Instructional Framework_

Aircraft Mechanics
47.0600.50

Domain 1: Regulatory **Instructional Time: 25-30%**	
STANDARD 3.0 Weigh and Balance Aircraft	
3.1 Weigh Aircraft	● Understanding of definitions of Datum, Arm, and Moment ● Preparation for weighing ● Understanding of Tare, Ballast, Residual Fuel / Oil ● Understanding of TCDS ● Adverse loading conditions ● Understanding of Mean Aerodynamic Chord (MAC)
3.2 Perform weight and balance check and record data	● Item/Weight/Arm/Moment Calculations
STANDARD 8.0 Maintenance Forms, Records, and Publications	
8.1 Write descriptions of work performed using typical aircraft maintenance records	● FAR 43.9 ● Mechanics certificate types ● Aircraft maintenance specifications
8.2 Complete required maintenance forms, records, and inspection reports	● Log page ● FAA 337 major repair or alteration ● Minor/major repair ● Minor/major alteration ● FAR 43 91 121
8.3 Apply information from maintenance publications	● Aircraft maintenance specifications ● AC 43.13-1B ● FAA approved date ● Airworthiness directives
STANDARD 10.0 Interpret Mechanical Privileges and Limitations	

10.1 Identify mechanic privileges within the limitations prescribed by FAR Part 65	● Location of privileges ● Airframe certificate privileges ● Powerplant certificate privileges ● Airframe certificate limitations ● Powerplant certificate limitations ● Major repairs ● Minor repairs ● Alterations ● 100 hour inspections ● Annual inspections ● Special inspections ● Preventative maintenance ● Recent experience requirement
10.2 Identify the information in FAR Part 65 pertaining to eligibility for Aviation Maintenance Technician certification and ratings	● Length of experience required ● Practical experience required ● Minimum age ● Revocation and suspension ● Inspection Authorizations

Domain 2: Basic Processes **Instructional Time: 25-30%**	
STANDARD 4.0 Maintain and Repair Fluid Lines and Fittings	
4.1 Fabricate and install rigid fluid lines	● Measure, cut, bend and flare ● Read measurements and formulas ● Identify correct type of tubing ● Fitting selection ● Pressure testing
4.2 Fabricate and install flexible fluid lines	● Measure, cut, bend and flare ● Read measurements and formulas ● Identify correct type of tubing ● Fitting selection ● Pressure testing
STANDARD 5.0 Inspect and Test Aircraft Welds and Materials	
5.1 Identify and select nondestructive testing processes	● Dye penetrant ● Radiograph ● Eddy current ● Magnetic particle

	• Ultrasonic
5.2 Identify and select aircraft hardware and materials	• AN, NAS, MS standards • Manufacturer markings • SAE material code • Interpret symbols • Diameter and length measurements • Alloys • Material strength test • Material stress • Heat treatment
5.3 Perform precision measurements	• Proper calibration • Vernier scale • Decimal place • Dial gauge • Runout • Part preparation
STANDARD 7.0 Perform Aircraft Cleaning and Corrosion Control	
7.1 Identify and select aircraft cleaning materials	• Approved cleaning agents • Aircraft maintenance specifications • Aluminum cleaning agents • Caustic cleaning agents • Chemical removal of oil and grease • Mechanical removal of oil and grease • MSDS
7.2 Identify types of aircraft corrosion	• Direct chemical corrosion • Electrochemical corrosion • Corrosion prone areas • Environmental factors • Stresses • Oxides
7.3 Identify corrosion removal techniques	• Chemical removal of corrosion • Mechanical removal of corrosion • Metallic structures • Non-metallic structures
7.4 Identify corrosion treatment techniques	• Protective coating to a metallic material. • Protective coating or treatment to a non-metallic material. • Post wash treatments • Aircraft maintenance specifications • AC 43-13.1B

Domain 3: Basic Electricity Instructional Time: 15-20%	
STANDARD 1.0 Perform Electrical Maintenance and Repair	
1.1 Calculate and measure electrical power	● Ohm's Law formula ● Watt's Law ● Kirchhoff's Law for voltage and current
1.2 Measure Voltage, current, resistance, and continuity	● Multimeter connection ● Multimeter reading ● Troubleshooting
1.3 Determine the relationship of voltage, current, and resistance in electrical circuits	● Series circuits ● Parallel circuits ● Series/parallel circuits ● Ohm's Law calculations
1.4 Read interpret aircraft electrical circuit diagrams, including solid-state devices and logic functions	● Electrical diagram types ● Electrical symbols ● Read electrical diagrams ● Logic gates

Domain 4: Basic Principles of Flight Instructional Time: 15-20%	
STANDARD 2.0 Prepare Aircraft Drawings	
2.1 Identify aircraft drawings and symbols and interpret system schematics	● Understanding of line types and their definitions ● Understanding drawing symbols and legend identification ● Identifying title blocks
2.2 Draw sketches of repairs and alterations	● Understanding the chronological steps in creating a sketch ● Understanding line types and uses
2.3 Interpret graphs and charts prior to maintaining and repairing systems	● Understanding steps to reading charts and graphs
STANDARD 9.0 Apply Basic Physics to Aircraft Systems	
9.1 Use and understand the principles of simple machines	● 5 types of machines ● Mechanical advantage calculations ● Work force relationship

9.2 Use and understand the principles of sound, fluid, and heat dynamics	● sound resonance ● specific gravity ● Pascal's laws ● Boyle's laws ● Charles's laws ● forms of energy ● thermal dynamics ● density ● conduction, convection & radiation
9.3 Use and understand the principles of basic aerodynamics	● forces of flight ● Force area pressure relationship ● Airfoil
9.4 Use and understand the principles of aircraft structures	● Aerodynamic factors ● Material selection ● Manufacturing process ● Material stress, torsion / shear ● Vibration ● Primary structure ● Secondary structure ● Controls
9.5 Use and understand the principles of theory of flight	● Lift, thrust, weight & dray ● Bernoulli's principle ● Density altitude ● Temperature, and/or pressure, and/or humidity

Domain 5: Basic Operations **Instructional Time: 5-10%**	
STANDARD 6.0 Perform Ground Operations and Services	
6.1 Identify types of fires and fire extinguishers	● Fire types and classes ● Fire extinguisher types ● Fire extinguisher selection ● Fire extinguisher use
6.2 Identify safe practices in aircraft fueling and handling	● Electrical grounding of equipment ● Types of fuel ● Fuel contamination ● Automotive fuel ● Fuel additives ● Fuel caps

	• Single point connection • Fuel control panels • Fuel spills • De-fueling • Fueling equipment
6.3 Identify aircraft ground movement procedures	• ATC • Airport ground control • Airport tower control • Uncontrolled airfield • Starting a reciprocating engine aircraft • Starting a turbine aircraft • Taxiing • Towing • Runways • Taxiways
6.4 Identify procedures for securing aircraft in a variety of conditions	• Adverse weather conditions and hazards • Aircraft tie downs • Aircraft chocks • Control locks • Engine covers • Pitot static covers