CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

CA Syllabi Revision Table

Course Sequence	FAA Subject Reference	CA Course Name	Revision Number	Revision Date
1	FAA-ACS-AM-IF-GOS	Safety, Ground Operation, and Servicing	2	20261026
2	FAA-ACS-AM-IK-HTM	Hand Tools and Measuring Devices	3	20261026
3	FAA-ACS-AM-IH-MAT	Mathematics	1	20261026
4	FAA-ACS-AM-IJ-PFA	Physics for Aviation	1	20261026
5	FAA-ACS-AM-IB-ACD	Aircraft Drawings	1	20261026
6	FAA-ACS-AM-IC-WAB	Weight and Balance	1	20261026
7	FAA-ACS-AM-II-MIR	Maintenance and Inspection Regulations	4	20261026
8	FAA-ACS-AM-ID-FLF	Fluid Lines and Fittings	3	20261026
9	FAA-ACS-AM-IE-MHP	Materials, Inspections, Hardware, and Processes	4	20261026
10	FAA-ACS-AM-IG-CCC	Cleaning and Corrosion Control	2	20261026
11	FAA-ACS-AM-IA-FEE	Fundamentals of DC Electricity	1	20261026
12	FAA-ACS-AM-IA-FEE	Fundamentals of AC Electricity	1	20261026

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Safety, Ground Operations, and Servicing Syllabus

About The Course:

The Ground Operations and Servicing course is designed to align with the general knowledge and skill requirements outlined in the Federal Aviation Administration's Mechanic Airman Certification Standards.

This course will help you learn important safety policies and procedures for aircraft ground operations and servicing. You will learn safety practices for shop, flight line, and fire protection environments, including electricity, compressed gases, hazardous materials, machine tools, FOD prevention, aircraft movement, and fire extinguisher use. You will also learn proper tiedown procedures for different types of aircraft. Ground movement procedures, including engine starting, towing, taxiing, standard hand signals, and control tower light signals, are also reviewed. Finally, you will learn about aircraft servicing, including oil, hydraulic fluids, ground support equipment, oxygen systems, deicing, fueling, grounding, bonding, and defueling.

The information in this course is intended as a general guide for safety, ground operations, and aircraft servicing. Always review and follow the applicable aircraft, equipment, and workplace manuals before performing any ground operation, servicing, or maintenance task.

Couse Number: FAA-ACS-AM-IF-GOS

ACS Reference: Ground Operations and Servicing (AM.I.F)

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 02/15/22

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Identify common procedures and practices for shop safety, flight line safety, and fire protection.
2. Describe safe aircraft ground operations, including tiedown, engine starting, towing, taxiing, and shutdown procedures.
3. Identify standard hand signals and control tower light signals used during aircraft ground operations.
4. Identify precautions and procedures for servicing aircraft fluids, ground power units, oxygen systems, and deicing systems.
5. Describe precautions and procedures for fueling, grounding, bonding, and defueling an aircraft.

Module 1: Shop and Flight Line Safety and Fire Protection

- Lesson 1.1 – Shop and Flightline Safety
- Lesson 1.2 – Fire Protection

Module 2: Tiedown Procedures and Ground Movement of Aircraft

- Lesson 2.1 – Tiedown Procedures
- Lesson 2.2 – Ground Movement of Aircraft

Module 3: Aircraft and Fuel Servicing Servicing

- Lesson 3.1 – Servicing Aircraft
- Lesson 3.2 – Fuel Servicing of Aircraft

SkilRedi simulations included in this course:

- Foreign object debris
- Aircraft tiedown procedures
- Aircraft Towing
- Reciprocating aircraft startup
- Reciprocating aircraft shutdown
- Connecting external power

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Hands on labs

- Skill Stations

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 02/15/22

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Hand Tools and Measuring Devises Course Syllabus

About The Course:

The Hand Tools and Measuring Devices course was developed in alignment with the general knowledge and skill requirements set forth in the Federal Aviation Administration's Mechanic Airman Certification Standards.

The course is divided into three modules and introduces the hand tools and measuring devices used by aviation maintenance technicians during routine and special maintenance tasks. Topics include common hand tools, metal cutting and shaping tools, drilling and thread preparation tools, and measuring and marking devices. Each lesson provides a deeper understanding of each tool's purpose, proper use, limitations, care, storage, and application in aviation maintenance tasks.

This course establishes a working knowledge of the skills required to safely and accurately use hand tools and measuring devices when maintaining aircraft. Technicians will learn how to select appropriate tools, perform basic measuring and marking tasks, support fabrication and installation procedures, and prevent damage to tools, materials, fasteners, and aircraft components.

The information in this course serves as a general guide for the proper use, application, care, and safety of common hand tools and measuring devices used by aviation maintenance technicians. Manuals for specific aircraft, equipment, and tools should always be reviewed and understood before performing any operation.

Couse Number: FAA-ACS-AM-IK-HTM

ACS Reference: N/A (No specific ACS General subjects cover this topic)

Revision Number: 03

Revision Date: 10/26/26

Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Identify common hand tools used by aviation maintenance technicians to perform routine maintenance, repairs, and installations.
2. Describe the proper use, care, storage, and safety practices for common hand tools and measuring devices.
3. Select appropriate tools for striking, turning, gripping, cutting, shaping, drilling, measuring, marking, and thread preparation tasks.
4. Identify common measuring and marking tools used to perform maintenance, repairs, fabrication, and installations with accuracy.
5. Explain how correct tool selection and proper technique help prevent damage to tools, materials, fasteners, and aircraft components.

Module 1: General Purpose Hand Tools

- Lesson 1.1 – Hammers and Screwdrivers
- Lesson 1.2 – Pliers, Punches, and Wrenches

Module 2: Metal Cutting Tools

- Lesson 2.1 – Hand Snips and Hacksaws
- Lesson 2.2 – Chisels and Files
- Lesson 2.3 – Drills
- Lesson 2.4 – Hole and Bolt Preparation Tools

Module 3: Layout and Measuring Tools

- Lesson 3.1 – Measuring and Marking Tools

SkilRedi simulations included in this course:

- n/a

Hands on labs

- Tool Recognition
- Use of Precision Measurement Tools

Revision Number: 03

Revision Date: 10/26/26

Original Issue Date: 07/13/21

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 03

Revision Date: 10/26/26

Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Mathematics Syllabus

Summary: The Mathematics for Aviation course is designed to align with the general knowledge and skill requirements outlined in the Federal Aviation Administration's Mechanic Airman Certification Standards.

This course helps learners review foundational mathematics concepts that aviation maintenance technicians routinely use in their work. Topics include whole numbers, positive and negative integers, fractions, decimals, rounding, ratios, proportions, percentages, powers, roots, and scientific notation. Learners will also review algebra, geometry, trigonometry, measurement systems, unit conversions, and binary notation as they apply to aircraft maintenance tasks.

Couse Number: FAA-ACS-AM-IH-MAT

ACS Reference: Mathematics (AM.I.F)

Revision Number: 01

Revision Date: 10/26/26

Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Describe and apply basic mathematical operations using whole numbers, positive and negative integers, fractions, decimals, and mixed numbers.
2. Convert between fractions, decimals, and percentages, and round values to the required level of precision.
3. Solve aviation maintenance problems involving ratios, proportions, percentages, powers, roots, and scientific notation.
4. Apply algebraic operations, formulas, and order of operations to solve maintenance-related problems.
5. Calculate area, volume, and surface area for common two-dimensional and three-dimensional shapes used in aviation examples.
6. Apply basic trigonometry and the Pythagorean Theorem to solve right-triangle measurement problems.
7. Explain conventional and metric measurement systems and perform common unit conversions.
8. Describe binary notation and convert values between binary and decimal systems.

Module 1: Basic Math

- Lesson 1.1 – Whole Numbers
- Lesson 1.2 – Fractions and Mixed Numbers
- Lesson 1.3 – The Decimal Number System
- Lesson 1.4 – Ratios and Proportions
- Lesson 1.5 – Percentages
- Lesson 1.6 – Powers, Exponents, and Roots
- Lesson 1.7 – Number Charts and Scientific notation

Module 2: Advanced Math

- Lesson 2.1 - Algebra
- Lesson 2.2 – Computing Area of Two-Dimensional Solids
- Lesson 2.3 – Computing Volume of Three-Dimensional Solids
- Lesson 2.4 – Computing Surface Area of Three-Dimensional Solids

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

- Lesson 2.5 – Trigonometric Functions
- Lesson 2.6 – Measurement Systems and the Binary Number System

SkilRedi simulations included in this course:

- n/a

Hands on labs

- Skill Stations

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Physics for Aviation Syllabus

About The Course:

The Physics for Aviation course was developed in alignment with the FAA Airman Certification Standards and provides the general knowledge, risk management, and skill elements required for aviation physics.

The course is divided into four modules that cover a range of topics, including matter, energy, force, work, power, torque, simple machines, stress and strain, motion, heat, pressure, gas laws, fluid mechanics, sound, the atmosphere, and theory of flight. Learning centers on physics principles that are routinely used by aviation maintenance technicians in their work. Each lesson provides a deeper understanding of these topics and the associated principles, laws, and theories, as well as the factors that affect aircraft systems, structures, and engine performance.

Lastly, this course establishes a working knowledge of various skills required by technicians to support and maintain aircraft, including temperature unit conversion, calculating density and pressure altitude, horsepower, force, area, pressure, work, power, torque, and mechanical advantage in aviation maintenance applications.

Couse Number: FAA-ACS-AM-IJ-PFA

ACS Reference: Physics (AM.I.J)

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Describe and recognize the types of matter, energy, and simple machines.
2. Explain the differences between force, work, power, and torque.
3. Calculate work, power, and torque in given situations, as well as the mechanical advantage created through the use of simple machines.
4. Describe the different types of stress, motion, heat, pressure, and gas laws and explain how their characteristics affect aircraft.
5. Calculate and convert between different temperature scales and pressure types and apply them to gas law calculations.
6. Discuss how the characteristics of fluid mechanics, sound, and the atmosphere affect aircraft.
7. Apply Pascal's Law to a given situation.
8. Correctly interpret data and graphs related to atmospheric effects on aircraft and engine performance.
9. Explain the theory of lift, related terminology, and the four forces of flight.
10. Locate and identify various types of airfoils, planforms, and primary and secondary flight control devices that control fixed-wing and rotorcraft aircraft about their three axes.

Module 1: Matter, Energy, and Simple Machines

- Lesson 1.1 – Matter
- Lesson 1.2 – Energy
- Lesson 1.3 – Force, Work, Power, and Torque
- Lesson 1.4 – Simple Machines

Module 2: Stress, Motion, Heat, Pressure, and Gas

- Lesson 2.1 – Stress and Strain
- Lesson 2.2 – Motion
- Lesson 2.3 – Heat
- Lesson 2.4 – Pressure
- Lesson 2.5 – Gas Laws

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Module 3: Fluid Mechanics, Sound, and the Atmosphere

- Lesson 3.1 – Fluid Mechanics
- Lesson 3.2 – Sound
- Lesson 3.3 – Atmosphere in Aircraft and Engine Performance

Module 4: Theory of Flight

- Lesson 4.1 – Theory of Flight Part One
- Lesson 4.2 – Theory of Flight Part Two
- Lesson 4.3 – Theory of Flight Part Three

SkilRedi simulations included in this course:

- Reading pressure altitude
- Reading density altitude
- Density altitude impact on engine performance
- Density altitude impact on aircraft performance
- Connecting external power

Hands on labs

- Explore Mechanical Advantages in Levers
- Explore Mechanical Advantages in Pulleys
- Explore Mechanical Advantages in Inclined Planes
- Calculate Force, Area, and Pressure

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Aircraft Drawings Syllabus

About The Course:

The Aircraft Drawings course is designed to align with the general knowledge and skill requirements set forth in the Federal Aviation Administration's Mechanic Airman Certification Standards.

This course helps learners understand how aviation information is communicated through drawings, schematics, diagrams, flowcharts, charts, graphs, sketches, and images. Learners will interpret lines, symbols, notes, tables, and other drawing data used in aircraft maintenance documents.

The course also introduces methods for creating, reading, storing, and accessing aircraft drawings and related visual information. By the end of the course, learners will understand the role of drawings in aircraft manufacturing, inspection, maintenance, and repair.

Couse Number: FAA-ACS-AM-IB-ACD

ACS Reference: Aircraft Drawings (AM.I.B)

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Identify the importance of geometry, applied geometry, aircraft drawings, diagrams, and flowcharts.
2. Compare and contrast detail, assembly, installation, sectional view, orthographic projection, pictorial, perspective, isometric, oblique, and exploded-view drawings.
3. Recognize information found on aircraft drawings, such as the title block, bill of materials, revision block, universal numbering system, and scale.
4. Compare and contrast installation, schematic, block, and wiring diagrams, as well as logic and troubleshooting flowcharts.
5. Describe how to create and use a sketch.
6. Identify the appearance and meaning of various lines and symbols used in aircraft drawings.
7. Describe how graphs, charts, and nomographs display information.
8. Explain how to properly care for drafting instruments.
9. Discuss computer technologies used in the creation, review, storage, and access of aircraft drawings.

Module 1: Computer Graphics and Aviation Drawings

- Lesson 1.1 – Introduction to Aircraft Drawings
- Lesson 1.2 – Types of Drawings
- Lesson 1.3 – Title Blocks and Universal Numbering System
- Lesson 1.4 – Bill of Material and Other Drawing Data

Module 2: Illustration Methods and Meanings of Symbols

- Lesson 2.1 – Methods of Illustration: Orthographic Projections and Drawings
- Lesson 2.2 – Methods of Illustration: Diagrams and Flowcharts
- Lesson 2.3 – Lines and Symbols in Drawings

Module 3: Reading, Interpreting, and Storing Drawings

- Lesson 3.1 – Interpreting Drawings and Sketches
- Lesson 3.2 – Equipment, Visual Data, and Storage

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

SkilRedi simulations included in this course:

- Aircraft drawing identification
- Creating a repair sketch

Hands on labs

- Aircraft Drawings
- Build-a-Plane

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Weight and Balance Syllabus

About The Course:

The Weight and Balance course aligns with the general knowledge and skill requirements established by the Federal Aviation Administration (FAA) and the Aviation Mechanic Airman Certification Standards (ACS).

This course provides a comprehensive understanding of how aircraft weight, loading, and balance affect safety, performance, and regulatory compliance. Learners will explore foundational weight and balance concepts, key terminology, procedures for weighing aircraft, and methods for calculating center of gravity in both empty and loaded conditions.

Building on this foundation, the course introduces applied weight and balance procedures, including preparing aircraft for weighing, using appropriate weighing equipment and documents, performing forward and aft extreme condition checks, calculating ballast requirements, and using loading graphs and center of gravity envelopes to verify safe operating limits. Learners will also examine FAA recordkeeping requirements and special weight and balance considerations for helicopters and large airplanes.

By the end of this course, learners will have the knowledge and calculation skills needed to perform, evaluate, correct, and document aircraft weight and balance procedures accurately, safely, and in compliance with regulatory standards.

Couse Number: FAA-ACS-AM-IC-WAB

ACS Reference: Weight and Balance (AM.I.C)

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Explain the principles, terminology, and safety importance of aircraft weight and balance.
2. Identify and use appropriate scales, weighing equipment, and documents, including the Type Certificate Data Sheet, for aircraft weighing operations.
3. Prepare an aircraft for weighing and perform calculations to determine empty weight and empty weight center of gravity.
4. Use four-column and six-column charts to calculate weight, moments, and center of gravity in empty, loaded, and equipment-change conditions.
5. Determine an aircraft's airworthiness by comparing calculated weight and center of gravity values to approved limits.
6. Perform forward and aft extreme condition checks to assess safe loading boundaries.
7. Calculate ballast requirements and apply corrections when center of gravity falls outside allowable limits.
8. Use loading graphs and CG envelopes to verify that loaded aircraft conditions fall within approved operating limits.
9. Perform weight and balance calculations for helicopters, including longitudinal and lateral center of gravity.
10. Perform weight and balance calculations for large airplanes, including determining center of gravity as a percentage of Mean Aerodynamic Chord (%MAC).
11. Maintain accurate and current FAA-required weight and balance records after modifications, alterations, or equipment changes.

Module 1: Weight and Balance Control

- Lesson 1.1 – Aircraft Weight and Balance
- Lesson 1.2 – Need and Requirements for Aircraft Weighing
- Lesson 1.3 – Weight and Balance Terminology

Module 2: Procedures for Weight and Balance

- Lesson 2.1 -General Concepts

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

- Lesson 2.2 – Weight and Balance Data
- Lesson 2.3 – Weight and Balance Equipment
- Lesson 2.4 – Preparing an Aircraft for Weighing
- Lesson 2.5 – Aircraft Jacking

Module 3: Loading and Extreme Conditions

- Lesson 3.1 – Weighing the Aircraft
- Lesson 3.2 – Center of Gravity Range and Envelope
- Lesson 3.3 – Loading an Aircraft for Flight
- Lesson 3.4 – Weight and Balance Extreme Conditions
- Lesson 3.5 – Equipment Change and Aircraft Alteration
- Lesson 3.6 – The Use of Ballast

Module 4: Graphs, Records, and Other Considerations

- Lesson 4.1 – Loading Graphs and CG Envelopes
- Lesson 4.2 – Helicopter Weight and Balance
- Lesson 4.3 – Weight and Balance for Large Airplanes
- Lesson 4.4 – Weight and Balance Records

SkilRedi Simulations included in this course:

- Identify Terms of the Aircraft
- Aircraft Weighing

Hands on labs

- Research Project
- Weigh-a-Plane

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 02/15/22

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Maintenance and Inspection Regulations Course Syllabus

About The Course: This course was developed in alignment with the FAA Airman Certification Standards and supports the general knowledge, risk management, and skill elements related to maintenance, inspections, and regulations.

The course is divided into four modules. Learners will study the privileges and limitations of FAA-certificated mechanics and repairmen, the requirements for performing maintenance and inspections, the use of required publications and documentation, maintenance records, product and part certification standards, Light-Sport Aircraft maintenance requirements, ethics, professionalism, and human factors in aviation maintenance.

Couse Number: FAA-ACS-AM-II-MIR

ACS Reference: Regulations, Maintenance Forms, Records, and Publications (AM.I.I)
Human Factors (AM.I.L)

Revision Number: 04
Revision Date: 10/26/26
Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Describe the privileges and limitations of FAA-certificated mechanics, repairmen, and Inspection Authorization holders.
2. Use required publications, documentation, forms, and records to support maintenance and inspection activities.
3. Identify certification, identification, marking, and approval standards that apply to aircraft products and parts.
4. Explain ethical standards, professionalism, and human factors approaches used to identify and reduce risks in aviation maintenance.

Module 1: Maintenance, Inspections, and Mechanic Privileges

- Lesson 1.1 – Overview of the Maintenance Technician
- Lesson 1.2 – Title 14 Overview
- Lesson 1.3 – Maintenance Related Regulations
- Lesson 1.4 – Mechanic Certification – General
- Lesson 1.5 – Mechanic Certification – Specific
- Lesson 1.6 – Inspection Authorization
- Lesson 1.7 – FAR Part 43 Maintenance, Preventive Maintenance, Rebuilding, and Alteration
- Lesson 1.8 – FAR Part 91 General Operating and Flight Rules

Module 2: Performing and Recording Maintenance and Inspections

- Lesson 2.1 – Types of Inspections
- Lesson 2.2 – Special Inspections and Permits
- Lesson 2.3 – Inspection Preparation, Logs, and Checklists
- Lesson 2.4 – Publications
- Lesson 2.5 – FAA and Non-FAA Documents
- Lesson 2.6 – Forms
- Lesson 2.7 – Records

Module 3: Products, Parts and LSA Maintenance

- Lesson 3.1 – Parts Certification Regulations
- Lesson 3.2 – Control of Parts

Revision Number: 04
Revision Date: 10/26/26
Original Issue Date: 07/13/21

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

- Lesson 3.3 – Light Sport Aircraft (LSA) Maintenance

Module 4: Maintenance Ethics and Human Factors

- Lesson 4.1 – Ethical Decision-Making for Aviation Technicians
- Lesson 4.2 – The Importance and History of Human Factors
- Lesson 4.3 – Current Approaches in Human Factors

SkilRedi simulations included in this course:

- n/a

Hands on labs

- n/a

Revision Number: 04
Revision Date: 10/26/26
Original Issue Date: 07/13/21

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 04
Revision Date: 10/26/26
Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Materials, Inspection, Hardware, and Processes Course Syllabus

About The Course:

The Aircraft Materials, Hardware, and Processes course is designed to align with the general knowledge and skill requirements outlined in the Federal Aviation Administration's Mechanic Airman Certification Standards.

This course introduces important materials, processes, inspection methods, and hardware used in aircraft maintenance. You will learn about aircraft metals, nonmetallic materials, material properties, metalworking processes, nondestructive inspection methods, precision measuring tools, aircraft hardware, control cables, shock absorber cords, seals, welding, weld inspection, soldering, and crimping. You will also learn about proper installation, torque application, safetying practices, and the importance of following approved maintenance procedures.

The information in this course is intended as a general guide for aircraft materials, processes, inspections, and hardware. Always review and follow the specific aircraft manufacturer's manuals and approved maintenance data before performing any aircraft maintenance or repair.

Couse Number: FAA-ACS-AM-IE-MHP

ACS Reference: Aircraft Materials, Hardware and Processes (AM.I.E)
Inspection Concepts and Techniques (AM.I.K)

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 07/13/21

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Identify common aircraft metals, nonmetallic materials, and their properties.
2. Describe common metalworking and heat treatment processes used in aircraft maintenance.
3. Identify common nondestructive inspection methods and explain their use in evaluating aircraft components.
4. Identify precision measuring tools and explain their use in inspection practices.
5. Identify aircraft hardware, including fasteners, rivets, screws, cables, shock absorber cords, seals, and sealing compounds.
6. Describe proper practices for installing, torquing, reusing, and safetying aircraft hardware.
7. Identify common welding and soldering processes used in aviation maintenance.
8. Describe basic weld inspection criteria and explain how soldering and crimping are used in aircraft electrical systems.

Module 1: Aircraft Metals and Non-Metallic Materials

- Lesson 1.1 – Properties and Types of Metals
- Lesson 1.2 – Metal Working Processes
- Lesson 1.3 – Nonmetallic Aircraft Materials

Module 2: Inspection Techniques

- Lesson 2.1 – Nondestructive Inspection Concepts and Techniques
- Lesson 2.2 – Visual and Liquid Penetrant Inspection
- Lesson 2.3 – Ultrasonic and Acoustic Inspection
- Lesson 2.4 – Magnetic Inspection Tools
- Lesson 2.5 – Radiographic Inspection Tools
- Lesson 2.6 – Composite Material Inspection
- Lesson 2.7 – Calipers and Micrometers

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 07/13/21

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Module 3: Aircraft Hardware

- Lesson 3.1 – Threaded Fasteners - Bolts, Nuts, and Washers
- Lesson 3.2 – Rivets, Screws, & Safetying Methods
- Lesson 3.3 – Aircraft Control Cables and Fittings
- Lesson 3.4 – Shock Absorber Cords and Seals

Module 4: Welding and Soldering

- Lesson 4.1 – Welding
- Lesson 4.2 – Weld Inspection
- Lesson 4.3 – Soldering

SkilRedi simulations included in this course:

- Dye Penetrant
- Micrometer
- Safety Wiring

Hands on labs

- Safety Wire
- Hardware Identification

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 07/13/21

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Fluid Lines and Fittings Course Syllabus

About The Course:

The Fluid Lines and Fittings course is designed to align with general knowledge and skill requirements set forth in Federal Aviation Administration's Mechanic Airman Certification Standards.

This course will help the learner to identify the common materials, applications, preparation, installation and repair of rigid and flexible fluid lines used in the various pressurized fluid systems in an aircraft. Learners will learn about the proper material and fitting selection as well as proper preparation methods for fabrication and repair of rigid fluid lines. Furthermore, learners will also gain an understanding of the various aspects of proper rigid and flexible hose assembly installation. This knowledge is necessary for the technician's ability to properly inspect, maintain, and repair of an airplane's various fluid lines to ensure reliable operation of the various fluid systems during flight.

Couse Number: FAA-ACS-AM-ID-FLF

ACS Reference: Fluid Lines and Fittings (AM.I.D)

Revision Number: 03
Revision Date: 10/26/26
Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Identify the common materials, types, sizes, and construction categories used in rigid and flexible fluid line assemblies, and discuss their characteristics, applications, and compatibility concerns.
2. Choose the appropriate rigid tube or flexible hose material, size, and fittings based on fluid type, pressure, vibration, heat, movement, and environmental exposure.
3. Apply the correct repair or replacement method for leaky, faulty, or failed rigid tube and flexible hose fittings.
4. Inspect fluid line assemblies and installations for signs of damage or failure and determine whether repair is permitted or replacement is required.
5. Evaluate and identify the correct fabrication procedure for replacement rigid tube or flexible hose assemblies, including material selection, cutting, bending, flaring, beading, fitting preparation, assembly, and testing requirements.
6. Identify correct installation practices for rigid tube and flexible hose assemblies, including proper support, clearance, slack, flex, bend radius, alignment, and absence of twist or excessive bends.

Module 1: Rigid Fluid Lines

- Lesson 1.1 - Introducing Rigid Fluid Lines
- Lesson 1.2 - Rigid Fluid Lines Materials
- Lesson 1.3 - Fabricating Rigid Fluid Lines: Part 1
- Lesson 1.4 - Fabricating Rigid Fluid Lines: Part 2
- Lesson 1.5 - Rigid Fluid Line Identification, Fittings, Installation, and Repair

Module 2: Flexible Hose Fluid Lines

- Lesson 2.1 - Flexible Hose Fluid Line Materials, Construction, and Inspection
- Lesson 2.2 - Flexible Hose Installation
- Lesson 2.3 - Risk Management

SkilRedi simulations included in this course:

Revision Number: 03
Revision Date: 10/26/26
Original Issue Date: 07/13/21

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

- Fabricating a rigid tube assembly
- Fabricating a flareless fitting
- Flexible fluid line

Hands on labs

- Fabricating Rigid Fluid Lines
- Fabricating a Flexible Hose

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 03
Revision Date: 10/26/26
Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Revision Number: 03
Revision Date: 10/26/26
Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Cleaning and Corrosion Control Course Syllabus

About The Course:

The Cleaning and Corrosion Control course was developed in alignment with the general knowledge, risk management, and skill requirements outlined in the FAA Airman Certification Standards.

This course introduces the causes, types, forms, inspection, prevention, and treatment of corrosion in aircraft structures. Learners will explore direct chemical and electrochemical corrosion, common forms of corrosion, corrosion-prone aircraft areas, and the environmental and operational conditions that increase corrosion risk.

The course also develops working knowledge of corrosion removal, metal-specific corrosion treatments, surface preparation, aircraft cleaning, and protective finishes. Learners will study common aircraft metals, cleaning materials, surface treatments, primers, coatings, paint defects, and safety practices for using cleaners, solvents, paints, and corrosion-control materials. Emphasis is placed on following approved procedures, using proper PPE, reviewing SDS information, and maintaining corrosion protection on aircraft interiors, exteriors, powerplants, and propellers.

Couse Number: FAA-ACS-AM-IG-CCC

ACS Reference: Cleaning and Corrosion Control (AM.I.G)

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Identify the causes, types, and forms of corrosion found in aircraft structures.
2. Explain preventive maintenance and inspection practices used to control aircraft corrosion.
3. Identify corrosion-prone aircraft areas and describe why corrosion develops in those locations.
4. Describe corrosion removal and treatment methods for common aircraft materials.
5. Identify when corrosion damage can be treated, repaired, or requires replacement using approved limits.
6. Describe aircraft cleaning methods, materials, and safety practices for interiors, exteriors, powerplants, and propellers.
7. Explain how surface preparation, finishes, primers, coatings, and paint defect prevention support corrosion control.

Module 1: Types and Forms of Corrosion

- Lesson 1.1 – Introduction and Types of Corrosion
- Lesson 1.2 – Forms of Corrosion, Maintenance, and Inspection

Module 2: Inspection and Removal of Metal Corrosion

- Lesson 2.1 – Corrosion Prone Areas and Corrosion Removal
- Lesson 2.2 – Corrosion and Treatment of Metals

Module 3: Processes and Materials Used in Corrosion Control

- Lesson 3.1 – Chemical Treatments
- Lesson 3.2 – Surface Preparation
- Lesson 3.3 – Finishing
- Lesson 3.4 – Aircraft Cleaning
- Lesson 3.5 – Cleaners
- Lesson 3.6 – Risk Management

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 07/13/21

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

SkilRedi simulations included in this course:

- Composite wing paint preparation
- Metal wing paint preparation
- Paint preparation masking
- Paint finish inspection

Hands on labs

- Mechanical Corrosion Removal

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 02
Revision Date: 10/26/26
Original Issue Date: 07/13/21

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Fundamentals of DC Electricity and Electronics Syllabus

About the Course:

The Fundamentals of DC Electricity course is designed to support the general knowledge and skill requirements identified in the Federal Aviation Administration's Mechanic Airman Certification Standards.

The course develops the fundamental electrical knowledge needed to understand, inspect, and troubleshoot aircraft electrical systems. It begins with the principles of matter, static electricity, magnetism, and electromagnetism and then applies these concepts to practical DC circuits. Learners examine voltage, current, resistance, power, circuit components, and series, parallel, and series parallel circuits while applying Ohm's Law and Kirchhoff's Laws to solve electrical problems.

The course also introduces electrical measuring instruments and the systematic use of meter readings and schematics to identify circuit faults. Finally, learners examine aircraft batteries, including their construction, characteristics, testing, charging, maintenance requirements, and safety considerations.

Together, these concepts provide aviation maintenance technicians with a foundation for safely analyzing, maintaining, and troubleshooting aircraft DC electrical systems.

Couse Number: FAA-ACS-AM-IA-DCE

ACS Reference: Fundamentals of Electricity and Electronics (AM.I.A)

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:	1. Explain the composition of matter and basic atomic structure. 2. Distinguish between protons, neutrons, and electrons. 3. Explain how electron movement affects a material's ability to conduct electricity. 4. Describe how static electrical charges are created. 5. Explain the attraction and repulsion of like and unlike charges. 6. Describe the characteristics of an electrostatic field. 7. Apply ESD precautions to protect electronic equipment. 8. Describe the characteristics of magnetism and magnetic forces. 9. Explain magnetic poles, magnetic flux, permeability, and reluctance. 10. Define electromagnetism and explain the relationship between electricity and magnetism. 11. Describe the characteristics and direction of magnetic field lines. 12. Use the Left-Hand Rule to determine magnetic field direction. 13. Explain how current and coil turns affect electromagnetic field strength. 14. Distinguish between voltage, current, and resistance and apply Ohm's Law to DC circuits. 15. Explain the factors that affect conductor resistance and interpret conductor size using American Wire Gauge. 16. Identify common sources of electricity and calculate electrical power. 17. Interpret basic electrical schematics and identify common circuit connections and components. 18. Identify fixed and variable resistors and determine resistor values using the color code. 19. Describe the purpose and operation of common circuit protection and control devices. 20. Identify common switch configurations and explain their use in electrical circuits. 21. Analyze series DC circuits and calculate total resistance, current, and voltage drops. 22. Apply Kirchhoff's Voltage Law and voltage-divider principles to series circuits.

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

	23. Analyze parallel and series-parallel DC circuits and calculate resistance, voltage, and current. 24. Apply Kirchhoff's Current Law and current-divider principles to parallel circuits. 25. Describe capacitor operation and calculate capacitance and RC time constants in DC circuits. 26. Describe inductor operation and calculate inductance and RL time constants in DC circuits. 27. Compare series and parallel connections of resistors, capacitors, and inductors. 28. Differentiate among common DC electrical measuring instruments and identify what each measures. 29. Explain the basic function, operation, connection, and precautions of electrical measuring instruments. 30. Use meter readings and electrical schematics to identify and troubleshoot common circuit faults. 31. Distinguish between primary and secondary batteries and identify their components and characteristics. 32. Identify battery testing and charging methods and describe appropriate precautions for working with batteries. 33. Compare the characteristics, maintenance requirements, and safety considerations of common aircraft battery types.

Module 1: Fundamentals of Electricity

- Lesson 1.1 – Matter and Static Electricity
- Lesson 1.2 – Magnetism
- Lesson 1.3 – Electromagnetism

Module 2: DC Circuits

- Lesson 2.1 – Ohm's Law
- Lesson 2.2 – Electric Power
- Lesson 2.3 – Circuit Schematics and Resistors
- Lesson 2.4 – Circuit Protection and Control Devices

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

- Lesson 2.5 – Series DC Circuits and KVL
- Lesson 2.6 – Parallel DC Circuits and KCL
- Lesson 2.7 – Capacitors in DC Circuits
- Lesson 2.8 – Inductors in DC Circuits

Module 3: Circuit Measuring Instruments

- Lesson 3.1 – DC Measuring Instruments
- Lesson 3.2 – Troubleshooting Circuits

Module 4: Batteries

- Lesson 4.1 – Introduction to Battery Types
- Lesson 4.2 – Lead-Acid Batteries
- Lesson 4.3 – Ni-Cad, SLA, and Lithium-ion Batteries

SkilRedi simulations included in this course:

- Circuit testing
- Lead-acid battery

Hands on labs

- DC Electrical Practical Fundamentals

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26

CHOOSE AEROSPACE

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Aviation Maintenance Curriculum

Fundamentals of AC Electricity and Electronics Syllabus

About This Course:

The Fundamentals of AC Electricity course introduces electrical and electronic principles used in aircraft systems and supports preparation for the electrical knowledge areas of the Federal Aviation Administration's Mechanic Airman Certification Standards.

The course begins with alternating current generation, waveform characteristics, and differences between AC and DC. Learners explore resistance, reactance, impedance, phase relationships, and resonance, applying electrical formulas to solve series and parallel AC circuit problems. Power, power factor, transformers, and inverters explain how electrical energy is transferred and converted to meet aircraft system requirements.

Building on these foundations, learners examine the construction, operation, regulation, and basic maintenance of generators, alternators, and AC and DC motors. The course also introduces semiconductors, diodes, rectifiers, transistors, filters, amplifiers, and logic circuits to explain how electronic systems control and process electrical signals.

Finally, learners explore DC and AC measuring instruments, including correct connections, measurement precautions, and interpretation of readings. Practical examples and calculations connect these topics to the inspection, maintenance, and troubleshooting of aircraft electrical systems.

Couse Number: FAA-ACS-AM-IA-ACE

ACS Reference: Fundamentals of Electricity and Electronics (AM.I.A)

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Course Objectives:

1. Differentiate AC from DC and explain how electromagnetic induction generates alternating voltage.
2. Describe AC waveform characteristics and distinguish instantaneous, peak, and effective (RMS) values.
3. Calculate generator output frequency from pole count and rotational speed.
4. Compare capacitor and inductor behavior, explain capacitive coupling, and calculate reactance in simple series and parallel arrangements.
5. Explain impedance and its relationship to resistance, reactance, and voltage-current phase.
6. Apply Ohm's law and phase relationships to solve series and parallel AC circuits and determine unknown resistance.
7. Calculate resonant frequency and explain resonance in series and ideal parallel LC circuits.
8. Distinguish true, reactive, and apparent power and calculate true power, apparent power, and power factor.
9. Explain transformer construction and operation and calculate ideal voltage and current relationships using turns ratios.
10. Identify transformer types and applications, including current-transformer installation and safety precautions.
11. Distinguish magnetic coupling from efficiency, describe transformer losses, and explain transformer use in power transmission.
12. Compare rotary and static inverters, explain their operating principles and output control, and describe their applications in aircraft AC power systems.
13. Differentiate AC from DC and explain how electromagnetic induction generates alternating voltage.
14. Describe AC waveform characteristics and distinguish instantaneous, peak, and effective (RMS) values.
15. Calculate generator output frequency from pole count and rotational speed.
16. Compare capacitor and inductor behavior, explain capacitive coupling, and calculate reactance in simple series and parallel arrangements.
17. Explain impedance and its relationship to resistance, reactance, and voltage-current phase.
18. Apply Ohm's law and phase relationships to solve series and parallel AC circuits and determine unknown resistance.

Revision Number: 01

Revision Date: 10/26/26

Original Issue Date: 01/15/26

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

19. Calculate resonant frequency and explain resonance in series and ideal parallel LC circuits.
20. Distinguish true, reactive, and apparent power and calculate true power, apparent power, and power factor.
21. Explain transformer construction and operation and calculate ideal voltage and current relationships using turns ratios.
22. Identify transformer types and applications, including current-transformer installation and safety precautions.
23. Distinguish magnetic coupling from efficiency, describe transformer losses, and explain transformer use in power transmission.
24. Compare rotary and static inverters, explain their operating principles and output control, and describe their applications in aircraft AC power systems.
25. Differentiate AC from DC and explain how electromagnetic induction generates alternating voltage.
26. Describe AC waveform characteristics and distinguish instantaneous, peak, and effective (RMS) values.
27. Calculate generator output frequency from pole count and rotational speed.
28. Compare capacitor and inductor behavior, explain capacitive coupling, and calculate reactance in simple series and parallel arrangements.
29. Explain impedance and its relationship to resistance, reactance, and voltage-current phase.
30. Apply Ohm's law and phase relationships to solve series and parallel AC circuits and determine unknown resistance.
31. Calculate resonant frequency and explain resonance in series and ideal parallel LC circuits.
32. Distinguish true, reactive, and apparent power and calculate true power, apparent power, and power factor.
33. Explain transformer construction and operation and calculate ideal voltage and current relationships using turns ratios.
34. Identify transformer types and applications, including current-transformer installation and safety precautions.
35. Distinguish magnetic coupling from efficiency, describe transformer losses, and explain transformer use in power transmission.

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

36. Compare rotary and static inverters, explain their operating principles and output control, and describe their applications in aircraft AC power systems.
37. Differentiate AC from DC and explain how electromagnetic induction generates alternating voltage.
38. Describe AC waveform characteristics and distinguish instantaneous, peak, and effective (RMS) values.
39. Calculate generator output frequency from pole count and rotational speed.
40. Compare capacitor and inductor behavior, explain capacitive coupling, and calculate reactance in simple series and parallel arrangements.
41. Explain impedance and its relationship to resistance, reactance, and voltage-current phase.
42. Apply Ohm's law and phase relationships to solve series and parallel AC circuits and determine unknown resistance.
43. Calculate resonant frequency and explain resonance in series and ideal parallel LC circuits.
44. Distinguish true, reactive, and apparent power and calculate true power, apparent power, and power factor.
45. Explain transformer construction and operation and calculate ideal voltage and current relationships using turns ratios.
46. Identify transformer types and applications, including current-transformer installation and safety precautions.
47. Distinguish magnetic coupling from efficiency, describe transformer losses, and explain transformer use in power transmission.
48. Compare rotary and static inverters, explain their operating principles and output control, and describe their applications in aircraft AC power systems.

Module 1: Aircraft Alternating Current

- Lesson 1.1 – Introduction to Alternating Current (AC)
- Lesson 1.2 – Reactance in AC Circuits
- Lesson 1.3 – Ohm's Law for AC Circuits
- Lesson 1.4 – Power in AC Circuits and Transformers
- Lesson 1.5 – Inverters

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Module 2: Generators, Motors, and Alternators

- Lesson 2.1 – DC Generators
- Lesson 2.2 – Characteristics and Maintenance of Generators
- Lesson 2.3 – DC Motors
- Lesson 2.4 – AC Motors
- Lesson 2.5 – Alternators
- Lesson 2.6 – Generator and Alternator Regulation

Module 3: Electronics and Logic

- Lesson 3.1 – Semiconductors, Diodes, and Rectifiers
- Lesson 3.2 – Intro to Transistors
- Lesson 3.3 – Filtering
- Lesson 3.4 – Amplifiers
- Lesson 3.5 – Logic Circuits

Module 4: Measuring Devices

- Lesson 4.1 – Introduction to Measuring Devices
- Lesson 4.2 – AC Measuring Instruments

SkilRedi simulations included in this course:

- n/a

Hands on labs

- Basic Alternating Current (Sine Wave)

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26

703.548.2030
CAREERS@CHOOSEAEROSPACE.ORG
CHOOSEAEROSPACE.ORG

Each lesson contains the following:

- Lesson Objectives
- Video lecture
- Multiple readings with interactive animations
- Assigned readings in the applicable FAA 8083 Chapter
- Summary and Key Terms
- Assessment Activities

Each Module contains the following:

- Standards and Objectives
- Pre-Assessment
- Key Concepts and Terms
- Further Study
- Module Quiz
- Module Critical Thinking Activity
- Module Survey

Each Course contains the following:

- Course Pre-Test
- Course Introduction
- Course Comprehensive Assessment
- Course Survey

Revision Number: 01
Revision Date: 10/26/26
Original Issue Date: 01/15/26