# AVIATION MAINTENANCE (AVM)

## AVM-102 Fundamentals of Electricity and Electronics (5)

Focuses on the fundamentals of electricity and electrical theory as applicable to aviation maintenance. Includes theory and physical laws of electricity, types of circuits and circuit components, electricity generation, electrical safety, measurement, and tools. Introduces troubleshooting techniques and addresses fundamental concepts needed to understand various aircraft systems. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 6.0 lab

## AVM-106 Materials and Processes (3.5)

Focuses on various types of aircraft materials and hardware, as well as precision measuring, torque, and common and specialized tooling. Includes examination of the purposes of various construction materials as well as the role of heat treating metals. Applies non-destructive testing techniques and reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 5.0 lab

## AVM-108 Physics for Aviation (1.5)

Focuses on physics principles that are applicable to aircraft operation and aviation maintenance. Concepts include force and motion; energy, work, and power; simple machines and mechanics; states of matter and heat; pressure; gas laws; and fluid mechanics. Addresses theory describing the principles of flight and aerodynamics. Introduces flight controls and their purpose. Applies physics principles to problems in aviation settings. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 1.0 lab

## AVM-114 Aircraft Electrical Systems (4)

Focuses on aircraft electrical systems for the airframe and the powerplant. System components include generators, alternators, starter generators, lighting, switches, relays, and power distribution. Demonstrates aircraft wiring, soldering, schematic reading, and troubleshooting. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 6.0 lab

*Prerequisite:* Take AVM-102.

## AVM-116 Aircraft Drawings (1)

Focuses on using aircraft drawings to perform maintenance tasks. Visuals include drawings and sketches, blueprints, charts and graphs, and system schematics. Schematics introduces commonly used lines, symbols, and terminology. Focuses on skills associated with interpreting technical drawings for parts identification and assembly and with using drawings and charts to facilitate maintenance and repairs. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture

## AVM-118 Aircraft Handling (2.5)

Addresses concepts including safety, aircraft hand signals, fuel selection and fueling procedures, towing, taxiing, running engines, and securing aircraft. Explains aircraft cleaning and corrosion control principles and procedures as well as aircraft coating and finishing materials. Focuses on aircraft weight and balance principles, procedures, and recordkeeping requirements. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 3.0 lab

## AVM-128 Federal Aviation Regulations (1.5)

Focuses on federal aviation regulations related to aircraft maintenance, aircraft forms and records, and the duties, responsibilities, and limitations of aviation maintenance technicians. Discusses manufacturer and Federal Aviation Administration (FAA) publications as well as continuing airworthiness regulations. Addresses "human factors" that can lead to maintenance errors and applies corresponding mitigation techniques. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 1.0 lab

## AVM-136 Metallic Structures (5)

Focuses on applying the principles associated with working on sheet metal structures, including layout, forming, repairs, and assembly. Addresses various metallic aircraft materials and their uses and introduces basic welding principles. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 6.0 lab

*Prerequisite:* Take AVM-106.

## AVM-138 Non-Metallic Structures (4)

Focuses on applying the principles associated with working modern composite structures, including lay-ups, repair procedures, installing composite hardware, and testing and inspection procedures. Addresses repair and inspection of acrylic and Plexiglas windows and discusses legacy materials (e.g., wood, fabric coverings). Reinforces theoretical concepts and safety with lab-based exercises, incorporating fiberglass, carbon fiber, and various core materials. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 6.0 lab

*Prerequisite:* Take AVM-106.

## AVM-144 Landing Gear and Hydraulic and Pneumatic Systems (2.5)

Focuses on the principles, components, and operation of hydraulic and pneumatic systems and their applications in aircraft use. Addresses landing gear and associated components (e.g., wheels and tires, brakes, struts) along with mechanical and electric elements used in extension and retraction systems. Incorporates troubleshooting associated with landing gear systems. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 3.0 lab

*Prerequisite:* Take AVM-102. Take AVM-106.

## AVM-146 Aircraft Instrument Systems (2)

Focuses on the principles, components, and operation of aircraft instrument systems. Introduces the purpose and operation of aircraft instruments (e.g., compasses, direction indicating instruments, pressure and temperature indicating instruments, position indicating instruments) as well as powerplant instrument systems (e.g., cylinder head temperature, exhaust gas temperature, turbine inlet temperature, fuel and oil pressure and temperature, speed indicating systems). Demonstrates testing of pilot-static systems and vacuum systems, in addition to inspection, maintenance, and troubleshooting procedures. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 2.0 lab

*Prerequisite:* Take AVM-102.

## AVM-150 Aircraft Fuel Systems (2.5)

Focuses on the principles, components, and operation of aircraft fuel systems. Introduces airframe components (e.g., lines, filters, selectors, tanks, fuel pumps), powerplant components (e.g., engine-driven fuel pumps, pumps, filters, valves, lines), and fuel metering components (e.g., carburetors, fuel-injection systems, fuel control units, digital engine control modules). Demonstrates inspection, maintenance, and troubleshooting procedures. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 3.0 lab

*Prerequisite:* Take AVM-102. Take AVM-106.

## AVM-152 Communications and Navigation Systems (1.5)

Focuses on the principles of aircraft communication systems including radio operation and communication bands. Addresses systems associated with traffic collision avoidance, landing assistance, location, and navigation. Explores various antennas used for communication and navigation, and applies inspection and installation techniques. Introduces autopilot theory and operation. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 1.0 lab

*Prerequisite:* Take AVM-102.

## AVM-156 Flight Controls and Airframe Inspection (2.5)

Focuses on aircraft flight control systems and rigging techniques as well as assembly and inspection of aircraft control cables. Introduces airframe inspection procedures, types of inspections, and inspection recordkeeping. Discusses rotorcraft (helicopter) principles. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 3.0 lab

*Prerequisite:* Take AVM-106.

## AVM-158 Aircraft Fire Protection Systems (2)

Focuses on the principles, components, and operation of aircraft fire protection systems for airframes and powerplants. Components of fire protection systems include fire, smoke, and heat detectors. Addresses types of fires and extinguishing agents and delivery methods of those agents. Demonstrates inspection, testing, and troubleshooting for fire protection systems. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 2.0 lab

*Prerequisite:* Take AVM-102.

## AVM-162 Environmental Systems (2.5)

Focuses on the principles, components, and operation of environmental systems including vapor-cycle, air-cycle, combustion, and electrical heaters and cabin pressurization and oxygen systems, as well as water and waste water systems. Addresses servicing and troubleshooting procedures for environmental systems. Introduces components of, operation of, and troubleshooting for ice and rain control systems. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 3.0 lab

*Prerequisite:* Take AVM-102.

## AVM-163 Reciprocating Engines (5)

Focuses on the components of reciprocating engines. Addresses different types of aircraft reciprocating engines as well as the theory of operation. Demonstrates disassembly, cleaning, inspection, and reassembly of reciprocating aircraft engines. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 2.0 lecture, 6.0 lab

*Prerequisite:* Take AVM-106.

## AVM-164 Propellers (2)

Focuses on the principles, components, and operation of aircraft propellers. Investigates fixed pitch and constant speed (variable pitch) propellers. Reinforces theoretical concepts and safety will be reinforced with lab-based exercises, including allowable propeller repairs. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 2.0 lab

## AVM-166 Ignition and Starting Systems (2)

Focuses on the principles, components, and operation of ignition systems for reciprocating and turbine engines. Addresses magnetos, electrical and solid state ignition systems, and turbine igniters. Demonstrates installation, inspection, and timing procedures for magnetos. Introduces principles, components, and operation of aircraft engine starting systems. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 2.0 lab

*Prerequisite:* Take AVM-102.

## AVM-167 Turbine Engines (4)

Focuses on the components of turbine engines. Addresses different types of aircraft turbine engines as well as the theory of operation. Demonstrates disassembly, cleaning, inspection, and reassembly of turbine aircraft engines. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 6.0 lab

*Prerequisite:* Take AVM-106.

## AVM-169 Air, Exhaust, and Lubricating Systems (2.5)

Focuses on the principles, components, and operation of aircraft engine air intake/induction systems, cooling systems, turbine bleed air systems, and exhaust systems and thrust reversers. Addresses principles, components, and operation of aircraft engine lubrication systems. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 3.0 lab

## AVM-171 Engine Inspection (1.5)

Focuses on engine inspection procedures for reciprocating and turbine engines. Includes aspects of inspection such as visual inspection, recordkeeping, and checking for compliance, conformity, and life-limited parts. Demonstrates operational checks for proper operating parameters. Reinforces theoretical concepts and safety with lab-based exercises. Arts & Sciences Elective Code: B
*Hours per week:* 1.0 lecture, 1.0 lab