Airman Certification Standards – Airframe

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The following subject order reflects logical grouping and structural clarity and is not intended to prescribe instructional sequence or curriculum design.

*Note: Content moved. Individual ACS subject is no longer needed.

^Note: Consists of content from other subjects, separated to better align with ATA system coding.

Legend:

Blue = Item changed

Green = New item

[1] Subject A. Metallic Structures	
Competencies	*Perform basic sheet metal layout, fabrication, fastening, and repair tasks in accordance with appropriate data.*
Knowledge	***The applicant will be able to:***
	Materials and Treatments
AM.II.A.K.6.	Explain the effects of heat treatment on aluminum alloy properties and structural suitability.
AM.II.A.K.3.	Describe the properties and applications of common aircraft grade aluminum alloys.
	Structural Principles
AM.II.A.K.17.	Explain fundamental aircraft structural principles, including load paths, stress distribution, and fatigue behavior.
	Fasteners and Riveting
AM.II.A.K.5.	Explain the principles of aircraft fastening and riveting used to maintain structural integrity.
	Layout and Fabrication
AM.II.A.K.7.	Describe rivet layout concepts used in planning and executing structural repairs.
AM.II.A.K.4.	Explain sheet metal layout and marking concepts used to transfer measurements and establish accurate cut and bend lines.
.....	Describe the operation and capabilities of common metal forming tools used in aircraft fabrication.
	Sheet Metal Repair Concepts
.....	Explain common sheet metal repair concepts, including patching, bending, and forming.
AM.II.A.K.9.	Describe safety considerations associated with sheet metal fabrication and repair.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.A.R.1.	Structural degradation from incorrect fastener selection or installation.
.....	Misalignment or improper fit caused by inaccurate layout or marking.
.....	Material weakening or cracking caused by improper bending or forming.
.....	Undetected structural defects due to inadequate inspection of metallic components while doing a repair.
.....	Personal injury or component damage from improper use of cutting, drilling, or forming tools.
Skills	***The applicant demonstrates the ability to:***
	Fasteners and Riveting
AM.II.A.S.1.	Install and remove aircraft rivets.
AM.II.A.S.12.	Prepare sheet metal for flush riveting by countersinking or dimpling as appropriate.
AM.II.A.S.4.	Select and install special purpose fasteners used in aircraft structures.
	Inspection and Damage Assessment
AM.II.A.S.3.	Determine the extent of damage and identify whether a metallic structure is repairable using appropriate data.
	Layout and Repairs

AM.II.A.S.11.	Create a rivet layout in accordance with appropriate data.
AM.II.A.S.13.	Prepare and install a patch to repair a damaged aluminum component.

[2] Subject B. Non-Metallic Structures	
Competencies	*Inspect and perform basic repairs on nonmetallic aircraft structures using appropriate data and appropriate safety practices.*
Knowledge	***The applicant will be able to:***
.....	**Wood, Fabric, and Coatings**
AM.II.B.K.1.	Explain the role of wood, fabric, and coatings in aircraft construction and why these materials are less common today.
AM.II.B.K.2.	Describe the effects of humidity, temperature, and UV exposure on wood, fabric, and coating materials.
AM.II.B.K.3.	Identify approved wood types and fabric materials used in wood and fabric structures.
AM.II.B.K.5.	Describe common deterioration mechanisms in wood and fabric structures and basic inspection tools.
AM.II.B.K.11.	Describe safety practices for handling adhesives, dopes, solvents, and coating materials.
	Composites
AM.II.B.K.20.	Explain how fiber, core, and matrix properties influence material selection.
.....	Explain how ply orientation, stacking sequence, and laminate design affect structural behavior.
AM.II.B.K.19.	Identify common composite defect types.
	Explain how composite defects affect structural performance.
AM.II.B.K.18.	Describe common inspection methods for composite structures and their applications.
AM.II.B.K.21.	Describe how storage, moisture, and shelf life affect composite materials.
AM.II.B.K.22.	Interpret appropriate repair data.
.....	Explain how bonding variables influence repair integrity.
AM.II.B.K.28.	Describe hazards associated with composite materials and appropriate safety controls.
.....	Describe how composite laminates fail under different loading conditions.
.....	Explain core structure behavior in sandwich panels.
.....	Describe how cure variables affect composite repair strength.
.....	Explain lightning protection principles in composite structures.
.....	Describe environmental effects on composite performance and repairability.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.B.R.1.	Incorrect selection or application of adhesives or fasteners for composite structures.
AM.II.B.R.3.	Exposure to hazardous materials used in composite repair processes.
AM.II.B.R.4.	Improper storage or handling of composite materials affecting safety or material integrity.
AM.II.B.R.5.	Incorrect measuring or mixing of adhesives, resins, or curing agents used in composite repair.

AM.II.B.R.7.	Use of composite materials beyond listed shelf life.
Skills	***The applicant demonstrates the ability to:***
AM.II.B.S.1.	Identify and select appropriate fasteners for composite structures using appropriate data.
AM.II.B.S.2.	Inspect composite structures for damage, deterioration, and other conditions that may affect airworthiness.
AM.II.B.S.8.	Conduct a tap test or other basic inspection methods to determine the extent of damage.
AM.II.B.S.12.	Perform a basic composite repair layup using appropriate data.
AM.I.G.S.8.	Prepare a composite surface for coating applications using appropriate surface preparation methods.

[3] Subject NEW. Aircraft Painting and Finishing	
Competencies	*Prepare aircraft surfaces, apply finishing materials, and inspect finished coatings in accordance with material requirements, environmental considerations, and appropriate data.*
Knowledge	***The applicant will be able to:***
	Foundational Concepts
.....	Explain the purpose of aircraft finishes and their roles in corrosion protection, maintainability, and appearance.
AM.I.G.S.14.	Identify common types of aircraft finishes.
AM.I.G.S.9.	Identify common finishing materials and compatible thinners.
AM.I.G.K.23.	Describe common finishing materials and their uses for metal and composite surfaces.
.....	**Surface Preparation Concepts**
AM.I.G.K.17.	Explain surface preparation requirements for coating metal and composite surfaces, including cleaning and priming concepts.
.....	Explain the purpose and principles of masking in aircraft finishing, including how masking supports surface protection and coating quality.
.....	Identify common masking materials and describe factors that affect masking performance, including airflow, overspray, and typical masking related defects.
.....	**Application & Inspection Concepts**
AM.I.G.K.21.	Describe common coating defects and general inspection considerations for finished aircraft surfaces.
AM.I.G.K.24.	Explain how coating weight affects aircraft control surface balance and performance.
.....	**Regulatory & Documentation Awareness**
AM.I.G.K.20.	Identify regulatory requirements for aircraft identification, registration markings, and placards following refinishing.
AM.I.G.S.12.	Identify coating systems specified in acceptable data for aircraft surfaces.
.....	**Environmental & Safety Concepts**
AM.I.G.K.22.	Explain environmental and safety considerations when working with finishing materials.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.I.G.R.8.	Surface preparation defects for finishing materials.
.....	Chemical exposure hazards from finishing materials.
.....	Ventilation deficiencies during finishing or chemical use operations.
.....	Flammable chemical hazards.
.....	Chemical waste handling and disposal of hazards.
Skills	***The applicant demonstrates the ability to:***
AM.I.G.S.4.	Inspect a finished surface for visible defects.
AM.I.G.S.10.	Mask a surface for coating applications using standard layout and masking techniques.

[4] Subject NEW. Windows	
Competencies	*Inspect, maintain, and repair aircraft transparent plastic windows by assessing material condition, applying appropriate data and maintenance practices, and ensuring proper fit, stress distribution, and serviceability for safety and airworthiness*
Knowledge	***The applicant will be able to:***
.....	Describe the properties and physical characteristics of transparent plastics used in aircraft.
.....	Explain the advantages, limitations, and typical applications of transparent plastics in windshields, side windows, and canopies.
AM.II.B.K.23.	Identify common thermoplastic material defects found during inspection.
.....	Explain how specific defect types affect window serviceability and structural integrity.
AM.II.B.K.24.	Describe proper storage and handling requirements for thermoplastic materials to prevent contamination, distortion, or degradation.
AM.II.B.K.25.	Explain installation principles for thermoplastic windows, including fit, mounting methods, and stress distribution considerations.
AM.II.B.K.26.	Describe care and maintenance practices for aircraft windows, including cleaning, polishing, and inspection criteria for serviceability.
AM.II.B.K.27.	Explain principles of temporary and permanent window repairs in accordance with appropriate data and FAA guidance.
AM.II.B.K.28.	Identify safety practices and precautions when working with aircraft windows, including PPE requirements, solvent handling, and methods to prevent stress cracking.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
.....	Improper storage or handling of transparent plastics.
.....	Incorrect fit, mounting, or stress distribution of transparent plastic windows or panels.
.....	Use of unapproved materials or improper maintenance techniques.
.....	Inadequate inspection practices or unsafe handling of transparent plastic windows or panels.
Skills	***The applicant demonstrates the ability to:***
AM.II.B.S.4.	Inspect transparent plastic windshields and windows for condition and serviceability and document findings.
.....	Apply appropriate cleaning, polishing, or scratch removal procedures and assess the window for continued serviceability.
.....	Measure and verify fit, mounting clearances, and stress distribution requirements for replacement of transparent plastic panels.

[5] Subject C. Flight Controls	
Competencies	*Maintain, inspect, and adjust aircraft flight control systems in accordance with appropriate data and regulatory requirements.*
Knowledge	***The applicant will be able to:***
.....	**General**
AM.II.C.K.11.	Describe the purpose of aircraft flight control systems and the general principles by which pilot inputs are transmitted to control surfaces.
.....	**Aileron Systems**
.....	Describe aileron system components and their function.
.....	Explain the operating principles of aileron systems.
.....	**Rudder Systems**
.....	Describe rudder system components and their function.
.....	Explain the operating principles of rudder systems.
.....	**Elevator and Stabilator Systems**
.....	Describe elevator and stabilator components and their function.
.....	Explain the operating principles of elevator and stabilator systems.
.....	**High-Lift and Lift-Dump Devices**
.....	Identify flap and leading edge device types.
.....	Explain the operating principles of flap and leading edge systems.
.....	Describe spoiler and speed brake system components and their function.
.....	**Trim and Tab Systems**
.....	Identify trim and tab system types.
.....	Describe how trim systems reduce pilot workload and maintain control balance.
.....	**Mechanical Linkage and Control Transmission**
AM.II.C.K.1.	Explain mechanical flight control linkage components.
.....	Explain alignment, security, and freedom of movement requirements.
.....	**Position Indication Systems**
.....	**Describe flap, trim, and control surface position indication systems.**
.....	Explain how mechanical movement is converted into indication.
.....	Identify common failure modes and mis rigging indicators.
.....	**Direction and Awareness Systems**
AM.II.H.K.8.	Describe direction indicating instruments used for flight control awareness.
AM.II.H.K.21.	Explain the purpose and operating principles of angle of attack and stall warning systems.
.....	**Flight Control Rigging**
AM.II.C.K.9.	Explain the principles of flight control, rigging and symmetry.
AM.II.C.K.10.	Describe the relationship between rigging, control balance, and flutter.
.....	Identify specialized tools and measurement techniques.
.....	**Fly-by-wire Systems**
.....	Describe the operating principles of flyby wire control systems.
.....	Identify major components of flyby wire systems.
.....	Explain how flyby wire systems integrate with other aircraft systems.

[5] Subject C. Flight Controls	
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.C.R.1.	Incorrect cable tension resulting from inaccurate reference data or measurement error.
AM.II.C.R.2.	Improper control surface alignment or binding.
AM.II.C.R.3.	Unstable or mismatched lifting and support configurations during component positioning.
AM.II.C.R.5.	Incorrect use or calibration of cable tension measuring equipment.
Skills	***The applicant demonstrates the ability to:***
AM.II.C.S.3.	Inspect a primary flight control surface for condition and security.
AM.II.C.S.5.	Inspect primary flight control cables for condition and security.
AM.II.C.S.10.	Inspect a secondary flight control for condition, free movement, and proper travel.
AM.II.C.S.6.	Adjust and secure a primary flight control cable using appropriate data.
AM.II.C.S.7.	Adjust a push pull flight control system for proper travel and alignment using appropriate data.
AM.II.C.S.8.	Check the balance of a flight control surface using appropriate data.

[6] Subject E. Landing Gear Systems	
Competencies	*Maintain, inspect, and troubleshoot aircraft landing gear systems by applying system knowledge, appropriate data, and safety principles to assess components condition, perform servicing and functional checks, and resolve faults to ensure safe ground handling, extension and retraction, braking, steering, and position indication performance.*
Knowledge	***The applicant will be able to:***
.....	**Landing Gear System Fundamentals**
AM.II.E.K.1.	Compare landing gear system configurations and types used in general aviation and transport category aircraft.
AM.II.E.K.2.	Identify landing gear system components.
.....	Explain the function of landing gear system components within system operation.
.....	**Landing Gear Doors and Sequencing**
.....	Explain landing gear door function, actuation methods, and integration with gear sequencing.
.....	**Landing Gear System Schematics and Logic**
.....	Interpret landing gear system schematics to trace hydraulic, electrical, and mechanical logic pathways.
.....	**Landing Gear System Servicing and Inspection**
AM.II.E.K.3.	Describe landing gear servicing requirements related to oleo strut inflation and lubrication.
AM.II.E.K.4.	Describe landing gear inspection requirements related to leaks, wear, corrosion, and structural integrity.
.....	**Extension and Retraction Systems**
.....	Explain the purpose, principles, and methods of landing gear extension and retraction systems.
.....	Identify extension and retraction system components.
.....	Explain the function and operation of extension and retraction system components.
.....	**Wheels and Brakes**
AM.II.E.K.9.	Identify aircraft wheel assembly components.
.....	Explain the function of aircraft wheel assembly components.
.....	Identify brake system components.
.....	Explain brake system purpose and function.
AM.II.E.K.7.	Describe brake assembly servicing requirements and associated safety considerations.
.....	Describe wheel and brake inspection criteria related to wear, corrosion, and overheating.
AM.II.E.K.8.	Explain anti-skid system purpose, function, and operational principles.
.....	Identify anti-skid system components.
.....	Explain anti-skid system component function and operation.
.....	Interpret anti-skid system schematics to trace signal pathways and logic.
.....	**Tires**
.....	Identify aircraft tire types, construction features, and components.
.....	Explain tire inflation principles and servicing considerations.

[6] Subject E. Landing Gear Systems	
AM.II.E.K.10.	Describe tire storage and care requirements.
.....	Describe tire inspection criteria and associated safety considerations.
.....	**Position Indication and Warning Systems**
.....	Describe landing gear position indication system purpose, configurations, and integration with flight deck annunciators.
.....	**Explain how mechanical movement is translated into indication.**
AM.II.E.S.22.	Identify landing gear position and warning system components.
.....	Explain the function and operation of landing gear position indication and warning system components.
.....	Explain weight on wheels and safety interlock purpose and function.
.....	Explain landing gear warning system purpose and function.
.....	Interpret landing gear position and warning system schematics to trace logic and signal pathways.
AM.II.E.K.6.	Describe landing gear position and warning system inspection, operational check, and troubleshooting requirements.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
.....	Wheel assembly thermal exposure hazards.
AM.II.E.R.6.	Hydraulic and electrical isolation hazards in landing gear systems.
AM.II.E.R.5.	Oleo strut pressurization hazards.
.....	Landing gear sensor and connector contamination or corrosion hazards.
.....	Tire inflation pressure and containment hazards.
Skills	***The applicant demonstrates the ability to:***
.....	**Landing Gear**
AM.II.E.S.1.	Inspect landing gear for leaks, wear, corrosion, and structural integrity.
	Lubricate landing gear in accordance with appropriate data.
AM.II.E.S.9	Service landing gear shock strut in accordance with appropriate data.
.....	Remove and replace wheel assembly.
.....	**Extension and Retraction**
AM.II.E.S.6.	Troubleshoot a gear extension or retraction fault using appropriate data.
.....	**Wheels and Brakes**
AM.II.E.S.12.	Remove and replace a brake assembly in accordance with appropriate data.
AM.II.E.S.27.	Inspect a brake assembly to determine serviceability.
AM.II.E.S.8.	Remove and replace brake lining(s) using appropriate data.
AM.II.E.S.10.	Bleed and service a hydraulic brake system usingappropriate data.
AM.II.E.S.7.	Inspect a wheel assembly to determine serviceability.
AM.II.E.S.11.	Troubleshoot a hydraulic brake system fault using appropriate data.
.....	**Tires**
AM.II.E.S.13.	Inspect a tire for wear, damage, and serviceability.
.....	Service a tire for proper inflation.
.....	**Steering**
AM.II.E.S.17.	Inspect a nose-wheel shimmy damper for serviceability
.....	**Position Indication and Warning Systems**
AM.II.E.S.24.	Inspect weight-on-wheels and position sensors.

[6] Subject E. Landing Gear Systems	
AM.II.E.S.23.	Troubleshoot a landing gear position or warning system fault using appropriate data.

[7] Subject F. Hydraulic Systems	
Competencies	*Maintain and inspect aircraft hydraulic systems by applying system knowledge, appropriate data, and safety principles to assess system condition, ensure fluid integrity, and verify the proper function of hydraulic components and system operation.*
Knowledge	***The applicant will be able to:***
AM.II.F.K.1.	Describe hydraulic fluid types, properties, and compatibility considerations.
AM.II.F.K.8.	Explain material compatibility considerations between hydraulic fluids and hoses, seals, gaskets, and fittings.
AM.II.F.K.2.	Compare hydraulic system design configurations and operational differences between general aviation and transport category aircraft.
.....	Identify hydraulic system components.
.....	Explain the function of hydraulic system components within system operation.
.....	Interpret hydraulic system schematics to trace fluid flow and component interaction.
AM.II.F.K.4.	Describe hydraulic system maintenance requirements related to inspection, servicing, functional checks, and troubleshooting.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.F.R.3.	Hydraulic fluid handling hazards.
AM.II.F.R.4.	Hydraulic fluid compatibility hazards.
AM.II.F.R.1.	Hydraulic component servicing hazards.
AM.II.F.R.2.	Hydraulic system pressure hazards.
AM.II.F.R.5.	Material compatibility hazards.
Skills	***The applicant demonstrates the ability to:***
AM.II.F.S.1.	Determine the appropriate hydraulic fluid using appropriate data.
AM.II.F.S.4.	Remove and install a hydraulic component using appropriate data.
AM.II.F.S.6.	Remove, clean, inspect, and install a hydraulic system filter using appropriate data.
AM.II.F.S.7.	Service a hydraulic system accumulator using appropriate data.
AM.II.F.S.8.	Service a hydraulic system reservoir using appropriate data.
AM.II.F.S.11.	Purge air from a hydraulic system using appropriate data.
AM.II.F.S.13.	Inspect a hydraulic system for leaks.
.....	Conduct a functional check of a hydraulic system using appropriate data.
AM.II.F.S.3.	Remove and replace seals and backup rings using appropriate data.

[8] Subject NEW. Pneumatic Systems	
Competencies	*Maintain and inspect aircraft pneumatic systems by applying system knowledge, appropriate data, and safety principles to assess system condition, ensure proper airflow and pressure regulation, and verify the correct operation of pneumatic components and emergency pneumatic functions.*
Knowledge	***The applicant will be able to:***
AM.II.F.K.5.	Compare pneumatic system types and their applications in general aviation, transport category aircraft, helicopters, and amphibious landing gear systems.
.....	Identify pneumatic system components.
.....	Explain the function of pneumatic system components within system operation.
AM.II.F.K.6.	Describe pneumatic system maintenance requirements related to inspection, servicing, functional checks, and troubleshooting.
.....	Interpret pneumatic system schematics to trace airflow paths and component interaction.
.....	Describe emergency pneumatic landing gear extension system components and operation.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.F.R.1.	Pneumatic component servicing and disassembly hazards.
AM.II.F.R.2.	Pneumatic system pressure hazards.
Skills	***The applicant demonstrates the ability to:***
AM.II.F.S.13.	Inspect a pneumatic system connection for leakage.

[9] Subject J. Aircraft Fuel Systems	
Competencies	*Maintain, inspect, and troubleshoot aircraft fuel systems by applying appropriate data, interpreting system indications, and performing safe maintenance practices to ensure proper operation of fuel tanks, distribution systems, and quantity-indicating systems.*
Knowledge	***The applicant will be able to:***
.....	**Fuel Systems Fundamentals**
AM.II.J.K.1.	Describe common aircraft fuel system types and operational principles.
.....	Describe fuel system configurations for reciprocating and turbine powered aircraft, including single engine and multiengine arrangements.
AM.II.J.K.2.	Describe the purpose and operation of common fuel system components.
.....	**Fuel Tanks and Tank Systems**
AM.II.J.K.3.	Describe aircraft fuel tank types and structural integration within the airframe.
.....	Explain fuel tank and fuel cell segmentation, including the purpose of baffles, collector cells, and compartmentalization in maintaining fuel supply and stability.
.....	Describe tank venting systems and surge tank functions used to maintain pressure balance and prevent fuel spillage.
.....	**Distribution and Transfer**
AM.II.J.K.4.	Describe fuel flow paths from tanks to engines and auxiliary power units.
AM.II.J.K.5.	Explain gravity-feed and pump-assisted fuel transfer principles, including flow paths, pressure sources, and manual transfer considerations.
.....	Explain automatic and semi-automatic fuel transfer logic used during ground servicing and in-flight balancing on aircraft equipped with fuel transfer control systems.
.....	Identify automatic shutoff and transfer triggering conditions used in fuel transfer and balancing systems.
.....	**Refueling and Defueling**
.....	Describe pressure refueling system operation, including valve sequencing, automatic shutoff features, and fuel level control.
	Describe over-wing (gravity) refueling methods and associated safety considerations.
.....	Describe defueling operations and associated safety considerations.
.....	**Fuel Jettison Systems**
AM.II.J.K.6.	Describe the purpose and regulatory requirements of fuel jettison systems.
.....	**Fuel Quantity Indicating Systems**
AM.II.J.K.9.	Describe fuel quantity indicating system types and operational principles.
.....	Explain fuel quantity system calibration concepts and common error sources.
.....	Describe fuel quantity indication integration with refuel panel controls.
.....	Describe the installation considerations and configuration requirements for fuel quantity transmitters.

[9] Subject J. Aircraft Fuel Systems	
.....	Explain the purpose of operational checks for fuel quantity transmitters and the conditions that affect transmitter accuracy.
.....	**Maintenance and Safety**
AM.II.J.K.8.	Describe fuel system inspection and operational check requirements.
.....	Identify hazards and regulatory requirements associated with fuel tank entry.
.....	Explain the purpose of CDCCLs and their role in maintaining configuration integrity.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.J.R.1.	Improper fuel system maintenance.
AM.II.J.R.2.	Fuel system contamination.
AM.II.J.R.3.	Fuel spills and improper fuel handling.
AM.II.J.R.4.	Fuel tank entry hazards, including atmospheric, structural, and regulatory risks.
AM.II.J.R.5.	Incorrect or unsafe defueling practices.
Skills	***The applicant demonstrates the ability to:***
AM.II.J.S.2.	Inspect a fuel tank or fuel cell system for condition, leaks, and proper installation using appropriate data.
AM.II.J.S.7.	Drain and sample fuel from system sumps to assess contamination and verify fuel quality.
AM.II.J.S.8.	Perform a fuel system strainer or filter servicing procedure and verify system integrity.
AM.II.J.S.5.	Inspect and verify the operation of fuel valves and selector mechanisms in accordance with appropriate data.
AM.II.J.S.9.	Inspect a fuel quantity indicating system for condition, security, and proper installation.
	Operate a fuel quantity indicating system to verify correct indication and system response.
AM.II.J.S.17.	Remove, install, and operationally check a fuel quantity transmitter in accordance with appropriate data.
AM.II.J.S.18.	Troubleshoot a fuel quantity indicating system using appropriate data.
AM.II.J.S.3.	Troubleshoot fuel system malfunctions, including flow, pressure, and valve related discrepancies, using wiring diagrams and appropriate data.

[10] Subject O. Water and Waste Systems	
Competencies	*Identify potable water and lavatory waste system components, explain their operating principles, and apply regulatory and inspection requirements to ensure system sanitation, contamination prevention, and continued airworthiness.*
Knowledge	***The applicant will be able to:***
.....	**Potable Water Systems**
AM.II.O.K.1.	Identify potable water system components and describe their function.
.....	Explain potable water system operating principles, including pressurization, flow control, and contamination prevention.
.....	**Waste Disposal (Lavatory) Systems**
AM.II.O.K.2.	Identify lavatory waste system components and describe their function.
.....	Explain lavatory waste system operating principles, including flushing and waste transfer.
.....	Summarize regulatory requirements applicable to potable water and lavatory waste systems, including sanitation standards, maintenance expectations, and compliance obligations.
AM.II.O.K.3.	Describe inspection requirements for water and waste systems to ensure regulatory compliance.
.....	Explain servicing considerations that prevent contamination, leaks, and blockages in water and waste systems.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.O.R.1.	Contamination of potable water or waste systems.
.....	Exposure to contaminated water, waste fluids, or sanitation chemicals.
Skills	***The applicant demonstrates the ability to:***
	No skill elements are included because Water & Waste tasks differ widely across aircraft, are often performed by noncertificated line service personnel, and do not constitute standardized, observable mechanic competencies suitable for consistent or safe ACS assessment.

[11] Subject K. Aircraft Electrical Systems	
Competencies	*Maintain aircraft electrical systems by interpreting technical documentation, tracing power and signal paths, and assessing wiring and component installation in accordance with appropriate practices to ensure airworthy electrical system performance.*
Knowledge	***The applicant will be able to:***
	Digital Data Buses
.....	Describe the general purpose of aircraft digital data buses used for system communication.
	Electrical Power Distribution
.....	Describe the function of aircraft electrical bus systems and their role in distributing power.
.....	Identify how bus failure affects power availability to airframe systems.
.....	Describe basic AC and DC power distribution paths in airframe electrical systems.
AM.II.K.K.6.	Describe the function of inverters in converting DC to AC for airframe systems.
.....	**External Power & Ground Handling**
.....	Describe the function and connection requirements of external power receptacles and ground power units.
.....	Identify compatibility considerations when connecting external power to airframe electrical systems.
.....	**Aircraft Wiring Materials and Installation Practices**
AM.II.K.K.7.	Explain factors that influence wire gauge and insulation selection for airframe electrical systems.
AM.II.K.K.7.	Describe aircraft wiring characteristics, including sizing, insulation types, installation practices, and associated protection devices.
.....	Identify common aircraft wire types and basic wire size markings used in aircraft electrical systems.
.....	Identify common aircraft electrical connector types and their functional characteristics.
.....	Compare common wire termination methods used in aircraft electrical systems.
.....	Compare common wire splicing methods used in aircraft electrical systems.
.....	Identify common wire marking and numbering methods used in aircraft electrical systems.
.....	**Wiring Routing, EWIS, an EMI Protection**
.....	Describe the purpose of EWIS documentation and how it supports safe wire installation and routing.
.....	Interpret wire routing diagrams to understand installation intent.
	Identify factors in routing diagrams that influence wiring safety and airworthiness.
.....	Describe EWIS elements and general maintenance considerations for airframe electrical wiring.
AM.II.K.K.9.	Describe shielding requirements for airframe wiring to reduce electromagnetic interference.

[11] Subject K. Aircraft Electrical Systems	
AM.II.K.K.9.	Describe installation-level EMI mitigation strategies used in aircraft wiring.
.....	Describe wire harness security principles used to support safe and airworthy electrical installations.
.....	**Grounding and Bonding**
AM.II.I..10.	Explain the purpose of bonding jumpers and their role in maintaining electrical continuity in aircraft systems.
.....	Describe how bonding and static discharge support EMI mitigation and lightning protection in airframe systems.
AM.II.K.K.10.	Describe lightning protection principles and bonding requirements for airframe structures.
.....	**Switches, Relays & Protective Devices**
.....	Describe the types and functions of switches, protective devices, and relays used in airframe electrical systems.
AM.II.K.K.5.	Explain factors that influence switch and protective device compatibility in airframe electrical circuits.
.....	Identify common failure modes associated with switches, relays, and protective devices.
AM.II.K.K.8.	Identify factors that influence switch derating in airframe electrical systems.
.....	Describe how derating factors affect switch performance and selection in airframe electrical systems.
.....	**Fiber Optics**
.....	Describe basic awareness level considerations for fiber optic components in aircraft systems.
.....	**Lighting & Indication Systems**
AM.II.K.K.12.	Describe the types and functions of airframe lighting systems.
.....	**System Troubleshooting & Integration**
.....	Interpret airframe electrical schematics to identify component locations and circuit paths.
.....	Analyze how wiring, grounding, or component installation errors affect airframe electrical system performance.
.....	Identify system level fault patterns that indicate wiring or installation issues in airframe electrical systems.
.....	**Electrical Joining Methods**
AM.I.E.K.7.	Explain the basic principles and purpose of soldering as an electrical joining method.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.K.R.3.	Maintenance on energized airframe electrical buses.
AM.II.K.R.2.	Use of incompatible or improperly connected external power sources.
AM.II.K.R.5.	Improper routing or securing electrical wiring.
AM.II.K.R.6.	Improper selection of wire gauge, insulation, or terminals.
.....	Improper installation or termination of electrical conductors or components.
.....	Improper bonding or electrostatic discharge protection.

[11] Subject K. Aircraft Electrical Systems	
AM.I.F.R.2.	Incorrect connection or operation of external power equipment.
Skills	***The applicant demonstrates the ability to:***
.....	**Electrical Power Distribution**
AM.II.K.S.17.	Use wiring diagrams to trace basic electrical circuits.
.....	**External Power & Ground Handling**
.....	Connect and disconnect external power units using appropriate procedures.
.....	Inspect external power receptacles for condition and security.
AM.I.F.S.2.	Connect external power to an aircraft.
.....	**Aircraft Wiring Materials & Installation Practices**
.....	Select wire gauge, insulation type, and terminals appropriate to circuit requirements.
AM.II.K.S.2.	Terminate and splice aircraft wiring using appropriate tools and techniques.
AM.II.K.S.3.	Assemble and install electrical connectors in accordance with documentation.
AM.II.K.S.8.	Secure wire bundles using appropriate clamps, ties, or lacing methods.
AM.II.K.S.7.	Install aircraft electrical wiring, switches, and protective devices using appropriate data.
.....	**Wiring Routing, EWIS, and EMI Protection**
AM.II.K.S.1.	Inspect aircraft wiring for physical damage, inadequate support, and other conditions that may affect airworthiness.
AM.II.I.S.6.	Inspect coaxial cable routing, support, and termination for security and damage.
.....	**Grounding, Bonding, and Protection Systems**
AM.III.F.S.13.	Fabricate and install bonding jumpers using specified materials and techniques
AM.II.I.S.10.	Verify grounding and bonding continuity on airframe mounted electrical components.
.....	**Lighting & Indication Systems**
AM.II.K.S.14.	Remove and replace aircraft lighting components and verify operation.
AM.II.I.S.11.	Inspect static discharge wicks for condition, security, and resistance.
.....	**System Troubleshooting & Integration**
AM.II.K.S.16.	Use a multimeter to measure electrical quantities and isolate basic faults in aircraft circuits.
.....	**Electrical Joining Methods**
AM.II.K.S.5.	Perform soldering using accepted aviation techniques and materials.

[12] Subject H. Aircraft Instruments, Display and Alerting Systems	
Competencies	*Inspect, maintain, and troubleshoot aircraft instruments, alerting, and display systems using appropriate data and appropriate safety practices.*
Knowledge	***The applicant will be able to:***
	Annunciator & Alerting Systems
AM.II.H.K.1.	Describe the function and logic of warning, caution, and advisory systems.
.....	Identify annunciator panel components and typical failure modes.
.....	Explain EICAS and ECAM message types and built-in test functions.
.....	Interpret intermittent annunciations in analog and digital alerting systems and identify their basic maintenance implications.
	Attitude Instruments
AM.II.H.K.7.	Describe the operation of vacuum driven and electrically-driven attitude gyro instruments.
.....	Explain system level errors affecting attitude instruments, including precession, misalignment, and power source failures.
	Pitot Static and Air Data Instruments
AM.II.H.K.10.	Describe pitot static system components and operation.
.....	Explain system-level instrument, display, and alerting errors and how they arise from interactions among data sources, power systems, and supporting subsystems.
AM.II.H.K.19.	Interpret static system leak-test requirements as specified in 14 CFR §91.411 and Part 43 Appendix E.
.....	Describe alternate static source operation and its effects.
	Vacuum & Pneumatic Support Systems
AM.II.H.K.9.	Describe vacuum and pneumatic system components and their role in flight instrument operation.
.....	Identify indicators of system level failures such as low vacuum, contamination, or regulator malfunction.
.....	Explain system specific inspection and maintenance requirements for vacuum and pneumatic filters, hoses, and fittings.
	Stall Warning & Angle of Attack Systems
.....	Describe the purpose and function of stall warning and angle of attack systems.
.....	Identify the components and operating principles of stall warning and AOA systems.
.....	Explain common system level errors, failure indications, and their operational effects.
.....	Describe inspection, adjustment, and functional test requirements for stall warning and AOA systems.
	Electronic Displays & Integrated Avionics
AM.II.H.K.16.	Describe the major components and functions of EFIS, PFD/MFD, and integrated flight display systems.
AM.II.H.K.17.	Identify EICAS and ECAM functions, message prioritization schemes, and alerting logic.
AM.II.H.K.13.	Explain flight display data sources.

[12] Subject H. Aircraft Instruments, Display and Alerting Systems	
AM.II.H.K.18.	Describe the function of head up displays as they relate to flight control awareness.
.....	Explain software and firmware effectivity and configuration control requirements for integrated display systems.
AM.II.H.K.15.	Describe BITE and reversionary modes for flight displays.
	Aircraft Bonding, Grounding & Protection
AM.II.H.K.14.	Identify electrostatic-sensitive instrument components and describe proper handling practices to prevent damage or signal degradation.
.....	Describe lightning protection principles and electromagnetic shielding requirements as they relate to instrument system accuracy, wiring integrity, and data signal protection.
AM.II.H.K.23.	Explain how improper bonding affects instrument system reliability, including noise susceptibility, erratic indications, and grounding path failures.
	Instrument Removal, Installation & Handling
AM.II.H.K.24.	Describe proper removal and installation procedures for flight instruments and display units.
.....	Explain plumbing, electrical, and pitot static connection requirements.
.....	Identify torque, sealing, and leak prevention considerations.
.....	Explain safe handling practices for gyros, ESD sensitive components, and electronic flight displays (e.g., LCD/LED/CRT units).
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.H.R.1.	Improper cleaning, pressurization, or handling techniques that damage flight instruments or display components
AM.II.H.R.2.	Unresolved or misdiagnosed intermittent annunciator or alerting indications affecting system reliability or airworthiness.
AM.II.H.R.3.	Improper handling of electrostatic sensitive devices or components.
AM.II.H.R.5.	Incorrect performance of pitot static, air data, or stall warning/AOA inspections or tests.
.....	Incorrect software or firmware effectivity during component installation affecting display or alerting system integrity.
Skills	***The applicant demonstrates the ability to:***
	Vacuum & Pneumatic System Diagnostics
AM.II.H.S.7.	Troubleshoot vacuum or pneumatic system faults using appropriate data.
	Stall Warning & Angle of Attack Systems
.....	Inspect a stall warning for condition, security, and installation. angle of attack system for
	Test a stall warning or angle-of-attack system in accordance with appropriate data.
	Air Data & Attitude Instruments
AM.II.H.S.4.	Set and verify barometric pressure on an altimeter.
AM.II.H.S.8.	Select the correct altimeter for installation based on aircraft requirements.

[12] Subject H. Aircraft Instruments, Display and Alerting Systems	
AM.II.H.S.1.	Perform a static system leak test in accordance with 14 CFR §91.411 and Part 43 Appendix E.
	Flight Instrument & Component Inspection
AM.II.H.S.10.	Inspect vacuum system filters, hoses, and regulators for serviceability.
AM.II.H.S.12.	Inspect an alternate static source for proper operation
AM.II.H.S.14.	Inspect an outside air temperature gauge for condition and indication accuracy.
	Instrument Markings and Installation
AM.II.H.S.5.	Verify proper range markings on a flight instrument.
AM.II.H.S.2.	Install a flight instrument using correct bonding, plumbing, and electrical practices in accordance with appropriate data.
	Display System Components
.....	Verify the installation, security, and functional status of EFIS, PFD, and MFD components using required post installation checks and system test procedures.

[13] Subject I. Communications	
Competencies	*Maintain and verify aircraft communication systems by interpreting system indications, applying appropriate data, and performing inspections and operational checks in accordance with part 43 to ensure safe, reliable transmission and reception of communication signals.*
Knowledge	***The applicant will be able to:***
.....	**Radio Principles**
AM.II.I.K.1.	Describe radio operating principles, including FM, AM, and SSB modulation characteristics.
.....	**Radio Communications System Components**
AM.II.I.K.2.	Identify radio communication system components used in aircraft communication systems.
.....	Describe the functions of radio communication system components within aircraft communication systems.
.....	**Communication System Operation and Interpretation**
.....	Interpret communication system block diagrams and schematics to support system understanding.
AM.II.I.K.3.	Describe communication antenna types and installation considerations related to placement, bonding, and signal integrity.
.....	Explain the purpose of antenna ground planes and the importance of proper bonding for communication system integrity.
.....	**Communication Procedures and Protocols**
.....	Describe standard aviation radio phraseology and protocols used for aircraft communications.
.....	**Communication Systems**
AM.II.I.K.5.	Describe the purpose and operational functions of HF, VHF, and SATCOM communication systems.
.....	Describe installation and inspection considerations that support proper operation of aircraft communication systems.
.....	**Audio and Interphone Systems**
AM.II.I.K.4.	Describe the purpose, components, and functional differences among audio panels, interphone systems, and intercom systems.
.....	**Digital Communication and Networking**
AM.II.I.K.6.	Explain the purpose and major components of ACARS and CPDLC within digital aircraft communication systems.
.....	Describe ARINC and aircraft data bus systems, and the common ways system components are interconnected.
.....	**Emergency and Surveillance Systems**
AM.II.I.K.7.	Describe the purpose, operation, and system integration of emergency locator transmitters (ELTs).
AM.II.I.K.21.	Describe aircraft transponder system purpose, operational types, major components, and operating principles.
.....	Describe the purpose, activation method, and system integration of underwater locator beacons (ULBs).
.....	Describe the purpose, recording functions, and crash-survivable features of cockpit voice recorders (CVRs).

[13] Subject I. Communications	
.....	Describe the purpose, recorded parameters, and crash-survivable features of flight data recorders (FDRs).
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.I.R.1.	Unintended activation of COSPAS–SARSAT emergency beacons.
AM.II.I.R.4.	Improper installation, damage, or misalignment of communication antennas.
.....	Exposure of personnel to radio frequency energy during communication system testing.
.....	Transmission of radio signals without an antenna connected.
Skills	***The applicant demonstrates the ability to:***
AM.II.I.S.5.	Verify VHF communication system operation using aircraft controls and required test procedures.
AM.II.I.S.8.	Perform an ELT inspection in accordance with appropriate data, including battery condition and expiration verification.
AM.II.I.S.9.	Inspect communication system equipment mounts, racks, and supporting structure for security and condition.
AM.II.I.S.12.	Inspect communication of radio control heads, transceivers, and associated antenna installations for security, physical condition, and proper attachment.
.....	Verify proper routing, security, and general condition of communication system wiring and coaxial cables in accessible areas.

[14] Subject NEW. Navigation	
Competencies	*Interpret navigation system information, apply appropriate and regulatory requirements, and perform required inspections to ensure the accuracy, integrity, and safe operation of aircraft navigation systems.*
Knowledge	***The applicant will be able to:***
	Magnetic & Directional Navigation Systems
AM.II.H.K.2.	Explain magnetic compass operational principles and major components.
.....	Explain compass errors, limitations, and environmental influences.
.....	Identify inspection, maintenance, and troubleshooting requirements for magnetic compass systems.
AM.II.H.K.3.	Explain the purpose and regulatory requirements for compass swing procedures.
.....	Describe safety and environmental considerations for compass swing operations.
.....	Explain operational principles of directional gyros and heading indicators.
.....	Identify flux valves, slaving systems, and basic directional alignment procedures.
.....	Explain common directional system errors and their causes.
	Navigation Antennas & Installation Requirements
.....	Explain the purpose and function of navigation antennas used for GPS, VOR, ILS, and DME systems.
.....	Explain installation considerations, including placement, bonding, routing, and interference factors.
.....	Identify inspection and maintenance requirements for navigation antennas and associated cabling.
	Ground Based Navigation Systems
AM.II.I.K.9.	Explain VOR operational principles and major components.
.....	Explain VOR signal characteristics, limitations, and common failure indications.
AM.II.I.K.10.	Describe DME operational principles and major components.
.....	Explain DME accuracy factors, limitations, and typical failure signatures.
AM.II.I.K.11.	Explain ILS localizer, glideslope, and marker beacon components.
.....	Explain ILS signal characteristics, sensitivities, and limitations.
.....	Identify CAT I/II/III system requirements and associated maintenance considerations.
	Satellite Based Navigation Systems
AM.II.I.K.12.	Explain GPS operational principles and major components.
.....	Explain GPS accuracy factors, augmentation systems, and limitations.
.....	Explain differential GPS and its role in precision and low visibility operations.
	Surveillance & Collision Avoidance Systems
AM.II.I.K.13.	Explain TCAS/ACAS operational principles and major components.
.....	Explain traffic advisory (TA) and resolution advisory (RA) logic and system limitations.
AM.II.I.K.20.	Explain ADS-B operational principles, components, and data sources.

[14] Subject NEW. Navigation	
.....	Explain ADS-B Out and ADS-B In functions and regulatory requirements.
.....	Identify inspection and verification requirements for ADS B installations.
	Terrain & Weather Awareness Systems
AM.II.I.K.14.	Explain airborne weather radar operational principles and major components.
.....	Explain radar display interpretation, attenuation effects, and system limitations.
.....	Identify safety considerations for radar operation during ground handling.
AM.II.I.K.15.	Explain GPWS/EGPWS operational principles and major components.
.....	Explain terrain alerting modes, limitations, and integration with other systems.
	Flight Management & Auto Flight Systems
.....	Explain FMS major components, data sources, and basic operational principles.
.....	Explain FMS navigation modes, performance functions, and system limitations.
AM.II.I.K.16.	Explain autopilot major components and their functions.
.....	Explain autopilot operational principles, modes, and limitations.
.....	Identify inspection and verification requirements for autopilot systems.
AM.II.I.K.17.	Explain auto throttle system components and operational principles.
.....	Explain auto throttle modes, protections, and system limitations.
.....	Identify inspection and verification requirements for auto throttle systems.
	Radio Altimeter Systems
AM.II.I.K.19.	Explain radio altimeter operational principles and major components.
.....	Explain RA accuracy factors, limitations, and integration with other systems.
	Airspace & Operational Requirements
.....	Explain U.S. airspace classes, special use areas, and associated avionics requirements.
.....	Explain marking, equipment, and procedural requirements for airspace compliance.
.....	Explain low visibility operation definitions and associated avionics requirements.
.....	Explain maintenance, functional check, and MEL/MMEL considerations for low visibility operations.
.....	Explain RVSM definitions, requirements, and critical system components.
.....	Explain RVSM integration with autopilot, air data computers, and altimetry systems.
.....	Identify inspection, verification, and documentation requirements for RVSM operations.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
.....	Navigation system interference or installation deficiencies.
.....	Navigation or surveillance system configuration errors.

[14] Subject NEW. Navigation	
.....	Navigation database or software discrepancies.
.....	Insufficient post-maintenance inspection or verification.
.....	Exposure to non-ionizing radiation sources.
Skills	***The applicant demonstrates the ability to:***
AM.II.H.S.6.	Inspect a magnetic compass for physical integrity, fluid condition, legibility, and mounting security.

[15] Subject G. Air Conditioning	
Competencies	*Maintain aircraft environmental control systems by interpreting airflow behavior, system indications, and component interactions to verify proper operation and resolve system level faults.*
Knowledge	***The applicant will be able to:***
.....	**General**
.....	Explain the purpose and function of aircraft air conditioning systems for general aviation and transport category aircraft.
.....	Explain the relationship between air conditioning, ventilation, and pressurization systems.
.....	Identify major air conditioning system components.
	Explain the operational principles of major air conditioning system components.
.....	Trace airflow paths through typical general aviation and transport category air conditioning system configurations.
.....	**Air Distribution**
	Identify major air distribution system components.
.....	Explain air distribution airflow from source to cabin zones and the principles that govern system operation.
.....	Describe considerations for air distribution system inspections and operational checks.
.....	**Air Supply Systems**
	Identify major components of air supply systems.
.....	Explain conditioned air supply sources and their operating principles for general aviation and transport category aircraft.
AM.II.G.K.6.	Explain vapor cycle system operating principles and major components.
AM.II.G.K.7.	Explain air cycle system operating principles and major components.
.....	Describe considerations for inspections, maintenance, and operational checks of systems that supply conditioned air.
.....	**Temperature Control**
.....	Explain temperature control system operation, including zone temperature regulation and crew interface.
.....	Describe considerations for temperature control system calibration and fault diagnosis using system test functions.
.....	**Pressurization Control**
AM.II.G.K.8.	Explain pressurization of system operating principles, terminology, and major components.
AM.II.G.K.1.	Explain pressurization sources for reciprocating and turbine engines and differences across aircraft categories.
.....	Describe pressurization modes, including isobaric and constant differential operation.
.....	Describe considerations for pressurization system inspections and operational checks.
.....	**Equipment Cooling**
AM.II.G.K.3.	Identify major equipment cooling system components.
	Explain equipment cooling airflow paths and operating principles.

[15] Subject G. Air Conditioning	
.....	Describe considerations for equipment cooling airflow verification and operational testing.
.....	**Supplemental Heating**
.....	Explain supplemental heating system types, purpose, configuration, and operating principles.
AM.II.G.K.2.	Explain engine and APU bleed air cabin heating system layout and temperature regulation strategies.
AM.II.G.K.5.	Identify major combustion heater components.
	Explain combustion heater operating principles.
AM.II.G.K.4.	Identify major exhaust heat exchanger components.
	Explain exhaust heat exchanger operating principles.
	Describe considerations for supplemental heating system inspections and maintenance.
.....	**Moisture [Humidity] / Air Contamination Control**
.....	Describe how moisture and humidity contribute to corrosion and degradation in air-conditioning system components.
.....	Identify airborne contaminants and associated health risks.
	Identify major air contamination control system components.
.....	Explain air contamination control system purpose and operating principles.
.....	Describe considerations for air contamination control system inspections, functional checks, and sensor verification.
.....	Explain smoke and fume event sources and pathways.
	Identify major carbon monoxide detector components.
	Explain carbon monoxide detector purpose and operating principles.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.G.R.2.	Halogenated refrigerant release hazards.
AM.II.G.R.5.	Chemical and vapor exposure hazards.
.....	Pack component electrical and mechanical hazard states.
AM.II.G.R.6.	Combustion heater fault hazards.
Skills	***The applicant demonstrates the ability to:***
AM.II.G.S.13.	Inspect an exhaust heat exchanger cabin heater system for defects.
AM.II.G.S.10.	Inspect a combustion heater fuel supply system for leaks.
AM.II.G.S.14.	Inspect an outflow valve.
	Clean an outflow valve using appropriate data.
AM.II.G.S.12.	Troubleshoot an air cycle air conditioning system using system schematics.

[16] Subject L. Ice and Rain Control Systems	
Competencies	*Maintain, inspect, and troubleshoot aircraft ice and rain protection systems by applying system knowledge, appropriate data, and safety principles to assess environmental conditions, verify proper system operation, and ensure the continued effectiveness of ice detection, anti-icing, deicing, and rain control functions.*
Knowledge	***The applicant will be able to:***
	Environmental Conditions & Ice Formation
AM.II.L.K.1.	Describe conditions that lead to ice formation and the types of ice.
.....	Explain aircraft icing hazards and their aerodynamic and structural impacts.
AM.II.L.K.7.	Describe environmental conditions that degrade visibility and impact on operations.
	System Types & Applications
.....	Compare ice and rain protection system types and their applications in general aviation and transport category aircraft.
	Component Identification & Function
.....	Identify ice and rain protection system components.
.....	Explain the function of ice and rain protection system components.
	System Operation
AM.II.L.K.2.	Explain ice detection system function and operation.
AM.II.L.K.3.	Explain the anti-icing system purpose, function, and operational principles.
AM.II.L.K.4.	Explain the deicing system purpose, function, and operational principles.
.....	Explain pneumatic deicer boot operation and the functional indications observed during system checks.
AM.II.L.K.5.	Explain the rain control system purpose, function, and operational principles.
	Schematic Interpretation
.....	Interpret ice and rain protection system schematics to trace airflow, electrical distribution, or fluid routing through system components.
	Maintenance Requirements
AM.II.L.K.6.	Describe ice and rain protection system maintenance requirements related to inspection, servicing, functional checks, and troubleshooting.
.....	Describe care and cleaning considerations for pneumatic deicer boots, including materials compatibility and surface condition requirements.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.L.R.1.	Ice and rain protection system testing and maintenance hazards.
.....	Ice and rain protection system servicing hazards.
AM.II.L.R.2.	Deicing and anti-icing fluid storage and handling hazards.
AM.II.L.R.3.	Heated windshield cleaning and material compatibility hazards.
Skills	***The applicant demonstrates the ability to:***
AM.II.L.S.2.	Inspect a pneumatic deicer boot for condition and security.
AM.II.L.S.3.	Clean a pneumatic deicer boot.
AM.II.L.S.4.	Inspect a heated pitot static anti-ice system for condition and security.

.....	Conduct a functional check of a heated pitot static anti-ice system using accepted data.
.....	Troubleshoot a heated pitot static anti-ice system fault using accepted data.

[17] Subject M. Airframe Fire Protection Systems	
Competencies	*Inspect, maintain, troubleshoot, and document airframe fire protection systems in accordance with appropriate data and procedures.*
Knowledge	***The applicant will be able to:***
AM.II.M.K.1.	Describe fire protection requirements for airframe structures and control systems adjacent to designated fire zones.
.....	**Airframe Fire Detection Systems**
AM.II.M.K.2.	Describe airframe fire detection and overheat system components and operation.
AM.II.M.K.3.	Explain maintenance and inspection requirements for airframe fire and overheat detection systems.
AM.II.M.K.4.	Describe smoke detection system components and operation.
.....	Describe carbon monoxide detection system components and operation.
.....	Interpret common airframe fire detection system for malfunctions using applicable data.
.....	**Fire Extinguishing Systems**
AM.II.M.K.5.	Describe extinguishing agents used in airframe systems and their application based on fire types.
AM.II.M.K.6.	Describe airframe fire extinguishing system components and operation.
AM.II.M.K.7.	Explain maintenance and inspection requirements for airframe fire extinguishing systems.
...K..	Interpret common airframe fire extinguishing system malfunctions using applicable data.
...K..	Explain storage, handling, and safety procedures for extinguishing agents and system components to prevent accidental discharge or environmental contamination.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.M.R.2.	Inadequate use of PPE or ventilation when working with extinguishing agents in enclosed cabin or cargo areas.
.....	Improper installation or maintenance of smoke or CO detectors.
.....	Incorrect handling or servicing of airframe fire extinguishing bottles (cargo/lavatory).
.....	Maintenance induced faults in airframe fire detection circuits.
Skills	***The applicant demonstrates the ability to:***
.....	**Fire Detection Systems**
AM.II.M.S.4.	Inspect a smoke detection system for condition, installation, and proper operation.
AM.II.M.S.5.	Inspect a carbon monoxide detector for condition, installation, and proper operation.
.....	**Fire Extinguishing Systems**
AM.II.M.S.2.	Check a fire extinguisher system container pressure for compliance with specified limits.
AM.II.M.S.10.	Perform an operational check of an airframe fire detection or protection system to verify correct system response.

AM.II.M.S.11.	Inspect an airframe fire extinguishing agent bottle discharge cartridge for condition, security, and installation.
AM.II.M.S.8.	Inspect a cargo or lavatory fire extinguishing bottle for condition and serviceability.
AM.II.M.S.1.	Troubleshoot an airframe fire detection or extinguishing system malfunction using appropriate data.

[18] Subject NEW. Oxygen Systems	
Competencies	*Maintain aircraft oxygen systems by applying system knowledge, appropriate data, and safety principles to ensure the integrity, reliability, and safe operation of crew, passenger, and portable oxygen equipment.*
Knowledge	***The applicant will be able to:***
.....	**Oxygen System Fundamentals**
.....	Describe the purpose of aircraft oxygen systems.
.....	Differentiate between pressurized, supplemental, and transport category oxygen system types.
.....	Identify the physical states of oxygen used in aviation.
.....	Describe oxygen source types and their aviation applications.
.....	**System Components and Operation**
AM.II.G.K.9.	Identify major oxygen system components.
.....	Explain the operation of regulators, flow indicators, and oxygen system valves.
.....	**Flight Crew Oxygen System**
.....	Identify flight crew oxygen mask components.
.....	Explain the operation of flight crew oxygen masks.
.....	Describe indicators, warning mechanisms, and emergency override features.
.....	**Passenger Oxygen System**
.....	Differentiate between chemical and gaseous passenger oxygen systems.
.....	Describe passenger oxygen system deployment mechanisms and triggers.
.....	Describe safety considerations and handling protocols for passenger oxygen systems.
	Chemical Oxygen Generators
	Describe the operating principles of chemical oxygen generators.
	Describe the hazards associated with chemical oxygen generator activation and handling.
	Gaseous Passenger Oxygen Systems
	Describe gaseous passenger oxygen system components.
	Explain the operation of gaseous passenger oxygen systems.
	Describe safety considerations for gaseous passenger oxygen systems.
.....	**Portable Oxygen System**
.....	Identify portable oxygen system types used in aviation.
.....	Describe inspection criteria for portable oxygen systems.
.....	Describe servicing procedures for portable oxygen systems.
.....	Explain the operation of portable oxygen systems.
.....	Describe stowage requirements for portable oxygen systems.
.....	**Oxygen System Maintenance**
AM.II.G.K.10.	Describe inspection and test requirements for aircraft oxygen systems.
AM.I.F.K.8.	Explain oxygen servicing concepts, including oxygen types, servicing equipment, hazards, and general practices.
.....	Explain leak check principles for oxygen systems.

[18] Subject NEW. Oxygen Systems	
.....	Describe safety considerations for handling high pressure oxygen components.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.G.R.1.	Oxygen system maintenance hazards.
AM.II.G.R.3.	Chemical oxygen generator activation and exposure hazards.
AM.II.G.R.4.	Post servicing oxygen system test anomalies, including leaks, pressure deviations, or contamination.
	Oxygen system leak hazards, including oxygen depletion, fire risk, and crew incapacitation.
Skills	***The applicant demonstrates the ability to:***
AM.II.G.S.1.	Inspect an oxygen system.
AM.II.G.S.5.	Inspect an oxygen system pressure regulator.
AM.II.G.S.4.	Inspect a pilot emergency oxygen mask and supply hoses.
AM.II.G.S.7.	Inspect a chemical oxygen generator for serviceability and safe handling.
AM.II.G.S.6.	Inspect an oxygen system cylinder for serviceability.
AM.II.G.S.3.	Service an oxygen system using appropriate data.
AM.II.G.S.2.	Purge an oxygen system prior to servicing using appropriate data.

19 Subject N. Rotorcraft Systems	
Competencies	*Maintain rotorcraft systems by applying aerodynamic and systems knowledge, appropriate data, and safety principles to assess system condition, perform required inspections, and verify proper operation to ensure safe ground handling and continued airworthiness.*
Knowledge	***The applicant will be able to:***
.....	**Rotorcraft Aerodynamics**
AM.II.N.K.1.	Describe the aerodynamic principles that govern rotorcraft lift and thrust.
.....	Explain how blade pitch changes affect rotorcraft aerodynamic performance.
.....	Describe gyroscopic precession and its effects on rotor system response.
.....	Explain dissymmetry of lift and the role of blade flapping in compensating for it.
.....	Describe torque effects on the fuselage and methods of torque compensation.
.....	Explain the axes of rotorcraft movement and their relevance to rotorcraft control.
	Explain the aerodynamic factors that affect hovering performance, including in-ground-effect and out-of-ground-effect conditions.
	Describe airflow through the rotor system during autorotation and its relevance to rotorcraft performance and system loads.
.....	**Systems Overview**
.....	Identify the major rotorcraft systems.
.....	Describe the primary functions of major rotorcraft systems.
.....	**Flight Controls**
AM.II.N.K.2.	Describe the purpose and function of collective, cyclic, and antitorque controls.
.....	Explain how rotorcraft flight controls interact to manage lift, thrust, and directional control.
.....	**Rotor Systems & Rotor Blades**
	Rotor System Types
AM.II.N.K.5.	Explain main rotor system types and operational characteristics.
.....	Explain tail rotor system types and operational characteristics.
	Rotor Blade Construction & Behavior
AM.II.N.K.7.	Describe rotor blade construction and functional characteristics.
.....	Describe the principles of rotor blade tracking and balance.
.....	Identify common rotor blade wear and damage types and the inspection considerations associated with them.
.....	**Power Transmission Systems**
.....	Describe the types of powerplants used in rotorcraft and their operational considerations.
AM.II.N.K.3.	Describe the components and power transfer function of rotorcraft transmission systems.

19 Subject N. Rotorcraft Systems	
.....	Describe the purpose and operation of the main rotor transmission, tail rotor drive system, clutch, and freewheeling unit.
.....	**Structural Systems**
.....	Describe rotorcraft landing gear types and their functional characteristics.
.....	Describe the construction and functional role of the tail boom in antitorque systems.
.....	**Stability Augmentation and Control Enhancement**
AM.II.I.K.18.	Describe the operational principles and major components of rotorcraft stability augmentation systems (SAS).
.....	Explain SAS functions, limitations, and integration with autopilot systems.
.....	**Maintenance Concepts**
AM.II.N.K.6.	Describe common maintenance practices applicable to rotorcraft systems.
AM.II.N.K.4.	Describe rigging principles and requirements for rotary wing flight controls.
AM.II.N.K.8.	Describe the causes and indications of rotor system vibration.
AM.II.N.K.9.	Describe the causes and indications of drive system vibration.
Risk Management	***The applicant demonstrates the ability to identify, assess, and mitigate risks associated with:***
AM.II.N.R.1.	Exposure to moving or static rotor blades during ground operations.
AM.II.N.R.2.	Improper positioning or securing of rotorcraft during ground handling.
.....	Improper handling of rotorcraft with skid type or wheeled landing gear.
AM.II.N.R.3.	Improper isolation of rotorcraft systems during maintenance.
AM.II.N.R.4.	Improper maintenance or inspection of rotorcraft systems or components.
Skills	***The applicant demonstrates the ability to:***
.....	Inspect a pitch change link for condition, security, and correct safetying.
.....	Inspect tail rotor drive shaft couplings and bearings for condition and security.
	Determine the serviceability of a TT strap using provided documentation.