AIRFRAME AND POWERPLANT (AFPM)

AFPM F111  General Airframe and Powerplant
3 Credits
Offered As Demand Warrants
Shop practices, basic math, applied physics, FAA regulations, basic electricity, aircraft weight and balance, ground operations and servicing, cleaning and corrosion control, and materials and process. Preparation for the FAA Mechanics Airframe Structures Written, Oral and Practical Exam.
Prerequisites: Experience requirements of FAR 65.77 or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

AFPM F145  Basic Mathematics
1 Credit
Offered As Demand Warrants
Review of applied and technical mathematics related to the construction and engines of aircrafts. Common, decimal, fractions and mixed numbers; extracting square roots and raising numbers to a given power; solving ratios, proportions and percentage problems; fundamental algebraic operations.
Prerequisites: Admission to A & P program; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F146  Basic Electricity
2 Credits
Offered As Demand Warrants
Electrical theory and concepts for the aviation mechanic. Ohm's law, electrical circuits, diagrams, batteries and a variety of electrical components.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F147  Physics for Mechanics
0.5 Credit
Offered As Demand Warrants
Applications of mechanics; levers, sound, fluid and heat dynamics. Basic aircraft structures and aerodynamics. (Course does not fulfill natural science requirements for any degree.)
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F148  Aircraft Drawing
1 Credit
Offered As Demand Warrants
Basic drafting. Drawings, symbols and schematic diagrams, sketches of repairs and alterations, blueprint information, graphs and charts.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F149  Fluid Lines and Fittings
0.5 Credit
Offered As Demand Warrants
Rigid and flexible fluid lines and fittings, fabrication and installation.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F150  Materials and Processes
2 Credits
Offered As Demand Warrants
Basic shop practices, including selection, identification and installation of aircraft hardware and materials, precision measuring tools and operations, basic heat treating processes, forms of nondestructive inspections.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F151  Cleaning and Corrosion Control
1 Credit
Offered As Demand Warrants
Basic aircraft cleaning materials, methods and corrosion control.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F152  Federal Aviation Regulations
1 Credit
Offered As Demand Warrants
Federal Aviation Regulations for maintenance of aircraft. Maintenance forms and records, publications, privileges and limitations of aircraft mechanics.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F153  Weight and Balance
1 Credit
Offered As Demand Warrants
Weighing procedures, weight, arms, moments, center of gravity computations and placarding. Aircraft loading, required forms, weighing.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F154  Ground Operations and Servicing
0.5 Credit
Offered As Demand Warrants
Starting, moving, servicing, securing and fueling aircraft.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F205  Airframe Structures
3 Credits
Offered As Demand Warrants
Prerequisites: Experience requirements of FAR 65.77; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

AFPM F206  Airframe System and Components
2 Credits
Offered As Demand Warrants
Aircraft electrical, hydraulic and pneumatic systems. Landing gear, instruments, fuel, communication and navigation, cabin atmosphere control, and fire protection systems. Inspection, checking, troubleshooting, repair and servicing. Preparation for the FAA Mechanics Airframe Structures written, oral and practical exam.
Prerequisites: Experience requirements of FAR 65.77; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0
AFPM F215  MOS Powerplant Theory/Maintenance
2 Credits
Offered As Demand Warrants
Prerequisites: Experience requirements of FAR 65.77; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F216  MOS Powerplant System/Components
3 Credits
Offered As Demand Warrants
Prerequisites: Experience requirements of FAR 65.77; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

AFPM F230  Aircraft Electrical Systems
2.5 Credits
Offered As Demand Warrants
Wiring, control, indication and protection devices for AC and DC systems. Inspection, troubleshooting service and repair of these systems.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 2.5 + 0 + 0

AFPM F231  Powerplant Electrical Systems
1.5 Credits
Offered As Demand Warrants
Installation, inspection, testing, servicing engine electrical system wiring, controls, indicators and protective devices. Repair and service of electrical generating systems.
Prerequisites: Admission to A&P program; or permission of instructor.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F235  Aircraft Reciprocating Engines
4.5 Credits
Offered As Demand Warrants
History and development of the aircraft reciprocating engine. Repair, overhaul and inspection of various types of engines. Operation and troubleshooting of engines.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 4.5 + 0 + 0

AFPM F240  Turbine Engines
2 Credits
Offered As Demand Warrants
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F244  Lubricating Systems
1.5 Credits
Offered As Demand Warrants
Identification and selection of lubricants for aircraft powerplants. Inspection, service, troubleshooting and repair of the lubrication systems and components.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F245  Ignition Systems
2 Credits
Offered As Demand Warrants
Overhaul, inspection and troubleshooting of reciprocating and gas turbine ignition systems. Repair and bench testing of components.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F246  Fuel Metering Systems
2 Credits
Offered As Demand Warrants
Prerequisites: Admission to the A & P Program; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F248  Induction Systems
0.5 Credit
Operation and service of aircraft induction, preheat, anti-ice and supercharger systems.
Prerequisites: Admission to A&P program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F249  Powerplant Cooling Systems
0.5 Credit
Inspection, service and repair of engine cooling systems – both air and liquid cooled installations.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F250  Powerplant Exhaust Systems
0.5 Credit
Inspection, service and repair of engine exhaust systems. Includes operations of turbo compounded engines, thrust reversers and noise suppressors.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F251  Fuel Systems
1.5 Credits
Offered As Demand Warrants
Inspection, servicing, troubleshooting and repair of aircraft and engine fuel systems and components.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F252  Propellers
2 Credits
Offered As Demand Warrants
Identification and nomenclature of aircraft propellers. Operation, control and repair of both reciprocating and turbine engine installations.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 2 + 0 + 0

AFPM F253  Transport Category Aircraft
1 Credit
Offered As Demand Warrants
Introduction to transport category aircraft systems and components.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0
AFPM F254    Ice and Rain Control Systems
0.5 Credit
Offered As Demand Warrants
Inspection, operation and troubleshooting of de-ice and anti-ice systems.
Prerequisites: Admission to A&P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F255    Fire Protection Systems
0.5 Credit
Offered As Demand Warrants
Inspection, servicing, troubleshooting and repair of aircraft and engine
fire detection and extinguishing systems.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F256    Communications and Navigation Systems
0.5 Credit
Offered As Demand Warrants
Operation of aircraft avionics, autopilots and antennas, including
inspection and installation.
Prerequisites: Admission to A&P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F257    Instrument Systems
0.5 Credit
Offered As Demand Warrants
Inspection, troubleshooting, removal and replacement of aircraft and
engine instruments and indicating systems.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F258    Cabin Atmosphere Control Systems
1 Credit
Offered As Demand Warrants
Aircraft pressurization, air conditioning, heating and oxygen systems.
Operation, inspection, troubleshooting, service and repair.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F259    Hydraulic and Pneumatic Systems
1.5 Credits
Offered As Demand Warrants
Operation of hydraulic and pneumatic systems and uses in aircraft.
Identification of hydraulic fluids, seals, hydraulic and pneumatic control
devices, inspection and servicing and troubleshooting.
Prerequisites: Admission to A&P Program; or permission of instructor.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F260    Aircraft Landing Gear Systems
1.5 Credits
Offered As Demand Warrants
Simple and complex landing gear systems. Operation, service and repair
of mechanical and hydraulic retraction mechanisms. Wheel, tire and
brake service. Aircraft speed and configuration warning systems, electric
brake controls, anti-skid systems, landing gear position and warning
systems.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F261    NonMetallic Structures
1 Credit
Offered As Demand Warrants
Inspection, service and repair of wood structures. Preliminary and
secondary repair of interior and service of plastic, honeycomb, bonded,
and composite and laminated structures.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F262    Aircraft Coverings
1 Credit
Offered As Demand Warrants
Selection, application, inspection and testing of fabric and fiberglass
coverings and methods of repair.
Prerequisites: Admissions to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1 + 0 + 0

AFPM F263    Aircraft Finishes
0.5 Credit
Offered As Demand Warrants
Aircraft sheet metal fabrication, inspection and repair, including rivets
and fasteners.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F264    Sheet Metal Structures
3 Credits
Offered As Demand Warrants
Aircraft sheet metal fabrication, inspection and repair, including rivets
and fasteners.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 3 + 0 + 0

AFPM F265    Aircraft Welding
1.5 Credits
Offered As Demand Warrants
Contemporary welding methods on aircraft structures. Oxyacetylene,
arc, inert gas and brazing techniques. Inspection of welded structure and
safety procedures.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F266    Assembly and Rigging
1.5 Credits
Offered As Demand Warrants
Aerodynamic theory and function of aircraft control surfaces. Fabrication
and installation of control devices for fixed and rotary wing aircraft;
jacking and control surface balance.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 1.5 + 0 + 0

AFPM F267    Airframe Inspections
0.5 Credit
Offered As Demand Warrants
Inspection and return of aircraft to service. Procedural and legal aspects
of 100 hour, annual and periodic inspections.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0

AFPM F270    Airframe Testing
0.5 Credit
Offered As Demand Warrants
Preparation for the Federal Aviation Administration written, oral and
practical exams for the powerplant mechanics’ license.
Prerequisites: Admission to A & P Program; or permission of instructor.
Lecture + Lab + Other: 0.5 + 0 + 0
AFPM F271  Powerplant Inspections  
0.5 Credit 
Offered As Demand Warrants 
Methodology and record keeping for inspection of aircraft reciprocating and gas turbine engines.  
**Prerequisites:** Admission to A & P Program; or permission of instructor. 
**Lecture + Lab + Other:** 0.5 + 0 + 0

AFPM F272  Powerplant Testing  
0.5 Credit 
Offered As Demand Warrants 
Preparation for the Federal Aviation Administration written, oral and practical exams for the powerplant mechanics' license.  
**Prerequisites:** Admission to A & P Program; or permission of instructor. 
**Lecture + Lab + Other:** 0.5 + 0 + 0

AFPM F325  Inspection Authorization Preparation  
2 Credits 
Offered As Demand Warrants 
Technical background training for the working airframe and powerplant mechanic in selecting, reviewing and utilizing the appropriate federal regulatory and advisory information as well as the manufacturer's maintenance information to inspect and return to service aircraft, engines, propellers, appliances and related parts in accordance with FAR Part 65.95. Final exam is the FAA Inspection Authorization exam administered by an FAA airworthiness inspector.  
**Prerequisites:** FAA A & P Certificate, meet additional requirements of FAR 65.91. 
**Lecture + Lab + Other:** 1 + 2 + 0