# Airframe and Powerplant (AFPM)

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<th>Course Code</th>
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<tr>
<td>AFPM F111</td>
<td>General Airframe and Powerplant</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>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.</td>
<td>Experience requirements of FAR 65.77 or permission of instructor.</td>
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<tr>
<td>AFPM F145</td>
<td>Basic Mathematics</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>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.</td>
<td>Admission to A &amp; P program; or permission of instructor.</td>
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<tr>
<td>AFPM F146</td>
<td>Basic Electricity</td>
<td>2</td>
<td>As Demand Warrants</td>
<td>Electrical theory and concepts for the aviation mechanic. Ohm's law, electrical circuits, diagrams, batteries and a variety of electrical components.</td>
<td>Admission to A &amp; P program; or permission of instructor.</td>
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<tr>
<td>AFPM F147</td>
<td>Physics for Mechanics</td>
<td>0.5</td>
<td>As Demand Warrants</td>
<td>Applications of mechanics; levers, sound, fluid and heat dynamics. Basic aircraft structures and aerodynamics. (Course does not fulfill natural science requirements for any degree.)</td>
<td>Admission to A &amp; P program; or permission of instructor.</td>
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<tr>
<td>AFPM F148</td>
<td>Aircraft Drawing</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Basic drafting. Drawings, symbols and schematic diagrams, sketches of repairs and alterations, blueprint information, graphs and charts.</td>
<td>Admission to A &amp; P program; or permission of instructor.</td>
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<tr>
<td>AFPM F149</td>
<td>Fluid Lines and Fittings</td>
<td>0.5</td>
<td>As Demand Warrants</td>
<td>Rigid and flexible fluid lines and fittings, fabrication and installation.</td>
<td>Admission to A &amp; P program; or permission of instructor.</td>
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<tr>
<td>AFPM F150</td>
<td>Materials and Processes</td>
<td>2</td>
<td>As Demand Warrants</td>
<td>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.</td>
<td>Admission to A &amp; P Program; or permission of instructor.</td>
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<tr>
<td>AFPM F151</td>
<td>Cleaning and Corrosion Control</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Basic aircraft cleaning materials, methods and corrosion control.</td>
<td>Admission to A &amp; P Program; or permission of instructor.</td>
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<tr>
<td>AFPM F152</td>
<td>Federal Aviation Regulations</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Federal Aviation Regulations for maintenance of aircraft. Maintenance forms and records, publications, privileges and limitations of aircraft mechanics.</td>
<td>Admission to A &amp; P Program; or permission of instructor.</td>
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<tr>
<td>AFPM F153</td>
<td>Weight and Balance</td>
<td>1</td>
<td>As Demand Warrants</td>
<td>Weighing procedures, weight, arms, moments, center of gravity computations and placarding. Aircraft loading, required forms, weighing.</td>
<td>Admission to A &amp; P Program; or permission of instructor.</td>
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<tr>
<td>AFPM F154</td>
<td>Ground Operations and Servicing</td>
<td>0.5</td>
<td>As Demand Warrants</td>
<td>Starting, moving, servicing, securing and fueling aircraft.</td>
<td>Admission to A &amp; P Program; or permission of instructor.</td>
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<td>AFPM F205</td>
<td>Airframe Structures</td>
<td>3</td>
<td>As Demand Warrants</td>
<td>Aircraft wood, dope, fabric finishes, welding, sheet metal, assembly and rigging and inspection. Preparation for the FAA Mechanics Airframe Structures written, oral and practical exam.</td>
<td>Experience requirements of FAR 65.77; or permission of instructor.</td>
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<tr>
<td>AFPM F206</td>
<td>Airframe System and Components</td>
<td>2</td>
<td>As Demand Warrants</td>
<td>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.</td>
<td>Experience requirements of FAR 65.77; or permission of instructor.</td>
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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 turbo compounded engines, thrust reversers and noise suppressors.
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
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 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