lab L305.4: Troubleshoot and repair fire detection/extinguishing systems (AM.III.E.S1, S7, S8, S9, S11, S12, S13).
        - Activity: Inspect fire extinguisher container, discharge circuit, and press-to-test function; troubleshoot and repair instructor-induced faults on training aid.
        - Standard: Complete tasks with 70% success rate.
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.E.K1–K5), risk management (AM.III.E.R1–R3), and skills (AM.III.E.S1–S14).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%.

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AMP305.1 Night Course Schedule

Day 1: Introduction and Fire Detection Systems

- Lecture (2 hours):
  - Overview of engine fire protection systems and types of fires/engine fire zones (AM.III.E.K1).
  - Fire detection warning system operation (AM.III.E.K2).
  - Textbook: Chapter 9, Sections on fire detection systems.
- Lab (2 hours):
  - Lab L305.5: Identify fire detection sensing units (AM.III.E.S2).
    - Activity: Complete worksheet identifying components from diagrams.
    - Standard: Complete with 70% success rate.

Day 2: Fire Detection System Maintenance

- Lecture (2 hours):
  - Fire detection system maintenance and inspection requirements (AM.III.E.K3).
  - Textbook: Chapter 9, Sections on detection system maintenance.
- Lab (2 hours):
  - Lab L305.1: Inspect fire detection thermal switch or thermocouple system (AM.III.E.S4).
    - Activity: Use Rockwell Turbo Commander AMM to research and inspect components on TPE 331 training aid.
    - Standard: Successful inspection per AMM standards.

Day 3: Troubleshooting and Continuous-Loop Systems

- Lecture (2 hours):
  - Troubleshooting procedures and continuous-loop fire detection systems (AM.III.E.K2, K3).
  - Risk management: Container discharge cartridges (AM.III.E.R1).
  - Textbook: Chapter 9, Sections on troubleshooting and continuous-loop systems.
- Lab (2 hours):
  - Lab L305.2: Locate troubleshooting procedures and identify continuous-loop components (AM.III.E.S5, S14).
    - Activity: Use Boeing 737-200 AMM to locate procedures and complete worksheet on troubleshooting and component identification.
    - Standard: Successful completion of worksheet.

Day 4: Continuous-Loop Inspection and Extinguishing Systems

- Lecture (2 hours):
  - Fire extinguishing agents, system types, and operation (AM.III.E.K4).
  - Risk management: Extinguishing agents (AM.III.E.R2).
  - Textbook: Chapter 9, Sections on extinguishing systems.
- Lab (2 hours):
  - Lab L305.3: Inspect fire detection continuous loop system (AM.III.E.S3).
    - Activity: Inspect GE CF700 training aid and report findings.

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        - Standard: Successful inspection and reporting.

Day 5: Fire Extinguisher Maintenance

- Lecture (2 hours):
    - Fire extinguishing system maintenance and inspection (AM.III.E.K5).
    - Risk management: Discharge circuits (AM.III.E.R3).
    - Textbook: Chapter 9, Sections on extinguishing system maintenance.
- Lab (2 hours):
    - Lab L305.6: Inspect fire extinguisher container discharge cartridge (squib) (AM.III.E.S10).
        - Activity: Use Lear 35 AMM to locate maintenance practices, remove, inspect, and replace squib on training device.
        - Standard: Successful completion with 70% success rate.
    - Lab L305.7: Inspect engine fire extinguisher system blowout plugs (AM.III.E.S6).
        - Activity: Use Lear 35 AMM to inspect blowout plugs on training device for security and condition.
        - Standard: Successful completion with 70% success rate.

Day 6: Troubleshooting, Repair, and Final Exam

- Lecture (1 hour):
    - Troubleshooting and repairing fire detection/extinguishing systems (AM.III.E.K3, K5).
    - Review of key concepts and exam preparation.
    - Textbook: Chapter 9, Sections on troubleshooting and repair.
- Lab (2 hours):
    - Lab L305.4: Troubleshoot and repair fire detection/extinguishing systems (AM.III.E.S1, S7, S8, S9, S11, S12, S13).
        - Activity: Inspect fire extinguisher container, discharge circuit, and press-to-test function; troubleshoot and repair instructor-induced faults on training aid.
        - Standard: Complete tasks with 70% success rate.
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.E.K1–K5), risk management (AM.III.E.R1–R3), and skills (AM.III.E.S1–S14).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%.

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AMP306.1: Turbine Engine Air Systems

Course Overview

Course Code: AMP306.1
Course Title: Turbine Engine Air Systems
Total Contact Hours: 24 (12 Lecture, 12 Lab, including 1-hour final exam)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 1 Aircraft Engines

Assessment:

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Learning Objectives

- Understand the function of turbine engine air systems.
- Perform maintenance and inspections on air system components.
- Troubleshoot issues in turbine engine air systems.

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AMP306.1 Day Schedule

Day 1: Introduction and Cooling Systems

- Lecture (3 hours):
  - Overview of turbine engine air systems and air cooling system theory, components, and operation (AM.III.K.K1).
  - Turbine engine cowling air flow and internal cooling (AM.III.K.K2, K3).
  - Textbook: Chapter 1, Sections on cooling systems.
- Lab (3 hours):
  - Lab L306.1: Perform an induction and cooling system inspection, identify cooling air flow, and inspect cooling ducting/baffle seals (AM.III.K.S1, S3, S4).
    - Activity: Use GE CF700 Training Manual & EMM to complete a worksheet on the cooling system and inspect the GE CF700 training aid cooling system.
    - Standard: Complete tasks with 70% success rate.

Day 2: Insulation Blankets and Anti-Ice Systems

- Lecture (3 hours):
  - Turbine engine insulation blankets and shrouds (AM.III.K.K5).
  - Turbine engine induction system and anti-ice system theory, components, and operation (AM.III.K.K6, K8).
  - Risk management: Ground operation risks (AM.III.K.R2).
  - Textbook: Chapter 1, Sections on induction and anti-ice systems.
- Lab (3 hours):
  - Lab L306.2: Identify location of turbine engine insulation blankets (AM.III.K.S2).
    - Activity: Use B737-800 AMM to complete a worksheet on the location and installation of insulation blankets.
    - Standard: Complete with 70% success rate.
  - Lab L306.3 (Part 1): Inspect a turbine engine air intake anti-ice system and identify ice/rain protection components (AM.III.K.S5, S6).
    - Activity: Use B737-800 AMM and GE CF700 EMM to complete a worksheet on anti-ice system location and operation.
    - Standard: Progress toward 70% success rate.

Day 3: Anti-Ice and Particle Separator Systems

- Lecture (3 hours):
  - Turbine engine baffle and seal installation (AM.III.K.K4).
  - Particle separator systems and maintenance (AM.III.K.K6).
  - Risk management: Maintenance on compressor bleed air systems (AM.III.K.R1).
  - Textbook: Chapter 1, Sections on particle separators and maintenance.
- Lab (3 hours):
  - Lab L306.3 (Part 2): Complete inspection of turbine engine air intake anti-ice system and identify ice/rain protection components (AM.III.K.S5, S6).
    - Activity: Inspect GE CF700 training aid anti-icing system and finalize worksheet.
    - Standard: Complete with 70% success rate.
  - Lab L306.4: Inspect a particle separator (AM.III.K.S7).

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        - Activity: Use Bell UH-1H Helicopter Maintenance Manual to complete a worksheet and inspect a particle separator.
        - Standard: Complete with 70% success rate.

Day 4: Bleed Air Systems and Final Exam

- Lecture (2 hours):
    - Turbine engine bleed air system theory, components, and operation (AM.III.K.K7).
    - Review of key concepts and exam preparation.
    - Textbook: Chapter 1, Sections on bleed air systems.
- Lab (3 hours):
    - Lab L306.5: Inspect/check a bleed air system (AM.III.K.S8).
        - Activity: Use GTCP-85 APU training device to inspect and check the bleed air system for proper operation.
        - Standard: Complete with 70% success rate.
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.K.K1–K8), risk management (AM.III.K.R1–R2), and skills (AM.III.K.S1–S8).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%.

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AMP306.1 Night Schedule

Day 1: Introduction and Cooling Systems

- Lecture (2 hours):
  - Overview of turbine engine air systems and air cooling system theory, components, and operation (AM.III.K.K1).
  - Turbine engine cowling air flow (AM.III.K.K2).
  - Textbook: Chapter 1, Sections on cooling systems.
- Lab (2 hours):
  - Lab L306.1 (Part 1): Perform an induction and cooling system inspection, identify cooling air flow, and inspect cooling ducting/baffle seals (AM.III.K.S1, S3, S4).
    - Activity: Use GE CF700 Training Manual & EMM to begin a worksheet on the cooling system and inspect the GE CF700 training aid cooling system.
    - Standard: Progress toward 70% success rate.

Day 2: Cooling Systems (Continued)

- Lecture (2 hours):
  - Turbine engine internal cooling and baffle/seal installation (AM.III.K.K3, K4).
  - Textbook: Chapter 1, Sections on internal cooling and baffles.
- Lab (2 hours):
  - Lab L306.1 (Part 2): Complete inspection of induction and cooling system, cooling air flow, and cooling ducting/baffle seals (AM.III.K.S1, S3, S4).
    - Activity: Finalize worksheet and inspection on GE CF700 training aid cooling system.
    - Standard: Complete with 70% success rate.

Day 3: Insulation Blankets and Anti-Ice Systems

- Lecture (2 hours):
  - Turbine engine insulation blankets and shrouds (AM.III.K.K5).
  - Turbine engine induction system theory and operation (AM.III.K.K6).
  - Textbook: Chapter 1, Sections on insulation blankets and induction systems.
- Lab (2 hours):
  - Lab L306.2: Identify location of turbine engine insulation blankets (AM.III.K.S2).
    - Activity: Use B737-800 AMM to complete a worksheet on the location and installation of insulation blankets.
    - Standard: Complete with 70% success rate.

Day 4: Anti-Ice Systems

- Lecture (2 hours):
  - Turbine engine anti-ice system theory, components, and operation (AM.III.K.K8).
  - Risk management: Ground operation risks (AM.III.K.R2).
  - Textbook: Chapter 1, Sections on anti-ice systems.
- Lab (2 hours):

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    - Lab L306.3: Inspect a turbine engine air intake anti-ice system and identify ice/rain protection components (AM.III.K.S5, S6).
        - Activity: Use B737-800 AMM and GE CF700 EMM to complete a worksheet and inspect the GE CF700 training aid anti-icing system.
        - Standard: Complete with 70% success rate.

Day 5: Particle Separator and Bleed Air Systems

- Lecture (2 hours):
    - Turbine engine bleed air system theory, components, and operation (AM.III.K.K7).
    - Particle separator systems (AM.III.K.K6).
    - Risk management: Maintenance on compressor bleed air systems (AM.III.K.R1).
    - Textbook: Chapter 1, Sections on bleed air and particle separators.
- Lab (2 hours):
    - Lab L306.4: Inspect a particle separator (AM.III.K.S7).
        - Activity: Use Bell UH-1H Helicopter Maintenance Manual to complete a worksheet and inspect a particle separator.
        - Standard: Complete with 70% success rate.

Day 6: Bleed Air Systems and Final Exam

- Lecture (1 hour):
    - Review of key concepts: cooling, anti-ice, particle separator, and bleed air systems.
    - Exam preparation.
    - Textbook: Chapter 1, Relevant sections.
- Lab (2 hours):
    - Lab L306.5: Inspect/check a bleed air system (AM.III.K.S8).
        - Activity: Use GTCP-85 APU training device to inspect and check the bleed air system for proper operation.
        - Standard: Complete with 70% success rate.
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.K.K1–K8), risk management (AM.III.K.R1–R2), and skills (AM.III.K.S1–S8).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%.

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AMP307.2: Engine Lubrication Systems

Course Overview

Course Code: AMP307.2
Course Title: Engine Lubrication Systems
Total Contact Hours: 60 (12 Lecture, 48 Lab, including 1-hour final exam)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 6 Lubrication & Cooling Systems

Assessment:

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Learning Objectives

- Understand the operation of engine lubrication systems.
- Perform maintenance and inspections on lubrication system components.
- Troubleshoot and repair lubrication system issues.

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AMP307.2 Day Schedule

Day 1: Introduction and Oil Types

- Lecture (2 hours):
  - Overview of engine lubrication systems and types/grades/uses of engine oil (AM.III.G.K1).
  - Wet-sump and dry-sump systems (AM.III.G.K3, K4).
  - Textbook: Chapter 6, Sections on oil types and sump systems.
- Lab (4 hours):
  - Lab L307.2: Determine the correct type of oil and approved oils for climatic temperatures (AM.III.G.S2, S4).
    - Activity: Use PA-32 Saratoga or PA-46 Malibu/Matrix AMM, operator's manual, and TCDS to complete a worksheet on oil types and viscosities for various temperatures.
    - Standard: Complete with 70% success rate.

Day 2: Lubrication System Components

- Lecture (1 hour):
  - Lubrication system operation and components (AM.III.G.K2).
  - Textbook: Chapter 6, Sections on system components.
- Lab (5 hours):
  - Lab L307.7: Identify oil system flow (AM.III.G.S10).
    - Activity: Complete a worksheet with diagrams/schematics to determine proper oil system flow for various engines.
    - Standard: Complete with 70% success rate.
  - Lab L307.4: Identify turbine engine oil filter bypass indicator (AM.III.G.S3).
    - Activity: Use GE CF700 EMM to locate the oil filter and bypass indicator.
    - Standard: Complete with 70% success rate.

Day 3: Oil Cooler and Lines Inspection

- Lecture (1 hour):
  - Lubrication system maintenance, inspection, and servicing (AM.III.G.K6).
  - Textbook: Chapter 6, Sections on maintenance.
- Lab (5 hours):
  - Lab L307.1: Inspect an oil cooler or oil lines (AM.III.G.S1).
    - Activity: Use PA-32 Saratoga or PA-46 Malibu/Matrix AMM to inspect the oil cooler and oil lines.
    - Standard: Complete with 70% success rate.
  - Lab L307.9 (Part 1): Identify types of metal found in an oil filter (AM.III.G.S13).
    - Activity: Begin worksheet to identify metals in cut-open oil filters.
    - Standard: Progress toward 70% success rate.

Day 4: Oil Filter and Metal Identification

- Lecture (1 hour):

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    - Chip detectors and their role in maintenance (AM.III.G.K5).
    - Textbook: Chapter 6, Sections on chip detectors.
- Lab (5 hours):
    - Lab L307.9 (Part 2): Complete identification of types of metal in an oil filter (AM.III.G.S13).
        - Activity: Finalize worksheet identifying metals in cut-open oil filters.
        - Standard: Complete with 70% success rate.
    - Lab L307.6 (Part 1): Remove and inspect an engine chip detector (AM.III.G.S14).
        - Activity: Use Boeing 737-800 AMM to begin procedures for chip detector removal, inspection, and reinstallation; start worksheet.
        - Standard: Progress toward 70% success rate.

Day 5: Chip Detector and Oil Sampling

- Lecture (1 hour):
    - Procedures for obtaining oil samples and analysis (AM.III.G.K6).
    - Textbook: Chapter 6, Sections on oil sampling.
- Lab (5 hours):
    - Lab L307.6 (Part 2): Complete removal and inspection of an engine chip detector (AM.III.G.S14).
        - Activity: Finalize chip detector procedures and worksheet using Boeing 737-800 AMM.
        - Standard: Complete with 70% success rate.
    - Lab L307.5: Locate procedures for obtaining oil samples (AM.III.G.S5).
        - Activity: Use Boeing 737-800 AMM to locate oil servicing/sampling procedures and complete a worksheet.
        - Standard: Complete with 70% success rate.

Day 6: Oil System Maintenance

- Lecture (1 hour):
    - Risk management: Use/mixing of engine oils and following manufacturer's recommendations (AM.III.G.R1, R2).
    - Textbook: Chapter 6, Sections on oil use and safety.
- Lab (5 hours):
    - Lab L307.3 (Part 1): Inspect oil filter/screen, perform oil pressure adjustment, identify components, replace a component, and troubleshoot oil pressure malfunction (AM.III.G.S6, S7, S8, S9, S11).
        - Activity: Use PW R-985 EMM to identify, remove, inspect, and reinstall the scavenge oil screen; begin troubleshooting low oil pressure and adjusting the main oil pressure relief valve.
        - Standard: Progress toward 70% success rate.

Day 7: Oil System Troubleshooting

- Lecture (1 hour):
    - Excessive aircraft engine oil consumption (AM.III.G.K7).
    - Textbook: Chapter 6, Sections on oil consumption.

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- Lab (5 hours):
    - Lab L307.3 (Part 2): Complete inspection, adjustment, and troubleshooting of oil system (AM.III.G.S6, S7, S8, S9, S11).
        - Activity: Finalize troubleshooting low oil pressure, adjust oil pressure relief valve, and replace a component on PW R-985 engine test stand.
        - Standard: Complete with 70% success rate.

Day 8: Oil Temperature System Troubleshooting

- Lecture (1 hour):
    - Troubleshooting oil temperature systems (AM.III.G.K6).
    - Textbook: Chapter 6, Sections on oil temperature systems.
- Lab (5 hours):
    - Lab L307.8 (Part 1): Troubleshoot an engine oil temperature system (AM.III.G.S12).
        - Activity: Use PA-32 Saratoga or PA-46 Malibu/Matrix AMM to troubleshoot an inoperative oil temperature reading, locate wiring diagrams, and begin determining solutions/parts.
        - Standard: Progress toward 70% success rate.

Day 9: Oil Temperature System and Risk Management

- Lecture (1 hour):
    - Risk management: Handling, storage, and disposal of used lubricating oil (AM.III.G.R3).
    - Textbook: Chapter 6, Sections on oil handling.
- Lab (5 hours):
    - Lab L307.8 (Part 2): Complete troubleshooting of engine oil temperature system (AM.III.G.S12).
        - Activity: Finalize troubleshooting, determine solutions, and identify required parts/part numbers for the oil temperature system on assigned aircraft.
        - Standard: Complete with 70% success rate.

Day 10: Review and Final Exam

- Lecture (2 hours):
    - Review of key concepts: lubrication system operation, maintenance, troubleshooting, and risk management.
    - Exam preparation.
    - Textbook: Chapter 6, Relevant sections.
- Lab (3 hours):
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.G.K1–K7), risk management (AM.III.G.R1–R3), and skills (AM.III.G.S1–S14).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%

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AMP307.2 Night Schedule

Day 1: Introduction and Oil Types

- Lecture (1 hour):
  - Overview of engine lubrication systems and types/grades/uses of engine oil (AM.III.G.K1).
  - Textbook: Chapter 6, Sections on oil types.
- Lab (3 hours):
  - Lab L307.2 (Part 1): Determine the correct type of oil and approved oils for climatic temperatures (AM.III.G.S2, S4).
    - Activity: Use PA-32 Saratoga or PA-46 Malibu/Matrix AMM, operator's manual, and TCDS to begin a worksheet on oil types and viscosities.
    - Standard: Progress toward 70% success rate.

Day 2: Oil Types (Continued)

- Lecture (0.5 hour):
  - Wet-sump and dry-sump systems (AM.III.G.K3, K4).
  - Textbook: Chapter 6, Sections on sump systems.
- Lab (3.5 hours):
  - Lab L307.2 (Part 2): Complete worksheet on oil types and viscosities for various temperatures (AM.III.G.S2, S4).
    - Activity: Finalize worksheet using PA-32 Saratoga or PA-46 Malibu/Matrix documentation.
    - Standard: Complete with 70% success rate.

Day 3: Lubrication System Components

- Lecture (1 hour):
  - Lubrication system operation and components (AM.III.G.K2).
  - Textbook: Chapter 6, Sections on system components.
- Lab (3 hours):
  - Lab L307.7 (Part 1): Identify oil system flow (AM.III.G.S10).
    - Activity: Begin worksheet with diagrams/schematics to determine proper oil system flow for various engines.
    - Standard: Progress toward 70% success rate.

Day 4: Oil System Flow

- Lecture (0.5 hour):
  - Lubrication system components (continued) (AM.III.G.K2).
  - Textbook: Chapter 6, Sections on system components.
- Lab (3.5 hours):
  - Lab L307.7 (Part 2): Complete identification of oil system flow (AM.III.G.S10).
    - Activity: Finalize worksheet on oil system flow for various engines.
    - Standard: Complete with 70% success rate.

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Day 5: Oil Cooler and Lines Inspection

- Lecture (1 hour):
  - Lubrication system maintenance, inspection, and servicing (AM.III.G.K6).
  - Textbook: Chapter 6, Sections on maintenance.
- Lab (3 hours):
  - Lab L307.1: Inspect an oil cooler or oil lines (AM.III.G.S1).
    - Activity: Use PA-32 Saratoga or PA-46 Malibu/Matrix AMM to inspect the oil cooler and oil lines.
    - Standard: Complete with 70% success rate.

Day 6: Oil Filter Bypass Indicator

- Lecture (0.5 hour):
  - Chip detectors and oil filter bypass indicators (AM.III.G.K5).
  - Textbook: Chapter 6, Sections on chip detectors.
- Lab (3.5 hours):
  - Lab L307.4: Identify turbine engine oil filter bypass indicator (AM.III.G.S3).
    - Activity: Use GE CF700 EMM to locate the oil filter and bypass indicator.
    - Standard: Complete with 70% success rate.

Day 7: Metal Identification in Oil Filters

- Lecture (1 hour):
  - Identifying contaminants in oil filters (AM.III.G.K6).
  - Textbook: Chapter 6, Sections on oil analysis.
- Lab (3 hours):
  - Lab L307.9: Identify types of metal found in an oil filter (AM.III.G.S13).
    - Activity: Complete worksheet identifying metals in cut-open oil filters.
    - Standard: Complete with 70% success rate.

Day 8: Chip Detector Inspection

- Lecture (0.5 hour):
  - Chip detector maintenance and inspection (AM.III.G.K5).
  - Textbook: Chapter 6, Sections on chip detectors.
- Lab (3.5 hours):
  - Lab L307.6 (Part 1): Remove and inspect an engine chip detector (AM.III.G.S14).
    - Activity: Use Boeing 737-800 AMM to begin procedures for chip detector removal, inspection, and reinstallation; start worksheet.
    - Standard: Progress toward 70% success rate.

Day 9: Chip Detector and Oil Sampling

- Lecture (1 hour):
  - Procedures for obtaining oil samples and analysis (AM.III.G.K6).
  - Textbook: Chapter 6, Sections on oil sampling.

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- Lab (3 hours):
    - Lab L307.6 (Part 2): Complete removal and inspection of an engine chip detector (AM.III.G.S14).
        - Activity: Finalize chip detector procedures and worksheet using Boeing 737-800 AMM.
        - Standard: Complete with 70% success rate.

Day 10: Oil Sampling Procedures

- Lecture (0.5 hour):
    - Oil sampling and servicing procedures (AM.III.G.K6).
    - Textbook: Chapter 6, Sections on oil servicing.
- Lab (3.5 hours):
    - Lab L307.5: Locate procedures for obtaining oil samples (AM.III.G.S5).
        - Activity: Use Boeing 737-800 AMM to locate oil servicing/sampling procedures and complete a worksheet.
        - Standard: Complete with 70% success rate.

Day 11: Oil System Maintenance

- Lecture (1 hour):
    - Risk management: Use/mixing of engine oils and following manufacturer's recommendations (AM.III.G.R1, R2).
    - Textbook: Chapter 6, Sections on oil use and safety.
- Lab (3 hours):
    - Lab L307.3 (Part 1): Inspect oil filter/screen, perform oil pressure adjustment, identify components, replace a component, and troubleshoot oil pressure malfunction (AM.III.G.S6, S7, S8, S9, S11).
        - Activity: Use PW R-985 EMM to identify, remove, inspect, and reinstall the scavenge oil screen; begin troubleshooting low oil pressure.
        - Standard: Progress toward 70% success rate.

Day 12: Oil System Troubleshooting

- Lecture (0.5 hour):
    - Excessive aircraft engine oil consumption (AM.III.G.K7).
    - Textbook: Chapter 6, Sections on oil consumption.
- Lab (3.5 hours):
    - Lab L307.3 (Part 2): Complete inspection, adjustment, and troubleshooting of oil system (AM.III.G.S6, S7, S8, S9, S11).
        - Activity: Finalize troubleshooting low oil pressure, adjust oil pressure relief valve, and replace a component on PW R-985 engine test stand.
        - Standard: Complete with 70% success rate.

Day 13: Oil Temperature System Troubleshooting

- Lecture (1 hour):

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    - Troubleshooting oil temperature systems (AM.III.G.K6).
    - Textbook: Chapter 6, Sections on oil temperature systems.
- Lab (3 hours):
    - Lab L307.8 (Part 1): Troubleshoot an engine oil temperature system (AM.III.G.S12).
        - Activity: Use PA-32 Saratoga or PA-46 Malibu/Matrix AMM to troubleshoot an inoperative oil temperature reading and begin determining solutions/parts.
        - Standard: Progress toward 70% success rate.

Day 14: Oil Temperature System and Risk Management

- Lecture (1 hour):
    - Risk management: Handling, storage, and disposal of used lubricating oil (AM.III.G.R3).
    - Textbook: Chapter 6, Sections on oil handling.
- Lab (3 hours):
    - Lab L307.8 (Part 2): Complete troubleshooting of engine oil temperature system (AM.III.G.S12).
        - Activity: Finalize troubleshooting, determine solutions, and identify required parts/part numbers for the oil temperature system on assigned aircraft.
        - Standard: Complete with 70% success rate.

Day 15: Review and Final Exam

- Lecture (1 hour):
    - Review of key concepts: lubrication system operation, maintenance, troubleshooting, and risk management.
    - Exam preparation.
    - Textbook: Chapter 6, Relevant sections.
- Lab (2 hours):
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.G.K1–K7), risk management (AM.III.G.R1–R3), and skills (AM.III.G.S1–S14).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%.

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AMP308.2: Reciprocating Engine Induction and Cooling Systems

Course Overview

Course Code: AMP308.2
Course Title: Reciprocating Engine Induction and Cooling Systems
Total Contact Hours: 36 (12 Lecture, 24 Lab, including 1-hour final exam)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 6 Lubrication & Cooling Systems and Chapter 3 Induction & Exhaust Systems

Assessment:

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Learning Objectives

- Understand the operation of induction and cooling systems.
- Perform maintenance and adjustments on system components.
- Troubleshoot issues in reciprocating engine induction and cooling systems.

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AMP308.2 Day Schedule

Day 1: Introduction and Carburetor Heat Systems

- Lecture (2 hours):
  - Overview of reciprocating engine induction systems, theory, components, and operation (AM.III.J.K1).
  - Carburetor heaters and causes/effects of induction system icing (AM.III.J.K2, K7).
  - Textbook: Chapter 3, Sections on induction systems and carburetor heaters.
- Lab (4 hours):
  - Lab L308.1: Inspect a carburetor heat system and service an induction air filter (AM.III.J.S1, S5).
    - Activity: Use Piper PA-28 AMM and Lycoming O320-H2AD engine overhaul manual to inspect the carburetor heat system for operation/security and remove, inspect, and reinstall the air filter.
    - Standard: Complete with 70% success rate.
  - Lab L308.5: Inspect an alternate air valve for proper operation (AM.III.J.S2).
    - Activity: Use Piper PA-32 AMM to inspect the alternate air valve for operation and condition.
    - Standard: Complete with 70% success rate.

Day 2: Induction System Inspection

- Lecture (2 hours):
  - Induction system filtering and inspection procedures (AM.III.J.K6).
  - Risk management: Maintenance-related FOD (AM.III.J.R3).
  - Textbook: Chapter 3, Sections on induction filtering and maintenance.
- Lab (4 hours):
  - Lab L308.2 (Part 1): Inspect induction system drain, induction system for obstruction, air intake manifold for leaks, cooling ducting/baffle seals, air inlet duct, and cowl flap system (AM.III.J.S3, S8, S9, S11, S14, S15, S18).
    - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM and Lycoming Direct Drive Engine overhaul manual to begin inspection tasks on assigned aircraft/engine.
    - Standard: Progress toward 70% success rate.

Day 3: Induction and Cooling System Maintenance

- Lecture (2 hours):
  - Reciprocating engine cooling systems and augmenter cooling systems (AM.III.J.K5).
  - Risk management: Ground operation of aircraft engines (AM.III.J.R2).
  - Textbook: Chapter 6, Sections on cooling systems; Chapter 3, Sections on augmenter cooling.
- Lab (4 hours):
  - Lab L308.2 (Part 2): Complete inspection of induction system drain, induction system, air intake manifold, cooling ducting/baffle seals, air inlet duct, and cowl flap system (AM.III.J.S3, S8, S9, S11, S14, S15, S18).
    - Activity: Finalize inspection tasks on assigned aircraft/engine.

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        - Standard: Complete with 70% success rate.
    - Lab L308.4 (Part 1): Identify exhaust augmenter-cooled engine components and inspect exhaust augmenter cooling system (AM.III.J.S4, S13).
        - Activity: Use Cessna 310 Service Manual to begin worksheet on exhaust augmenter components and inspection.
        - Standard: Progress toward 70% success rate.

Day 4: Cooling System Repairs

- Lecture (2 hours):
    - Superchargers, turbochargers, intercoolers, and controls (AM.III.J.K3, K4).
    - Risk management: Maintenance on turbochargers (AM.III.J.R1).
    - Textbook: Chapter 3, Sections on superchargers and turbochargers.
- Lab (4 hours):
    - Lab L308.4 (Part 2): Complete identification and inspection of exhaust augmenter cooling system (AM.III.J.S4, S13).
        - Activity: Finalize worksheet and inspect Cessna 310 exhaust augmenter.
        - Standard: Complete with 70% success rate.
    - Lab L308.3 (Part 1): Repair a cylinder baffle, inspect cylinder baffling, and inspect cylinder cooling fins (AM.III.J.S16, S17, S19).
        - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM and Lycoming Direct Drive Engine overhaul manual to begin inspection and baffle repair.
        - Standard: Progress toward 70% success rate.

Day 5: Turbocharger and Liquid Cooling Systems

- Lecture (2 hours):
    - Turbocharger induction systems and liquid cooling systems (AM.III.J.K4).
    - Risk management: Chemicals used in liquid cooling systems (AM.III.J.R4).
    - Textbook: Chapter 3, Sections on turbochargers; Chapter 6, Sections on liquid cooling.
- Lab (4 hours):
    - Lab L308.3 (Part 2): Complete repair of cylinder baffle, inspection of cylinder baffling, and cooling fins (AM.III.J.S16, S17, S19).
        - Activity: Finalize inspection and fabricate a replacement intercylinder **baffle on assigned aircraft/engine.**
        - **Standard: Complete with 70% success rate.**
    - **Lab L308.7: Locate specifications for coolant used in a liquid-cooled engine (AM.III.J.S20).**
        - **Activity: Use Rotax 912 Engine Maintenance Manual and Operator's Manual to complete a worksheet on liquid cooling system specifications.**
        - **Standard: Complete with 70% success rate.**

Day 6: Turbocharger Maintenance and Final Exam

- **Lecture (2 hours):**
    - **Review of key concepts: induction/cooling system operation, maintenance, troubleshooting, and risk management.**
    - **Exam preparation.**

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  - **Textbook: Chapters 3 and 6, Relevant sections.**
- **Lab (3 hours):**
  - **Lab L308.6: Inspect a turbocharger for leaks/security, service a turbocharger waste gate, and identify turbocharger induction system components (AM.III.J.S6, S7, S12).**
    - **Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to inspect turbocharger, service waste gate, and complete a worksheet on turbocharger induction components.**
    - **Standard: Complete with 70% success rate.**
  - **Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).**
- **Final Exam (1 hour):**
  - **Comprehensive exam covering knowledge (AM.III.J.K1–K7), risk management (AM.III.J.R1–R4), and skills (AM.III.J.S1–S20).**
  - **Format: Written and practical problem-solving tasks.**
  - **Standard: Minimum passing grade of 70%.**

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AMP308.2 Night Schedule

Day 1: Introduction and Carburetor Heat Systems

- Lecture (1 hour):
  - Overview of reciprocating engine induction systems, theory, components, and operation (AM.III.J.K1).
  - Textbook: Chapter 3, Sections on induction systems.
- Lab (3 hours):
  - Lab L308.1 (Part 1): Inspect a carburetor heat system and service an induction air filter (AM.III.J.S1, S5).
    - Activity: Use Piper PA-28 AMM and Lycoming O320-H2AD engine overhaul manual to begin inspection of carburetor heat system and air filter.
    - Standard: Progress toward 70% success rate.

Day 2: Carburetor Heat and Alternate Air Valve

- Lecture (1 hour):
  - Carburetor heaters and causes/effects of induction system icing (AM.III.J.K2, K7).
  - Textbook: Chapter 3, Sections on carburetor heaters and icing.
- Lab (3 hours):
  - Lab L308.1 (Part 2): Complete inspection of carburetor heat system and service induction air filter (AM.III.J.S1, S5).
    - Activity: Finalize inspection and reinstall air filter using Piper PA-28 AMM and Lycoming manual.
    - Standard: Complete with 70% success rate.
  - Lab L308.5: Inspect an alternate air valve for proper operation (AM.III.J.S2).
    - Activity: Use Piper PA-32 AMM to inspect alternate air valve for operation and condition.
    - Standard: Complete with 70% success rate.

Day 3: Induction System Inspection

- Lecture (1.5 hours):
  - Induction system filtering and inspection procedures (AM.III.J.K6).
  - Risk management: Maintenance-related FOD (AM.III.J.R3).
  - Textbook: Chapter 3, Sections on induction filtering and maintenance.
- Lab (2.5 hours):
  - Lab L308.2 (Part 1): Inspect induction system drain, induction system for obstruction, air intake manifold for leaks, cooling ducting/baffle seals, air inlet duct, and cowl flap system (AM.III.J.S3, S8, S9, S11, S14, S15, S18).
    - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM and Lycoming Direct Drive Engine overhaul manual to begin inspection tasks on assigned aircraft/engine.
    - Standard: Progress toward 70% success rate.

Day 4: Induction and Cooling System Maintenance

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- Lecture (1 hour):
  - Reciprocating engine cooling systems (AM.III.J.K5).
  - Textbook: Chapter 6, Sections on cooling systems.
- Lab (3 hours):
  - Lab L308.2 (Part 2): Complete inspection of induction system drain, induction system, air intake manifold, cooling ducting/baffle seals, air inlet duct, and cowl flap system (AM.III.J.S3, S8, S9, S11, S14, S15, S18).
    - Activity: Finalize inspection tasks on assigned aircraft/engine.
    - Standard: Complete with 70% success rate.

Day 5: Augmenter Cooling Systems

- Lecture (1.5 hours):
  - Augmenter cooling systems (AM.III.J.K5).
  - Risk management: Ground operation of aircraft engines (AM.III.J.R2).
  - Textbook: Chapter 3, Sections on augmenter cooling.
- Lab (2.5 hours):
  - Lab L308.4: Identify exhaust augmenter-cooled engine components and inspect exhaust augmenter cooling system (AM.III.J.S4, S13).
    - Activity: Use Cessna 310 Service Manual to complete worksheet and inspect Cessna 310 exhaust augmenter.
    - Standard: Complete with 70% success rate.

Day 6: Cooling System Repairs

- Lecture (1 hour):
  - Superchargers and turbochargers (AM.III.J.K3, K4).
  - Textbook: Chapter 3, Sections on superchargers and turbochargers.
- Lab (3 hours):
  - Lab L308.3 (Part 1): Repair a cylinder baffle, inspect cylinder baffling, and inspect cylinder cooling fins (AM.III.J.S16, S17, S19).
    - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM and Lycoming Direct Drive Engine overhaul manual to begin inspection and baffle repair.
    - Standard: Progress toward 70% success rate.

Day 7: Cooling System Repairs (Continued)

- Lecture (1 hour):
  - Turbochargers, intercoolers, and controls (AM.III.J.K4).
  - Risk management: Maintenance on turbochargers (AM.III.J.R1).
  - Textbook: Chapter 3, Sections on turbochargers.
- Lab (3 hours):
  - Lab L308.3 (Part 2): Complete repair of cylinder baffle, inspection of cylinder baffling, and cooling fins (AM.III.J.S16, S17, S19).
    - Activity: Finalize inspection and fabricate a replacement intercylinder baffle on assigned aircraft/engine.
    - Standard: Complete with 70% success rate.

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Day 8: Turbocharger and Liquid Cooling Systems

- Lecture (1.5 hours):
  - Liquid cooling systems and specifications (AM.III.J.K4).
  - Risk management: Chemicals used in liquid cooling systems (AM.III.J.R4).
  - Textbook: Chapter 6, Sections on liquid cooling.
- Lab (2.5 hours):
  - Lab L308.7: Locate specifications for coolant used in a liquid-cooled engine (AM.III.J.S20).
    - Activity: Use Rotax 912 Engine Maintenance Manual and Operator's Manual to complete a worksheet on liquid cooling system specifications.
    - Standard: Complete with 70% success rate.

Day 9: Turbocharger Maintenance and Final Exam

- Lecture (1 hour):
  - Review of key concepts: induction/cooling system operation, maintenance, troubleshooting, and risk management.
  - Exam preparation.
  - Textbook: Chapters 3 and 6, Relevant sections.
- Lab (2 hours):
  - Lab L308.6: Inspect a turbocharger for leaks/security, service a turbocharger waste gate, and identify turbocharger induction system components (AM.III.J.S6, S7, S12).
    - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to inspect turbocharger, service waste gate, and complete a worksheet on turbocharger induction components.
    - Standard: Complete with 70% success rate.
  - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge (AM.III.J.K1–K7), risk management (AM.III.J.R1–R4), and skills (AM.III.J.S1–S20).
  - Format: Written and practical problem-solving tasks.
  - Standard: Minimum passing grade of 70%.

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AMP309.2: Ignition and Starting Systems

Course Overview

Course Code: AMP309.2
Course Title: Ignition and Starting Systems
Total Contact Hours: 48 (12 Lecture, 36 Lab, including 1-hour final exam)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 4 Engine Ignition & Electrical Systems

Assessment:

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Learning Objectives

- Understand the operation of ignition and starting systems.
- Perform maintenance and inspections on ignition and starting components.
- Troubleshoot and repair system malfunctions.

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AMP309.2 Day Schedule

Day 1: Introduction and Starting Systems
Lecture (2 hours):
Overview of ignition and starting systems, including engine starters (AM.III.H.K7).
Ignition system theory and components (AM.III.H.K1).
Textbook: Chapter 4, Sections on starters and ignition systems.
Lab (4 hours):
Lab L309.1: Inspect and troubleshoot an electrical starting system (AM.III.H.S5, S9).
Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to inspect the electrical starting system and troubleshoot an inoperative starting system on assigned aircraft.
Standard: Complete with 70% success rate.
Day 2: Magneto Systems
Lecture (2 hours):
Magneto system components, operation, and three electrical circuits (AM.III.H.K4, K8).
Shower of sparks and impulse coupling (AM.III.H.K3).
Textbook: Chapter 4, Sections on magnetos and impulse coupling.
Lab (4 hours):
Lab L309.2 (Part 1): Set magneto internal timing, time magneto to engine, inspect breaker points, and inspect impulse coupling (AM.III.H.S1, S2, S6, S8).
Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to begin inspecting breaker points, setting internal timing, and inspecting impulse coupling on a magneto.
Standard: Progress toward 70% success rate.
Day 3: Magneto Systems (Continued)
Lecture (1 hour):
Risk management: Advanced/retarded ignition timing and ungrounded magnetos (AM.III.H.R1, R3).
Textbook: Chapter 4, Sections on ignition timing and safety.
Lab (5 hours):
Lab L309.2 (Part 2): Complete setting magneto internal timing, timing magneto to engine, inspecting breaker points, and inspecting impulse coupling (AM.III.H.S1, S2, S6, S8).

- Activity: Finalize magneto tasks and time magneto to assigned aircraft.
- Standard: Complete with 70% success rate.

Day 4: Spark Plugs

- **L**ecture (2 hours):
  - Spark plug theory and maintenance (AM.III.H.K2).
  - Solid-state ignition systems (AM.III.H.K5).
  - Textbook: Chapter 4, Sections on spark plugs and solid-state ignition.
- Lab (4 hours):
  - Lab L309.3: Remove, clean, install, inspect, check gap, and identify correct spark plugs for replacement (AM.III.H.S3, S11, S12).
    - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to remove, clean, install, inspect, and gap spark plugs; identify correct spark plugs for replacement.
    - Standard: Complete with 70% success rate.

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Day 5: Ignition System Troubleshooting

- Lecture (1 hour):
  - Troubleshooting ignition systems and ignition switch circuits (AM.III.H.K1, K4).
  - Risk management: Maintenance on capacitor discharge ignition systems (AM.III.H.R2).
  - Textbook: Chapter 4, Sections on ignition troubleshooting.
- Lab (5 hours):
  - Lab L309.4 (Part 1): Troubleshoot and repair an ignition system, inspect ignition harness, troubleshoot ignition switch circuit, and troubleshoot reciprocating engine ignition system (AM.III.H.S4, S7, S10, S13).
    - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to begin inspecting ignition harness, troubleshooting ignition switch issues, and repairing ignition system.
    - Standard: Progress toward 70% success rate.

Day 6: Ignition System Troubleshooting (Continued)

- Lecture (1 hour):
  - Digital engine control module (e.g., FADEC) (AM.III.H.K6).
  - Textbook: Chapter 4, Sections on FADEC systems.
- Lab (5 hours):
  - Lab L309.4 (Part 2): Complete troubleshooting and repair of ignition system, inspection of ignition harness, troubleshooting ignition switch circuit, and reciprocating engine ignition system (AM.III.H.S4, S7, S10, S13).
    - Activity: Finalize ignition system troubleshooting and repair tasks on assigned aircraft.
    - Standard: Complete with 70% success rate.

Day 7: Turbine Engine Ignition Systems

- Lecture (2 hours):
  - Turbine engine ignition systems and components (AM.III.H.K9).
  - Textbook: Chapter 4, Sections on turbine ignition systems.
- Lab (4 hours):
  - Lab L309.5 (Part 1): Inspect turbine engine ignition system, identify and replace igniter plugs, troubleshoot turbine igniters, and inspect igniters (AM.III.H.S14, S15, S16, S17).
    - Activity: Use Garrett TPE-331-SRII Engine Maintenance Manual to begin inspecting turbine ignition system, identifying correct igniter plug part number, and troubleshooting a given scenario.
    - Standard: Progress toward 70% success rate.

Day 8: Turbine Ignition and Final Exam

- Lecture (1 hour):
  - Review of key concepts: ignition/starter system operation, maintenance, troubleshooting, and risk management.
  - Exam preparation.

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    - Textbook: Chapter 4, Relevant sections.
- Lab (4 hours):
    - Lab L309.5 (Part 2): Complete inspection of turbine engine ignition system, replacement of igniter plugs, troubleshooting, and inspection of igniters (AM.III.H.S14, S15, S16, S17).
        - Activity: Finalize turbine ignition tasks, including removing, inspecting, and reinstalling igniter plugs on Garrett TPE-331 training aid.
        - Standard: Complete with 70% success rate.
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.H.K1–K9), risk management (AM.III.H.R1–R3), and skills (AM.III.H.S1–S17).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%.

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AMP309.2 Night Schedule

Day 1: Introduction and Starting Systems

- Lecture (1 hour):
  - Overview of ignition and starting systems, including engine starters (AM.III.H.K7).
  - Textbook: Chapter 4, Sections on starters.
- Lab (3 hours):
  - Lab L309.1 (Part 1): Inspect and troubleshoot an electrical starting system (AM.III.H.S5, S9).
    - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to begin inspecting the electrical starting system and troubleshooting an inoperative starting system.
    - Standard: Progress toward 70% success rate.

Day 2: Starting Systems (Continued)

- Lecture (1 hour):
  - Ignition system theory and components (AM.III.H.K1).
  - Textbook: Chapter 4, Sections on ignition systems.
- Lab (3 hours):
  - Lab L309.1 (Part 2): Complete inspection and troubleshooting of an electrical starting system (AM.III.H.S5, S9).
    - Activity: Finalize inspection and troubleshooting tasks on assigned aircraft using Piper PA-32 or PA-46 AMM.
    - Standard: Complete with 70% success rate.

Day 3: Magneto Systems

- Lecture (1.5 hours):
  - Magneto system components and operation (AM.III.H.K8).
  - Shower of sparks and impulse coupling (AM.III.H.K3).
  - Textbook: Chapter 4, Sections on magnetos and impulse coupling.
- Lab (2.5 hours):
  - Lab L309.2 (Part 1): Set magneto internal timing, time magneto to engine, inspect breaker points, and inspect impulse coupling (AM.III.H.S1, S2, S6, S8).
    - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to begin inspecting breaker points and setting magneto internal timing.
    - Standard: Progress toward 70% success rate.

Day 4: Magneto Systems (Continued)

- Lecture (1 hour):
  - Three electrical circuits of a magneto system (AM.III.H.K4).
  - Textbook: Chapter 4, Sections on magneto circuits.
- Lab (3 hours):

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    - Lab L309.2 (Part 2): Continue setting magneto internal timing, timing magneto to engine, inspecting breaker points, and inspecting impulse coupling (AM.III.H.S1, S2, S6, S8).
        - Activity: Continue magneto tasks, focusing on impulse coupling inspection and timing to engine.
        - Standard: Progress toward 70% success rate.

Day 5: Magneto Timing

- Lecture (1 hour):
    - Risk management: Advanced/retarded ignition timing and ungrounded magnetos (AM.III.H.R1, R3).
    - Textbook: Chapter 4, Sections on ignition timing and safety.
- Lab (3 hours):
    - Lab L309.2 (Part 3): Complete setting magneto internal timing, timing magneto to engine, inspecting breaker points, and inspecting impulse coupling (AM.III.H.S1, S2, S6, S8).
        - Activity: Finalize magneto tasks and time magneto to assigned aircraft.
        - Standard: Complete with 70% success rate.

Day 6: Spark Plugs

- Lecture (1.5 hours):
    - Spark plug theory and maintenance (AM.III.H.K2).
    - Textbook: Chapter 4, Sections on spark plugs.
- Lab (2.5 hours):
    - Lab L309.3 (Part 1): Remove, clean, install, inspect, check gap, and identify correct spark plugs for replacement (AM.III.H.S3, S11, S12).
        - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to begin removing, cleaning, and inspecting spark plugs.
        - Standard: Progress toward 70% success rate.

Day 7: Spark Plugs (Continued)

- Lecture (1 hour):
    - Solid-state ignition systems (AM.III.H.K5).
    - Textbook: Chapter 4, Sections on solid-state ignition.
- Lab (3 hours):
    - Lab L309.3 (Part 2): Complete removal, cleaning, installation, inspection, gap checking, and identification of correct spark plugs (AM.III.H.S3, S11, S12).
        - Activity: Finalize spark plug tasks, including identifying correct spark plugs for replacement.
        - Standard: Complete with 70% success rate.

Day 8: Ignition System Troubleshooting

- Lecture (1 hour):

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    - Troubleshooting ignition systems and ignition switch circuits (AM.III.H.K1, K4).
    - Textbook: Chapter 4, Sections on ignition troubleshooting.
- Lab (3 hours):
    - Lab L309.4 (Part 1): Troubleshoot and repair an ignition system, inspect ignition harness, troubleshoot ignition switch circuit, and troubleshoot reciprocating engine ignition system (AM.III.H.S4, S7, S10, S13).
        - Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM to begin inspecting ignition harness and troubleshooting ignition switch issues.
        - Standard: Progress toward 70% success rate.

Day 9: Ignition System Troubleshooting (Continued)

- Lecture (1 hour):
    - Risk management: Maintenance on capacitor discharge ignition systems (AM.III.H.R2).
    - Textbook: Chapter 4, Sections on capacitor discharge ignition.
- Lab (3 hours):
    - Lab L309.4 (Part 2): Continue troubleshooting and repair of ignition system, inspection of ignition harness, troubleshooting ignition switch circuit, and reciprocating engine ignition system (AM.III.H.S4, S7, S10, S13).
        - Activity: Continue ignition system troubleshooting and repair tasks on assigned aircraft.
        - Standard: Progress toward 70% success rate.

Day 10: Ignition System Troubleshooting (Final)

- Lecture (1 hour):
    - Digital engine control module (e.g., FADEC) (AM.III.H.K6).
    - Textbook: Chapter 4, Sections on FADEC systems.
- Lab (3 hours):

Lab L309.4 (Part 3): Complete troubleshooting and repair of ignition system, inspection of ignition harness, troubleshooting ignition switch circuit, and reciprocating engine ignition system (AM.III.H.S4, S7, S10, S13).
Activity: Finalize ignition system troubleshooting and repair tasks.
Standard: Complete with 70% success rate.
Day 11: Turbine Engine Ignition Systems
Lecture (1.5 hours):
Turbine engine ignition systems and components (AM.III.H.K9).
Textbook: Chapter 4, Sections on turbine ignition systems.
Lab (2.5 hours):
Lab L309.5 (Part 1): Inspect turbine engine ignition system, identify and replace igniter plugs, troubleshoot turbine igniters, and inspect igniters (AM.III.H.S14, S15, S16, S17).
Activity: Use Garrett TPE-331-SRII Engine Maintenance Manual to begin inspecting turbine ignition system and identifying correct igniter plug part number.
Standard: Progress toward 70% success rate.
Day 12: Turbine Ignition and Final Exam
Lecture (1 hour):
Review of key concepts: ignition/starter system operation, maintenance, troubleshooting, and risk

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management.
Exam preparation.
Textbook: Chapter 4, Relevant sections.
Lab (2 hours):
Lab L309.5 (Part 2): Complete inspection of turbine engine ignition system, replacement of igniter plugs, troubleshooting, and inspection of igniters (AM.III.H.S14, S15, S16, S17).
Activity: Finalize turbine ignition tasks, including removing, inspecting, and reinstalling igniter plugs on Garrett TPE-331 training aid.
Standard: Complete with 70% success rate.
Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
Final Exam (1 hour):
Comprehensive exam covering knowledge (AM.III.H.K1–K9), risk management (AM.III.H.R1–R3), and skills (AM.III.H.S1–S17).
Format: Written and practical problem-solving tasks.
Standard: Minimum passing grade of 70%.

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AMP310.2: Engine Instrument Systems

Course Overview

Course Code: AMP310.2
Course Title: Engine Instrument Systems
Total Contact Hours: 24 (12 Lecture, 12 Lab, including 1-hour final exam)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-31B Aviation Maintenance Technician Handbook-Airframe, (FAA, 2023), Chapter 10 Aircraft Systems

Assessment:

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Learning Objectives

- Understand the operation of engine instrument systems.
- Install and calibrate engine instruments.
- Troubleshoot instrument system issues.

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AMP310.2 Day Schedule

Day 1: Introduction and Temperature/Pressure Systems
Lecture (3 hours):
Overview of engine instrument systems, including fuel flow, temperature (EGT, oil, cylinder head), and pressure (air, fuel, manifold, oil) (AM.III.D.K1, K2, K4).
Risk management: Maintenance damage to instruments and calibration errors (AM.III.D.R1, R2).
Textbook: Chapter 10, Sections on fuel flow, temperature, and pressure systems.
Lab (3 hours):
Lab L310.1: Replace a cylinder head temperature thermocouple (AM.III.D.S12).
Activity: Use Piper PA-46 Malibu AMM to research and perform removal/installation of the cylinder head temperature probe.
Standard: Complete with 70% success rate.
Lab L310.7: Inspect an oil temperature probe (AM.III.D.S19).
Activity: Use Piper PA-32 Saratoga AMM to locate, remove, inspect, and reinstall the oil temperature probe.
Standard: Complete with 70% success rate.
Day 2: Fuel Flow and Tachometer Systems
Lecture (3 hours):
Engine speed indicating systems, torque meters, and tachometer systems (AM.III.D.K3, K6).
Engine instrument range markings and annunciator systems (AM.III.D.K11, K12).
Textbook: Chapter 10, Sections on tachometers, torque meters, and annunciators.
Lab (3 hours):
Lab L310.3: Remove, inspect, and install fuel flow gauge and check fuel-flow transmitter power supply (AM.III.D.S4, S6).
Activity: Use Piper PA-32 Saratoga AMM to remove, inspect, and reinstall fuel flow gauge and check power supply using wiring diagram.
Standard: Complete with 70% success rate.
Lab L310.5: Identify components of an electric tachometer system, inspect tachometer markings, and troubleshoot a tachometer system (AM.III.D.S5, S7, S11).

- Activity: Use Piper PA-32 Saratoga AMM to locate and identify tachometer components, inspect markings, and indicate troubleshooting procedures.
- Standard: Complete with 70% success rate.

Day 3: EGT and Manifold Pressure Systems

- Lecture (3 hours):
  - Engine pressure ratio (EPR), electronic centralized aircraft monitoring, and FADEC (AM.III.D.K7, K9, K10).
  - Engine indicating and crew alerting systems (AM.III.D.K8).
  - Textbook: Chapter 10, Sections on EPR, FADEC, and monitoring systems.
- Lab (3 hours):
  - Lab L310.2: Inspect EGT probes and troubleshoot an EGT indicating system (AM.III.D.S13, S18).
    - Activity: Use Piper PA-28 Warrior AMM to inspect EGT probes and troubleshoot an instructor-induced fault in the EGT system.
    - Standard: Complete with 70% success rate.

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    - Lab L310.8: Check aircraft engine manifold pressure gauge and inspect manifold pressure system (AM.III.D.S15, S16).
        - Activity: Use Piper PA-32 Saratoga AMM to inspect manifold pressure system and verify gauge operation.
        - Standard: Complete with 70% success rate.

Day 4: Pressure Warning Systems and Final Exam

- Lecture (2 hours):
    - Review of key concepts: instrument system operation, calibration, troubleshooting, and risk management.
    - Exam preparation.
    - Textbook: Chapter 10, Relevant sections.
- Lab (3 hours):
    - Lab L310.6: Troubleshoot an engine oil temperature/pressure instrument system and repair a low oil pressure warning system (AM.III.D.S1, S17).
        - Activity: Use Piper PA-32 Saratoga AMM to troubleshoot and repair an instructor-induced fault in the low oil pressure warning system.
        - Standard: Complete with 70% success rate.
    - Lab L310.9: Locate and inspect low fuel pressure warning system components and troubleshoot a low fuel pressure indicating system (AM.III.D.S2, S14).
        - Activity: Use Piper PA-46 Malibu AMM to inspect and troubleshoot low fuel pressure warning system.
        - Standard: Complete with 70% success rate.
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.D.K1–K12), risk management (AM.III.D.R1–R2), and skills (AM.III.D.S1–S19).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%.

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AMP310.2 Night Schedule

Day 1: Introduction and Temperature Systems
Lecture (2 hours):
Overview of engine instrument systems, including temperature (EGT, oil, cylinder head) (AM.III.D.K2).
Risk management: Maintenance damage to instruments (AM.III.D.R1).
Textbook: Chapter 10, Sections on temperature systems.
Lab (2 hours):
Lab L310.1: Replace a cylinder head temperature thermocouple (AM.III.D.S12).
Activity: Use Piper PA-46 Malibu AMM to research and perform removal/installation of the cylinder head temperature probe.
Standard: Complete with 70% success rate.
Day 2: EGT and Oil Temperature Systems
Lecture (2 hours):
Fuel flow and pressure systems (air, fuel, manifold, oil) (AM.III.D.K1, K4).
Risk management: Instrument calibration errors (AM.III.D.R2).
Textbook: Chapter 10, Sections on fuel flow and pressure systems.
Lab (2 hours):
Lab L310.2: Inspect EGT probes and troubleshoot an EGT indicating system (AM.III.D.S13, S18).
Activity: Use Piper PA-28 Warrior AMM to inspect EGT probes and troubleshoot an instructor-induced fault in the EGT system.
Standard: Complete with 70% success rate.
Lab L310.7: Inspect an oil temperature probe (AM.III.D.S19).
Activity: Use Piper PA-32 Saratoga AMM to locate, remove, inspect, and reinstall the oil temperature probe.
Standard: Complete with 70% success rate.
Day 3: Fuel Flow Systems
Lecture (2 hours):
Engine speed indicating systems and torque meters (AM.III.D.K3, K6).
Textbook: Chapter 10, Sections on tachometers and torque meters.
Lab (2 hours):
Lab L310.3: Remove, inspect, and install fuel flow gauge and check fuel-flow transmitter power supply (AM.III.D.S4, S6).
Activity: Use Piper PA-32 Saratoga AMM to remove, inspect, and reinstall fuel flow gauge and check power supply using wiring diagram.

- Standard: Complete with 70% success rate.

Day 4: Tachometer Systems

- Lecture (2 hours):
  - Engine instrument range markings and annunciator systems (AM.III.D.K11, K12).
  - Textbook: Chapter 10, Sections on range markings and annunciators.
- Lab (2 hours):
  - Lab L310.5: Identify components of an electric tachometer system, inspect tachometer markings, and troubleshoot a tachometer system (AM.III.D.S5, S7, S11).
    - Activity: Use Piper PA-32 Saratoga AMM to locate and identify tachometer components, inspect markings, and indicate troubleshooting procedures.

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        - Standard: Complete with 70% success rate.

Day 5: Manifold Pressure and EPR Systems

- Lecture (2 hours):
    - Engine pressure ratio (EPR), FADEC, and electronic centralized aircraft monitoring (AM.III.D.K7, K9, K10).
    - Engine indicating and crew alerting systems (AM.III.D.K8).
    - Textbook: Chapter 10, Sections on EPR, FADEC, and monitoring systems.
- Lab (2 hours):
    - Lab L310.8: Check aircraft engine manifold pressure gauge and inspect manifold pressure system (AM.III.D.S15, S16).
        - Activity: Use Piper PA-32 Saratoga AMM to inspect manifold pressure system and verify gauge operation.
        - Standard: Complete with 70% success rate.
    - Lab L310.10: Locate procedures for troubleshooting a turbine EPR system (AM.III.D.S10).
        - Activity: Use Boeing 737-200 AMM to complete a worksheet on EPR system components and troubleshooting procedures.
        - Standard: Complete with 70% accuracy.

Day 6: Pressure Warning Systems and Final Exam

- Lecture (1 hour):
    - Review of key concepts: instrument system operation, calibration, troubleshooting, and risk management.
    - Exam preparation.
    - Textbook: Chapter 10, Relevant sections.
- Lab (2 hours):
    - Lab L310.6: Troubleshoot an engine oil temperature/pressure instrument system and repair a low oil pressure warning system (AM.III.D.S1, S17).
        - Activity: Use Piper PA-32 Saratoga AMM to troubleshoot and repair an instructor-induced fault in the low oil pressure warning system.
        - Standard: Complete with 70% success rate.
    - Lab L310.9: Locate and inspect low fuel pressure warning system components and troubleshoot a low fuel pressure indicating system (AM.III.D.S2, S14).
        - Activity: Use Piper PA-46 Malibu AMM to inspect and troubleshoot low fuel pressure warning system.
        - Standard: Complete with 70% success rate.
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.D.K1–K12), risk management (AM.III.D.R1–R2), and skills (AM.III.D.S1–S19).
    - Format: Written and practical problem-solving tasks.

Standard: Minimum passing grade of 70%.

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AMP311.2: Engine Fuel and Fuel Metering Systems

Course Overview

Course Code: AMP311.2
Course Title: Engine Fuel and Fuel Metering Systems
Total Contact Hours: 48 (12 Lecture, 36 Lab, including 1-hour final exam)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 2 Engine Fuel & Fuel Metering Systems

Assessment:

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Learning Objectives

- Understand the operation of engine fuel and metering systems.
- Perform maintenance and calibration of fuel system components.
- Troubleshoot fuel system malfunctions.

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AMP311.2 Day Schedule

Day 1: Introduction and Carburetor Systems

- Lecture (2 hours):
  - Overview of fuel and fuel metering systems, fuel/air ratio, and carburetor theory/operation (AM.III.I.K1, K2).
  - Float carburetor components, operation, and adjustment (AM.III.I.K2).
  - Textbook: Chapter 2, Sections on carburetors and fuel/air ratio.
- Lab (4 hours):
  - Lab L311.1: Identify carburetor components and fuel/air flow through a float-type carburetor (AM.III.I.S3, S4).
    - Activity: Use PRECISION AIRMOTIVE'S MSA FLOAT CARBURETOR HANDBOOK to answer worksheet questions on component identification and fuel/air flow.
    - Standard: Complete with 70% success rate.
  - Lab L311.2: Remove/install carburetor main metering jet, inspect fuel inlet screen, and inspect needle/seat/float level (AM.III.I.S5, S6, S8).
    - Activity: Use MA-4 or HA-6 carburetor training aid and overhaul/service manual to disassemble/reassemble carburetor components.
    - Standard: Complete with 70% success rate.

Day 2: Carburetor Maintenance

- Lecture (1 hour):
  - Pressure carburetor theory, operation, and adjustment (AM.III.I.K3).
  - Risk management: Handling fuel metering system components (AM.III.I.R3).
  - Textbook: Chapter 2, Sections on pressure carburetors.
- Lab (5 hours):
  - Lab L311.3: Remove/install a float-type carburetor, adjust idle speed/mixture, and inspect fuel metering cockpit controls (AM.III.I.S9, S10, S12).
    - Activity: Use Lycoming O-320-H2AD maintenance manual to remove, inspect, reinstall carburetor, adjust idle, and inspect throttle/mixture controls.
    - Standard: Complete with 70% success rate.

Day 3: Fuel Injection Systems

- Lecture (2 hours):
  - Continuous-flow fuel injection theory, components, operation, and troubleshooting (AM.III.I.K4).
  - Risk management: Adjusting reciprocating engine fuel control systems (AM.III.I.R2).
  - Textbook: Chapter 2, Sections on fuel injection systems.
- Lab (4 hours):
  - Lab L311.4: Inspect, troubleshoot, and repair a continuous-flow fuel injection system; adjust the system (AM.III.I.S1, S7).
    - Activity: Use PA-28 Saratoga AMM to inspect fuel injection system, troubleshoot a scenario, indicate repair, and adjust the system.
    - Standard: Complete with 70% success rate.

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Day 4: Fuel System Components

- Lecture (1 hour):
  - Fuel system operation, fuel lines, pumps, valves, and filters (AM.III.I.K10, K12–K15).
  - Textbook: Chapter 2, Sections on fuel system components.
- Lab (5 hours):
  - Lab L311.5: Identify fuel system components, locate/identify fuel selector placards, inspect fuel system fluid lines/components, and inspect fuel selector valve (AM.III.I.S15, S18, S24, S29).
    - Activity: Use PA-32 Saratoga AMM to identify and inspect fuel system components, placards, and selector valve.
    - Standard: Complete with 70% success rate.
  - Lab L311.12: Inspect a remotely operated fuel valve for proper operation (AM.III.I.S17).
    - Activity: Use PA-32 Saratoga or PA-46 Malibu/Matrix AMM to inspect remotely operated fuel selector valve.
    - Standard: Complete with 70% success rate.

Day 5: Fuel Pumps and Filters

- Lecture (2 hours):
  - Fuel pumps, fuel filters, and inspection requirements for engine fuel systems (AM.III.I.K9, K13, K15).
  - Risk management: Considerations during fuel system maintenance (AM.III.I.R4).
  - Textbook: Chapter 2, Sections on fuel pumps and filters.
- Lab (4 hours):
  - Lab L311.6: Inspect main fuel filter assembly, fuel boost pump, fuel pressure warning light, and adjust fuel pump pressure (AM.III.I.S19, S20, S22, S23).
    - Activity: Use PA-46 Malibu/Matrix AMM to inspect fuel filter, boost pump, warning light, and adjust emergency fuel pump pressure.
    - Standard: Complete with 70% success rate.

Day 6: Fuel Pressure Troubleshooting

- Lecture (1 hour):
  - Fuel system troubleshooting and engine fuel drains (AM.III.I.K16).
  - Textbook: Chapter 2, Sections on fuel drains and troubleshooting.
- Lab (5 hours):
  - Lab L311.7: Troubleshoot abnormal fuel pressure, remove/clean/reinstall engine fuel filter, troubleshoot fuel pressure fluctuation, and inspect fuel selector valve (AM.III.I.S25, S27, S28, S29).
    - Activity: Use PA-32 Saratoga AMM to troubleshoot abnormal fuel pressure, clean/reinstall fuel filter, and inspect selector valve.
    - Standard: Complete with 70% success rate.

Day 7: Turbine Fuel Systems

- Lecture (2 hours):

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    - Turbine engine fuel metering systems, fuel nozzles, manifolds, and fuel heaters (AM.III.I.K8, K7, K11).
    - Risk management: Adjusting turbine engine fuel control and handling fuel control units (AM.III.I.R1, R5).
    - Textbook: Chapter 2, Sections on turbine fuel systems.
- Lab (4 hours):
    - Lab L311.8: Determine correct fuel nozzle spray pattern (AM.III.I.S30).
        - Activity: Use Lycoming LT101 EMM to complete a worksheet on fuel nozzle inspection and spray patterns.
        - Standard: Complete with 70% success rate.
    - Lab L311.9: Remove, inspect, and install a turbine engine fuel nozzle and engine-driven fuel pump (AM.III.I.S2, S16).
        - Activity: Use Rockwell Turbo Commander/TPE-331 Engine Maintenance Manual to remove, inspect, and install fuel nozzle and fuel pump.
        - Standard: Complete with 70% success rate.

Day 8: Turbine Fuel Control and Final Exam

- Lecture (1 hour):
    - Hydromechanical fuel control systems and FADEC (AM.III.I.K5, K6).
    - Review of key concepts and exam preparation.
    - Textbook: Chapter 2, Sections on fuel control systems.
- Lab (4 hours):
    - Lab L311.10: Locate procedures for turbine engine RPM overspeed inspection, adjusting hydromechanical fuel control unit, and removing/installing a turbine fuel control unit (AM.III.I.S11, S13, S14).
        - Activity: Use GE CF700 EMM to locate procedures for RPM overspeed, fuel control unit adjustment, and removal/installation.
        - Standard: Complete with 70% success rate.
    - Lab L311.11: Locate and identify turbine engine fuel heater and troubleshooting procedures (AM.III.I.S21, S26).
        - Activity: Use GE CF700 EMM and B727-200 AMM to identify fuel heater and complete a worksheet on troubleshooting procedures.
        - Standard: Complete with 70% success rate.
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.I.K1–K16), risk management (AM.III.I.R1–R5), and skills (AM.III.I.S1–S30).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%.

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AMP311.2 Night Schedule

Day 1: Introduction and Carburetor Systems

- Lecture (1 hour):
  - Overview of fuel and fuel metering systems and carburetor theory/operation (AM.III.I.K1).
  - Textbook: Chapter 2, Sections on carburetors and fuel/air ratio.
- Lab (3 hours):
  - Lab L311.1: Identify carburetor components and fuel/air flow through a float-type carburetor (AM.III.I.S3, S4).
    - Activity: Use PRECISION AIRMOTIVE'S MSA FLOAT CARBURETOR HANDBOOK to answer worksheet questions on component identification and fuel/air flow.
    - Standard: Complete with 70% success rate.

Day 2: Carburetor Maintenance

- Lecture (1 hour):
  - Float carburetor components, operation, and adjustment (AM.III.I.K2).
  - Textbook: Chapter 2, Sections on float carburetors.
- Lab (3 hours):
  - Lab L311.2: Remove/install carburetor main metering jet, inspect fuel inlet screen, and inspect needle/seat/float level (AM.III.I.S5, S6, S8).
    - Activity: Use MA-4 or HA-6 carburetor training aid and overhaul/service manual to disassemble/reassemble carburetor components.
    - Standard: Complete with 70% success rate.

Day 3: Carburetor Installation and Adjustment

- Lecture (1 hour):
  - Pressure carburetor theory, operation, and adjustment (AM.III.I.K3).
  - Risk management: Handling fuel metering system components (AM.III.I.R3).
  - Textbook: Chapter 2, Sections on pressure carburetors.
- Lab (3 hours):
  - Lab L311.3 (Part 1): Remove/install a float-type carburetor, adjust idle speed/mixture, and inspect fuel metering cockpit controls (AM.III.I.S9, S10, S12).
    - Activity: Use Lycoming O-320-H2AD maintenance manual to begin removing, inspecting, and reinstalling carburetor and adjusting idle.
    - Standard: Progress toward 70% success rate.

Day 4: Carburetor Adjustment (Continued)

- Lecture (1 hour):
  - Risk management: Adjusting reciprocating engine fuel control systems (AM.III.I.R2).
  - Textbook: Chapter 2, Sections on fuel control adjustments.
- Lab (3 hours):
  - Lab L311.3 (Part 2): Complete removal/installation of float-type carburetor, adjust idle speed/mixture, and inspect fuel metering cockpit controls (AM.III.I.S9, S10, S12).

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        - Activity: Finalize carburetor tasks and inspect throttle/mixture controls using Lycoming O-320-H2AD manual.
        - Standard: Complete with 70% success rate.

Day 5: Fuel Injection Systems

- Lecture (1.5 hours):
    - Continuous-flow fuel injection theory, components, operation, and troubleshooting (AM.III.I.K4).
    - Textbook: Chapter 2, Sections on fuel injection systems.
- Lab (2.5 hours):
    - Lab L311.4 (Part 1): Inspect, troubleshoot, and repair a continuous-flow fuel injection system; adjust the system (AM.III.I.S1, S7).
        - Activity: Use PA-28 Saratoga AMM to begin inspecting fuel injection system and troubleshooting a scenario.
        - Standard: Progress toward 70% success rate.

Day 6: Fuel Injection Systems (Continued)

- Lecture (1 hour):
    - Fuel system operation and components (AM.III.I.K10).
    - Textbook: Chapter 2, Sections on fuel system operation.
- Lab (3 hours):
    - Lab L311.4 (Part 2): Complete inspection, troubleshooting, repair, and adjustment of continuous-flow fuel injection system (AM.III.I.S1, S7).
        - Activity: Finalize troubleshooting, indicate repair, and adjust the system using PA-28 Saratoga AMM.
        - Standard: Complete with 70% success rate.

Day 7: Fuel System Components

- Lecture (1 hour):
    - Fuel lines, pumps, valves, and filters (AM.III.I.K12–K15).
    - Textbook: Chapter 2, Sections on fuel system components.
- Lab (3 hours):

Lab L311.5: Identify fuel system components, locate/identify fuel selector placards, inspect fuel system fluid lines/components, and inspect fuel selector valve (AM.III.I.S15, S18, S24, S29).
Activity: Use PA-32 Saratoga AMM to identify and inspect fuel system components, placards, and selector valve.
Standard: Complete with 70% success rate.
Day 8: Fuel Valves and Pumps
Lecture (1 hour):
Inspection requirements for engine fuel systems (AM.III.I.K9).
Textbook: Chapter 2, Sections on fuel system inspections.
Lab (3 hours):
Lab L311.12: Inspect a remotely operated fuel valve for proper operation (AM.III.I.S17).

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Activity: Use PA-32 Saratoga or PA-46 Malibu/Matrix AMM to inspect remotely operated fuel selector valve.
Standard: Complete with 70% success rate.
Lab L311.6 (Part 1): Inspect main fuel filter assembly, fuel boost pump, fuel pressure warning light, and adjust fuel pump pressure (AM.III.I.S19, S20, S22, S23).
Activity: Use PA-46 Malibu/Matrix AMM to begin inspecting fuel filter, boost pump, and warning light.
Standard: Progress toward 70% success rate.
Day 9: Fuel Pumps and Filters
Lecture (1 hour):
Risk management: Considerations during fuel system maintenance (AM.III.I.R4).
Textbook: Chapter 2, Sections on fuel system maintenance.
Lab (3 hours):
Lab L311.6 (Part 2): Complete inspection of main fuel filter assembly, fuel boost pump, fuel pressure warning light, and adjust fuel pump pressure (AM.III.I.S19, S20, S22, S23).
Activity: Finalize inspection and adjust emergency fuel pump pressure using PA-46 Malibu/Matrix AMM.
Standard: Complete with 70% success rate.
Day 10: Fuel Pressure Troubleshooting
Lecture (1 hour):
Fuel system troubleshooting and engine fuel drains (AM.III.I.K16).
Textbook: Chapter 2, Sections on fuel drains and troubleshooting.
Lab (3 hours):
Lab L311.7: Troubleshoot abnormal fuel pressure, remove/clean/reinstall engine fuel filter, troubleshoot fuel pressure fluctuation, and inspect fuel selector valve (AM.III.I.S25, S27, S28, S29).

- Activity: Use PA-32 Saratoga AMM to troubleshoot abnormal fuel pressure, clean/reinstall fuel filter, and inspect selector valve.
- Standard: Complete with 70% success rate.

Day 11: Turbine Fuel Systems

- Lecture (1.5 hours):
  - Turbine engine fuel metering systems, fuel nozzles, and fuel heaters (AM.III.I.K8, K7, K11).
  - Risk management: Adjusting turbine engine fuel control and handling fuel control units (AM.III.I.R1, R5).
  - Textbook: Chapter 2, Sections on turbine fuel systems.
- Lab (2.5 hours):
  - Lab L311.8: Determine correct fuel nozzle spray pattern (AM.III.I.S30).
    - Activity: Use Lycoming LT101 EMM to complete a worksheet on fuel nozzle inspection and spray patterns.
    - Standard: Complete with 70% success rate.
  - Lab L311.9: Remove, inspect, and install a turbine engine fuel nozzle and engine-driven fuel pump (AM.III.I.S2, S16).
    - Activity: Use Rockwell Turbo Commander/TPE-331 Engine Maintenance Manual to remove, inspect, and install fuel nozzle and fuel pump.
    - Standard: Complete with 70% success rate.

Day 12: Turbine Fuel Control and Final Exam

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- Lecture (1 hour):
  - Hydromechanical fuel control systems and FADEC (AM.III.I.K5, K6).
  - Review of key concepts and exam preparation.
  - Textbook: Chapter 2, Sections on fuel control systems.
- Lab (2 hours):
  - Lab L311.10: Locate procedures for turbine engine RPM overspeed inspection, adjusting hydromechanical fuel control unit, and removing/installing a turbine fuel control unit (AM.III.I.S11, S13, S14).
    - Activity: Use GE CF700 EMM to locate procedures for RPM overspeed, fuel control unit adjustment, and removal/installation.
    - Standard: Complete with 70% success rate.
  - Lab L311.11: Locate and identify turbine engine fuel heater and troubleshooting procedures (AM.III.I.S21, S26).
    - Activity: Use GE CF700 EMM and B727-200 AMM to identify fuel heater and complete a worksheet on troubleshooting procedures.
    - Standard: Complete with 70% success rate.
  - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge (AM.III.I.K1–K16), risk management (AM.III.I.R1–R5), and skills (AM.III.I.S1–S30).
  - Format: Written and practical problem-solving tasks.
  - Standard: Minimum passing grade of 70%.

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AMP312.2: Engine Exhaust and Reverser Systems

Course Overview

Course Code: AMP312.2
Course Title: Engine Exhaust and Reverser Systems
Total Contact Hours: 36 (12 Lecture, 24 Lab, including 1-hour final exam)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 3 Induction & Exhaust Systems

Assessment:

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Learning Objectives

- Understand the operation of exhaust and reverser systems.
- Perform maintenance and inspections on system components.
- Ensure proper function and safety of exhaust systems.

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AMP312.2 Day Schedule

Day 1: Introduction and Reciprocating Exhaust Systems

- Lecture (2 hours):
  - Overview of reciprocating engine exhaust system theory, components, operation, and inspection (AM.III.L.K1).
  - Risk management: Operation of reciprocating engines with exhaust system leaks and exhaust system failures (AM.III.L.R3, R4).
  - Textbook: Chapter 3, Sections on reciprocating exhaust systems.
- Lab (4 hours):
  - Lab L312.1 (Part 1): Identify the type of exhaust system, inspect reciprocating engine exhaust system, internal baffles, heat exchanger, and perform a pressure leak check (AM.III.L.S1, S3, S4, S5, S7).
    - Activity: Use Piper PA-32 or PA-46 AMM to begin identifying exhaust type, inspecting exhaust system components, and performing pressure leak check on assigned aircraft.
    - Standard: Progress toward 70% success rate.

Day 2: Reciprocating Exhaust Systems (Continued)

- Lecture (2 hours):
  - Noise suppression theory, components, and operation (mufflers, hush kits, augmenter tubes) (AM.III.L.K3).
  - Risk management: Maintenance and inspection of exhaust system components (AM.III.L.R1).
  - Textbook: Chapter 3, Sections on noise suppression.
- Lab (4 hours):
  - Lab L312.1 (Part 2): Complete identification of exhaust system type, inspection of reciprocating engine exhaust system, internal baffles, heat exchanger, and pressure leak check (AM.III.L.S1, S3, S4, S5, S7).
    - Activity: Finalize inspection and pressure leak check tasks using Piper PA-32 or PA-46 AMM.
    - Standard: Complete with 70% success rate.

Day 3: Turbine Exhaust Systems

- Lecture (2 hours):
  - Turbine engine exhaust system theory, components, operation, and inspection (AM.III.L.K2).
  - Textbook: Chapter 3, Sections on turbine exhaust systems.
- Lab (4 hours):
  - Lab L312.2: Inspect a turbine engine exhaust system component (AM.III.L.S2).
    - Activity: Use GE CF700 EMM or Garrett TPE331 EMM to inspect turbine engine exhaust system, including visual inspection of turbine wheels, exhaust shroud, and thrust reverser (if installed).
    - Standard: Complete with 70% success rate.

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Day 4: Thrust Reverser Systems

- Lecture (2 hours):
  - Thrust reverser theory, components, and operation (AM.III.L.K4).
  - Risk management: Operation of turbine engine reversing systems (AM.III.L.R2).
  - Textbook: Chapter 3, Sections on thrust reversers.
- Lab (4 hours):
  - Lab L312.3 (Part 1): Locate procedures for testing and troubleshooting a turbine thrust reverser system (AM.III.L.S6).
    - Activity: Use B737-800 AMM to begin answering worksheet questions on thrust reverser system operation, components, and troubleshooting procedures.
    - Standard: Progress toward 70% success rate.

Day 5: Thrust Reverser Systems (Continued)

- Lecture (2 hours):
  - Risk management: Ground operation of aircraft engines (AM.III.L.R5).
  - Review of exhaust and reverser system components and maintenance practices.
  - Textbook: Chapter 3, Relevant sections.
- Lab (4 hours):
  - Lab L312.3 (Part 2): Complete procedures for testing and troubleshooting a turbine thrust reverser system (AM.III.L.S6).
    - Activity: Finalize worksheet on thrust reverser system using B737-800 AMM, focusing on operation, components, and troubleshooting.
    - Standard: Complete with 70% success rate.

Day 6: Review and Final Exam

- Lecture (2 hours):
  - Review of key concepts: exhaust and reverser system operation, maintenance, inspection, and risk management.
  - Exam preparation.
  - Textbook: Chapter 3, Relevant sections.
- Lab (3 hours):
  - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
    - Activity: Review and repeat any necessary lab tasks from L312.1, L312.2, or L312.3 to ensure proficiency.
    - Standard: Complete with 70% success rate.
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge (AM.III.L.K1–K4), risk management (AM.III.L.R1–R5), and skills (AM.III.L.S1–S7).
  - Format: Written and practical problem-solving tasks.
  - Standard: Minimum passing grade of 70%.

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AMP312.2 Night Schedule

Day 1: Introduction to Exhaust Systems

- Lecture (1 hour):
  - Overview of reciprocating engine exhaust system theory, components, and operation (AM.III.L.K1).
  - Textbook: Chapter 3, Sections on reciprocating exhaust systems.
- Lab (3 hours):
  - Lab L312.1 (Part 1): Identify the type of exhaust system and inspect reciprocating engine exhaust system (AM.III.L.S1, S3).
    - Activity: Use Piper PA-32 or PA-46 AMM to begin identifying exhaust type and inspecting exhaust system components on assigned aircraft.
    - Standard: Progress toward 70% success rate.

Day 2: Reciprocating Exhaust Systems

- Lecture (1.5 hours):
  - Reciprocating engine exhaust system inspection and noise suppression (mufflers, hush kits) (AM.III.L.K1, K3).
  - Risk management: Operation of reciprocating engines with exhaust system leaks (AM.III.L.R3).
  - Textbook: Chapter 3, Sections on reciprocating exhaust systems and noise suppression.
- Lab (2.5 hours):
  - Lab L312.1 (Part 2): Inspect exhaust system internal baffles and heat exchanger (AM.III.L.S4, S5).
    - Activity: Continue inspection of internal baffles and heat exchanger using Piper PA-32 or PA-46 AMM.
    - Standard: Progress toward 70% success rate.

Day 3: Reciprocating Exhaust Systems (Continued)

- Lecture (1 hour):
  - Risk management: Exhaust system failures and maintenance/inspection of exhaust components (AM.III.L.R1, R4).
  - Textbook: Chapter 3, Sections on exhaust system maintenance.
- Lab (3 hours):
  - Lab L312.1 (Part 3): Perform a pressure leak check of a reciprocating engine exhaust system (AM.III.L.S7).
    - Activity: Complete pressure leak check and finalize exhaust system inspection tasks using Piper PA-32 or PA-46 AMM.
    - Standard: Complete with 70% success rate.

Day 4: Turbine Exhaust Systems

- Lecture (1.5 hours):
  - Turbine engine exhaust system theory, components, and operation (AM.III.L.K2).
  - Textbook: Chapter 3, Sections on turbine exhaust systems.

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- Lab (2.5 hours):
    - Lab L312.2 (Part 1): Inspect a turbine engine exhaust system component (AM.III.L.S2).
        - Activity: Use GE CF700 EMM or Garrett TPE331 EMM to begin inspecting turbine engine exhaust system, including turbine wheels and exhaust shroud.
        - Standard: Progress toward 70% success rate.

Day 5: Turbine Exhaust Systems (Continued)

- Lecture (1 hour):
    - Noise suppression components and operation (augmenter tubes) (AM.III.L.K3).
    - Textbook: Chapter 3, Sections on noise suppression.
- Lab (3 hours):
    - Lab L312.2 (Part 2): Complete inspection of turbine engine exhaust system component (AM.III.L.S2).
        - Activity: Finalize inspection of turbine wheels, exhaust shroud, and thrust reverser (if installed) using GE CF700 EMM or Garrett TPE331 EMM.
        - Standard: Complete with 70% success rate.

Day 6: Thrust Reverser Systems

- Lecture (1.5 hours):
    - Thrust reverser theory, components, and operation (AM.III.L.K4).
    - Textbook: Chapter 3, Sections on thrust reversers.
- Lab (2.5 hours):
    - Lab L312.3 (Part 1): Locate procedures for testing and troubleshooting a turbine thrust reverser system (AM.III.L.S6).
        - Activity: Use B737-800 AMM to begin answering worksheet questions on thrust reverser system operation, components, and troubleshooting procedures.
        - Standard: Progress toward 70% success rate.

Day 7: Thrust Reverser Systems (Continued)

- Lecture (1 hour):
    - Risk management: Operation of turbine engine reversing systems (AM.III.L.R2).
    - Textbook: Chapter 3, Sections on thrust reverser safety.
- Lab (3 hours):
    - Lab L312.3 (Part 2): Complete procedures for testing and troubleshooting a turbine thrust reverser system (AM.III.L.S6).
        - Activity: Finalize worksheet on thrust reverser system using B737-800 AMM, focusing on operation, components, and troubleshooting.
        - Standard: Complete with 70% success rate.

Day 8: Ground Operations and Review

- Lecture (1.5 hours):
    - Risk management: Ground operation of aircraft engines (AM.III.L.R5).
    - Review of exhaust and reverser system components and maintenance practices.

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    - Textbook: Chapter 3, Relevant sections.
- Lab (2.5 hours):
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
        - Activity: Review and repeat any necessary lab tasks from L312.1, L312.2, or L312.3 to ensure proficiency.
        - Standard: Complete with 70% success rate.

Day 9: Final Review and Exam

- Lecture (1.5 hours):
    - Review of key concepts: exhaust and reverser system operation, maintenance, inspection, and risk management.
    - Exam preparation.
    - Textbook: Chapter 3, Relevant sections.
- Lab (1.5 hours):
    - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
        - Activity: Final review of lab tasks to ensure proficiency.
        - Standard: Complete with 70% success rate.
- Final Exam (1 hour):
    - Comprehensive exam covering knowledge (AM.III.L.K1–K4), risk management (AM.III.L.R1–R5), and skills (AM.III.L.S1–S7).
    - Format: Written and practical problem-solving tasks.
    - Standard: Minimum passing grade of 70%.

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AMP313.2: Propellers

Course Overview

Course Code: AMP313.2
Course Title: Propellers
Total Contact Hours: 84 (24 Lecture, 60 Lab, including 1-hour final exam)
Prerequisite: Completion of APMI AMT General Program
Textbook: FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant, (FAA, 2023), Chapter 3 Induction & Exhaust Systems

Assessment:

- Lab Performance (50%): Evaluated based on accuracy and adherence to standards in lab activities. All labs must be completed and passed.
- Final Exam (50%): Comprehensive exam covering knowledge, risk management, and skills objectives, including practical problem-solving tasks. Minimum passing grade: 70%.

Learning Objectives

- Understand propeller design and operation.
- Perform maintenance, balancing, and inspections on propellers.
- Troubleshoot and repair propeller system issues.

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AMP313.2 Day Schedule

Day 1: Introduction to Propeller Systems

- Lecture (2 hours):
  Propeller theory, operation, and types (fixed-pitch, constant-speed) (AM.III.M.K1, K2).
  Textbook: Chapter 3, Sections on propeller systems.
- Lab (4 hours):
  Lab L313.1 (Part 1): Remove and install a propeller, check blade static tracking, and measure propeller blade angle (AM.III.M.S1, S2, S4).
  Activity: Use Piper PA-28 AMM and AC43.13-1B to begin removing and reinstalling a propeller and checking blade tracking on assigned aircraft.
  Standard: Progress toward 70% success rate.

Day 2: Propeller Installation and Tracking

- Lecture (2 hours):
  Pitch control and adjustment, propeller TCDS (AM.III.M.K3, K8).
  Risk management: Ground operation of propellers (AM.III.M.R1).
  Textbook: Chapter 3, Sections on pitch control and TCDS.
- Lab (4 hours):
  Lab L313.1 (Part 2): Complete removal/installation of a propeller, check blade static tracking, and measure propeller blade angle (AM.III.M.S1, S2, S4).
  Activity: Finalize propeller installation, measure blade angle, and complete tracking using Piper PA-28 AMM and AC43.13-1B.
  Standard: Complete with 70% success rate.

Day 3: Propeller Repair

- Lecture (2 hours):
  Propeller servicing, maintenance, and inspection requirements (AM.III.M.K6).
  Textbook: Chapter 3, Sections on propeller maintenance.
- Lab (4 hours):
  Lab L313.2 (Part 1): Repair an aluminum propeller blade and repair metal propeller leading/trailing edge damage (AM.III.M.S5, S10).
  Activity: Use an assigned propeller blade training aid to research acceptable repair limits and begin repairing leading/trailing edge damage.
  Standard: Progress toward 70% success rate.

Day 4: Propeller Repair (Continued)

- **Lecture (1 hour)**:
  - Risk management: Propeller maintenance and inspections (AM.III.M.R2).
  - Textbook: Chapter 3, Sections on maintenance safety.
- **Lab (5 hours)**:
  - **Lab L313.2 (Part 2)**: Complete repair of an aluminum propeller blade and leading/trailing edge damage (AM.III.M.S5, S10).
    - Activity: Finalize repair tasks on assigned propeller blade training aid, ensuring compliance with acceptable limits.
    - Standard: Complete with 70% success rate.

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Day 5: Propeller Balancing

- Lecture (2 hours):
  Procedures for balancing fixed-pitch propellers (AM.III.M.K7).
  Textbook: Chapter 3, Sections on propeller balancing.
- Lab (4 hours):
  Lab L313.3: Locate and explain procedures for balancing a fixed-pitch propeller (AM.III.M.S7).
  Activity: Use an assigned propeller training aid and static balancer to balance the propeller and explain the process.
  Standard: Complete with 70% success rate.

Day 6: Constant-Speed Propellers

- Lecture (2 hours):
  Constant-speed propeller and governor theory/operation (AM.III.M.K4).
  Textbook: Chapter 3, Sections on constant-speed propellers.
- Lab (4 hours):
  Lab L313.4 (Part 1): Inspect a propeller for condition/airworthiness, perform propeller lubrication, adjust propeller governor, identify range of operation, and determine acceptable minor alterations (AM.III.M.S3, S6, S8, S9, S11).
  Activity: Use Piper PA-32 Saratoga or PA-46 Malibu/Matrix AMM and TCDS to begin inspecting propeller, lubricating, and identifying operational range.
  Standard: Progress toward 70% success rate.

Day 7: Constant-Speed Propellers (Continued)

- Lecture (1 hour):
  Propeller synchronization systems (AM.III.M.K9).
  Textbook: Chapter 3, Sections on synchronization systems.
- Lab (5 hours):
  Lab L313.4 (Part 2): Complete inspection, lubrication, governor adjustment, range identification, and determination of acceptable minor alterations (AM.III.M.S3, S6, S8, S9, S11).
  Activity: Finalize propeller inspection, lubrication, governor adjustment, and TCDS analysis using Piper PA-32 or PA-46 AMM.
  Standard: Complete with 70% success rate.

Day 8: Propeller Ice Control

- Lecture (2 hours):
  - Propeller ice control systems (anti-icing/de-icing) (AM.III.M.K10).
  - Textbook: Chapter 3, Sections on ice control systems.
- **Lab (4 hours)**:
  - **Lab L313.5 (Part 1)**: Inspect and repair a propeller anti-icing or de-icing system (AM.III.M.S12).
    - Activity: Use Turbo Commander 690 AMM and TPE-331 EMM to begin inspecting and indicating repairs for the propeller de-icing system on Garrett TPE-331 training device.
    - Standard: Progress toward 70% success rate.

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Day 9: Propeller Ice Control (Continued)

- Lecture (1 hour):
  - Review of propeller ice control systems and maintenance considerations.
  - Textbook: Chapter 3, Sections on ice control maintenance.
- Lab (5 hours):
  - Lab L313.5 (Part 2): Complete inspection and repair of propeller anti-icing or de-icing system (AM.III.M.S12).
    - Activity: Finalize inspection and perform repairs on propeller de-icing system using Turbo Commander 690 AMM and TPE-331 EMM.
    - Standard: Complete with 70% success rate.

Day 10: Turbine Propeller Systems

- Lecture (2 hours):
  - Turbine engine propeller reverse/beta range operation (AM.III.M.K5).
  - Textbook: Chapter 3, Sections on turbine propeller systems.
- Lab (4 hours):
  - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
    - Activity: Review and repeat tasks from L313.1, L313.2, L313.3, L313.4, or L313.5 to ensure proficiency.
    - Standard: Complete with 70% success rate.

Day 11: Propeller Maintenance Review

- Lecture (2 hours):
  - Review of propeller servicing, maintenance, and inspection requirements (AM.III.M.K6).
  - Textbook: Chapter 3, Sections on maintenance practices.
- Lab (4 hours):
  - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
    - Activity: Continue practice or completion of lab tasks to ensure proficiency.
    - Standard: Complete with 70% success rate.

Day 12: Propeller System Operations

- Lecture (2 hours):
  - Review of propeller types, pitch control, and synchronization systems (AM.III.M.K2, K3, K9).
  - Textbook: Chapter 3, Sections on propeller types and synchronization.
- Lab (4 hours):
  - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
    - Activity: Continue practice or completion of lab tasks to ensure proficiency.
    - Standard: Complete with 70% success rate.

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Day 13: Final Review

- Lecture (2 hours):
  - Review of key concepts: propeller design, operation, maintenance, and risk management.
  - Exam preparation.
  - Textbook: Chapter 3, Relevant sections.
- Lab (4 hours):
  - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
    - Activity: Final review of lab tasks to ensure proficiency.
    - Standard: Complete with 70% success rate.

Day 14: Final Exam

- Lecture (1 hour):
  - Final review of key concepts and exam preparation.
  - Textbook: Chapter 3, Relevant sections.
- Lab (4 hours):
  - Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
    - Activity: Final practice of lab tasks to ensure proficiency.
    - Standard: Complete with 70% success rate.
- Final Exam (1 hour):
  - Comprehensive exam covering knowledge (AM.III.M.K1–K10), risk management (AM.III.M.R1–R2), and skills (AM.III.M.S1–S12).
  - Format: Written and practical problem-solving tasks.
  - Standard: Minimum passing grade of 70%.

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AMP313.2 Night Course Schedule

Day 1: Introduction to Propeller Systems

- Lecture (1.5 hours): Propeller theory, operation, and types (fixed-pitch, constant-speed) (AM.III.M.K1, K2).
  Textbook: Chapter 3, Sections on propeller systems.
- Lab (2.5 hours): Lab L313.1 (Part 1): Begin removal and installation of a propeller, check blade static tracking, and measure propeller blade angle (AM.III.M.S1, S2, S4).
  Activity: Use Piper PA-28 AMM and AC43.13-1B to start removing and reinstalling a propeller and checking blade tracking on assigned aircraft.
  Standard: Progress toward 70% success rate.

Day 2: Propeller Installation and Tracking

- Lecture (1 hour): Pitch control and adjustment, propeller TCDS (AM.III.M.K3, K8).
  Textbook: Chapter 3, Sections on pitch control and TCDS.
- Lab (3 hours): Lab L313.1 (Part 2): Continue removal/installation of a propeller, check blade static tracking, and measure propeller blade angle (AM.III.M.S1, S2, S4).
  Activity: Continue propeller installation and tracking tasks using Piper PA-28 AMM and AC43.13-1B.
  Standard: Progress toward 70% success rate.

Day 3: Propeller Installation and Tracking (Continued)

- Lecture (1 hour): Risk management: Ground operation of propellers (AM.III.M.R1).
  Textbook: Chapter 3, Sections on ground safety.
- Lab (3 hours): Lab L313.1 (Part 3): Finalize removal/installation of a propeller, check blade static tracking, and measure propeller blade angle (AM.III.M.S1, S2, S4).
  Activity: Complete propeller installation, measure blade angle, and finalize tracking using Piper PA-28 AMM and AC43.13-1B.
  Standard: Complete with 70% success rate.

Day 4: Propeller Repair

- Lecture (1.5 hours): Propeller servicing, maintenance, and inspection requirements (AM.III.M.K6).
  Textbook: Chapter 3, Sections on propeller maintenance.
- Lab (2.5 hours): Lab L313.2 (Part 1): Begin repair of an aluminum propeller blade and repair metal propeller leading/trailing edge damage (AM.III.M.S5, S10).
  Activity: Use an assigned propeller blade training aid to research acceptable repair limits and start repairing leading/trailing edge damage.
  Standard: Progress toward 70% success rate.

Day 5: Propeller Repair (Continued)

- Lecture (1 hour): Risk management: Propeller maintenance and inspections (AM.III.M.R2).
  Textbook: Chapter 3, Sections on maintenance safety.
- Lab (3 hours): Lab L313.2 (Part 2): Continue repair of an aluminum propeller blade and leading/trailing edge damage (AM.III.M.S5, S10).
  Activity: Advance repair tasks on assigned propeller blade training aid, ensuring compliance with

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acceptable limits.
Standard: Progress toward 70% success rate.

Day 6: Propeller Repair (Completion)

- Lecture (1 hour): Review of propeller repair techniques and standards.
  Textbook: Chapter 3, Sections on maintenance practices.
- Lab (3 hours): Lab L313.2 (Part 3): Complete repair of an aluminum propeller blade and leading/trailing edge damage (AM.III.M.S5, S10).
  Activity: Finalize repair tasks on assigned propeller blade training aid, ensuring compliance with acceptable limits.
  Standard: Complete with 70% success rate.

Day 7: Propeller Balancing

- Lecture (1.5 hours): Procedures for balancing fixed-pitch propellers (AM.III.M.K7).
  Textbook: Chapter 3, Sections on propeller balancing.
- Lab (2.5 hours): Lab L313.3 (Part 1): Begin locating and explaining procedures for balancing a fixed-pitch propeller (AM.III.M.S7).
  Activity: Use an assigned propeller training aid and static balancer to start balancing the propeller and explain the process.
  Standard: Progress toward 70% success rate.

Day 8: Propeller Balancing (Continued)

- Lecture (1 hour): Review of balancing procedures and standards.
  Textbook: Chapter 3, Sections on propeller balancing.
- Lab (3 hours): Lab L313.3 (Part 2): Complete balancing of a fixed-pitch propeller (AM.III.M.S7).
  Activity: Finalize balancing the propeller using an assigned propeller training aid and static balancer, ensuring proficiency.
  Standard: Complete with 70% success rate.

Day 9: Constant-Speed Propellers

- Lecture (1.5 hours): Constant-speed propeller and governor theory/operation (AM.III.M.K4).
  Textbook: Chapter 3, Sections on constant-speed propellers.

- **Lab (2.5 hours):** Lab L313.4 (Part 1): Begin inspecting a propeller for condition/airworthiness, perform propeller lubrication, adjust propeller governor, identify range of operation, and determine acceptable minor alterations (AM.III.M.S3, S6, S8, S9, S11).
  Activity: Use Piper PA-32 Saratoga or PA-46 Malibu AMM and TCDS to start inspecting propeller and lubricating.
  Standard: Progress toward 70% success rate.

Day 10: Constant-Speed Propellers (Continued)

- Lecture (1 hour): Propeller synchronization systems (AM.III.M.K9).
  Textbook: Chapter 3, Sections on synchronization systems.
- Lab (3 hours): Lab L313.4 (Part 2): Continue inspection, lubrication, governor adjustment, range identification, and determination of acceptable minor alterations (AM.III.M.S3, S6, S8, S9, S11).

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Activity: Advance tasks using Piper PA-32 or PA-46 AMM and TCDS.
Standard: Progress toward 70% success rate.

Day 11: Constant-Speed Propellers (Completion)

- Lecture (1 hour): Review of constant-speed propeller systems.
  Textbook: Chapter 3, Sections on constant-speed propellers.
- Lab (3 hours): Lab L313.4 (Part 3): Complete inspection, lubrication, governor adjustment, range identification, and determination of acceptable minor alterations (AM.III.M.S3, S6, S8, S9, S11).
  Activity: Finalize tasks using Piper PA-32 or PA-46 AMM and TCDS.
  Standard: Complete with 70% success rate.

Day 12: Propeller Ice Control

- Lecture (1.5 hours): Propeller ice control systems (anti-icing/de-icing) (AM.III.M.K10).
  Textbook: Chapter 3, Sections on ice control systems.
- Lab (2.5 hours): Lab L313.5 (Part 1): Begin inspecting and repairing a propeller anti-icing or de-icing system (AM.III.M.S12).
  Activity: Use Turbo Commander 690 AMM and TPE-331 EMM to start inspecting and indicating repairs for the propeller de-icing system on Garrett TPE-331 training device.
  Standard: Progress toward 70% success rate.

Day 13: Propeller Ice Control (Continued)

- Lecture (1 hour): Review of propeller ice control systems and maintenance considerations.
  Textbook: Chapter 3, Sections on ice control maintenance.
- Lab (3 hours): Lab L313.5 (Part 2): Continue inspection and repair of propeller anti-icing or de-icing system (AM.III.M.S12).
  Activity: Advance inspection and repair tasks using Turbo Commander 690 AMM and TPE-331 EMM.
  Standard: Progress toward 70% success rate.

Day 14: Propeller Ice Control (Completion)

- Lecture (1 hour): Final review of ice control systems.
  Textbook: Chapter 3, Sections on ice control maintenance.
- Lab (3 hours): Lab L313.5 (Part 3): Complete inspection and repair of propeller anti-icing or de-icing system (AM.III.M.S12).
  Activity: Finalize inspection and repairs on propeller de-icing system using Turbo Commander 690 AMM and TPE-331 EMM.
  Standard: Complete with 70% success rate.

Day 15: Turbine Propeller Systems

- Lecture (1.5 hours): Turbine engine propeller reverse/beta range operation (AM.III.M.K5).
  Textbook: Chapter 3, Sections on turbine propeller systems.

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- Lab (2.5 hours): Open lab for practice or make-up of any incomplete labs (all labs must be completed and passed).
  Activity: Review and repeat tasks from L313.1, L313.2, L313.3, L313.4, or L313.5 to ensure proficiency.
  Standard: Complete with 70% success rate.

Day 16: Propeller Maintenance Review

- Lecture (1.5 hours): Review of propeller servicing, maintenance, and inspection requirements (AM.III.M.K6).
  Textbook: Chapter 3, Sections on maintenance practices.
- Lab (2.5 hours): Open lab for practice or make-up of any incomplete labs.
  Activity: Continue practice or completion of lab tasks to ensure proficiency.
  Standard: Complete with 70% success rate.

Day 17: Propeller System Operations

- Lecture (1.5 hours): Review of propeller types, pitch control, and synchronization systems (AM.III.M.K2, K3, K9).
  Textbook: Chapter 3, Sections on propeller types and synchronization.
- Lab (2.5 hours): Open lab for practice or make-up of any incomplete labs.
  Activity: Continue practice or completion of lab tasks to ensure proficiency.
  Standard: Complete with 70% success rate.

Day 18: Propeller System Operations (Continued)

- Lecture (1 hour): Review of propeller system operations and risk management.
  Textbook: Chapter 3, Relevant sections.
- Lab (3 hours): Open lab for practice or make-up of any incomplete labs.
  Activity: Continue practice or completion of lab tasks to ensure proficiency.
  Standard: Complete with 70% success rate.

Day 19: Final Review

- Lecture (1.5 hours): Review of key concepts: propeller design, operation, maintenance, and risk management. Exam preparation.
  Textbook: Chapter 3, Relevant sections.
- Lab (2.5 hours): Open lab for practice or make-up of any incomplete labs.
  Activity: Final review of lab tasks to ensure proficiency.
  Standard: Complete with 70% success rate.

Day 20: Final Review (Continued)

- Lecture (1.5 hours): Final review of key concepts and exam preparation.
  Textbook: Chapter 3, Relevant sections.

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- Lab (2.5 hours): Open lab for practice or make-up of any incomplete labs.
  Activity: Final practice of lab tasks to ensure proficiency.
  Standard: Complete with 70% success rate.

Day 21: Final Exam

- Lecture (1 hour): Final review of key concepts and exam preparation.
  Textbook: Chapter 3, Relevant sections.
- Lab (2 hours): Open lab for final practice or make-up of any incomplete labs.
  Activity: Final practice of lab tasks to ensure proficiency.
  Standard: Complete with 70% success rate.
- Final Exam (1 hour): Comprehensive exam covering knowledge (AM.III.M.K1–K10), risk management (AM.III.M.R1–R2), and skills (AM.III.M.S1–S12).
  Format: Written and practical problem-solving tasks.
  Standard: Minimum passing grade of 70%

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AMP-RE Powerplant Review and Exam

Course Overview

- Course Codes: AMP-RE (Powerplant Review and Exam)
- Course Titles: Powerplant Review and Exam
- Total Contact Hours: 24(24 Lecture, 0 Lab, including 2-hour AMP-RE final exam)
- Prerequisites:
  - AMP-RE: Completion of all AMP courses (AMP301 to AMP313)
- Textbook**:** FAA-H-8083-32B Aviation Maintenance Technician Handbook-Powerplant (FAA, 2023)

Learning Objectives

- AMP-RE:
  - Synthesize knowledge from all AMP courses (AMP301 to AMP313).
  - Demonstrate mastery of powerplant maintenance concepts.
  - Successfully complete the program's final examination.

Assessments

  - AMP-RE:
    - Powerplant Program Final Exam (25% of total Powerplant Program Grade): 100-question multiple-choice exam covering all required knowledge for the Powerplant program. Minimum passing grade: 70%.

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AMP-RE Day Schedule

Day 1: Powerplant Review (AMP-RE)

- Lecture (6 hours): Comprehensive review of AMP301.1 (Reciprocating Engines), AMP302.1 (Engine Inspection), and AMP303.1 (Engine Electrical Systems).
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to reciprocating engines, inspections, and electrical systems.
  Standard: Progress toward mastery of Powerplant program knowledge.

Day 2: Powerplant Review (AMP-RE)

- Lecture (6 hours): Comprehensive review of AMP304.1 (Turbine Engines), AMP305.1 (Engine Fire Protection Systems), and AMP306.1 (Turbine Engine Air Systems).
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to turbine engines, fire protection, and air systems.
  Standard: Progress toward mastery of Powerplant program knowledge.

Day 3: Powerplant Review (AMP-RE)

- Lecture (6 hours): Comprehensive review of AMP307.2 (Engine Lubrication Systems), AMP308.2 (Reciprocating Engine Induction and Cooling Systems), AMP309.2 (Ignition and Starting Systems), and AMP310.2 (Engine Instrument Systems).
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to lubrication, induction, cooling, ignition, starting, and instrument systems.
  Standard: Progress toward mastery of Powerplant program knowledge.

Day 4: Powerplant Review and Final Exam (AMP-RE)

- Lecture (4 hours): Comprehensive review of AMP311.2 (Engine Fuel and Fuel Metering Systems), AMP312.2 (Engine Exhaust and Reverser Systems), and AMP313.2 (Propellers). Final exam preparation.
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to fuel systems, exhaust systems, and propellers.
  Standard: Progress toward mastery of Powerplant program knowledge.
- Final Exam (2 hours): 100-question multiple-choice exam covering all required knowledge for the Powerplant program (AMP301 to AMP313).
  Format: Multiple-choice.
  Standard: Minimum passing grade of 70%.

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AMP-RE Night Schedule

Day 1: Powerplant Review

- Lecture (4 hours): Comprehensive review of AMP301.1 (Reciprocating Engines) and AMP302.1 (Engine Inspection).
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to reciprocating engines and inspections.
  Standard: Progress toward mastery of Powerplant program knowledge.

Day 2: Powerplant Review

- Lecture (4 hours): Comprehensive review of AMP303.1 (Engine Electrical Systems) and AMP304.1 (Turbine Engines).
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to electrical systems and turbine engines.
  Standard: Progress toward mastery of Powerplant program knowledge.

Day 3: Powerplant Review

- Lecture (4 hours): Comprehensive review of AMP305.1 (Engine Fire Protection Systems) and AMP306.1 (Turbine Engine Air Systems).
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to fire protection and air systems.
  Standard: Progress toward mastery of Powerplant program knowledge.

Day 4: Powerplant Review

- Lecture (4 hours): Comprehensive review of AMP307.2 (Engine Lubrication Systems) and AMP308.2 (Reciprocating Engine Induction and Cooling Systems).
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to lubrication, induction, and cooling systems.
  Standard: Progress toward mastery of Powerplant program knowledge.

Day 5: Powerplant Review

- Lecture (4 hours): Comprehensive review of AMP309.2 (Ignition and Starting Systems) and AMP310.2 (Engine Instrument Systems).
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to ignition, starting, and instrument systems.
  Standard: Progress toward mastery of Powerplant program knowledge.

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Day 6: Powerplant Review and Final Exam

- Lecture (2 hours): Comprehensive review of AMP311.2 (Engine Fuel and Fuel Metering Systems), AMP312.2 (Engine Exhaust and Reverser Systems), and AMP313.2 (Propellers). Final exam preparation.
  Textbook: FAA-H-8083-32B, Relevant chapters.
  Activity: Synthesize key concepts, address knowledge gaps, and practice sample questions related to fuel systems, exhaust systems, and propellers.
  Standard: Progress toward mastery of Powerplant program knowledge.
- Final Exam (2 hours): 100-question multiple-choice exam covering all required knowledge for the Powerplant program (AMP301 to AMP313).
  Format: Multiple-choice.
  Standard: Minimum passing grade of 70%.

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End of APMI Curriculum Manual

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