

# AIRCRAFT MAINTENANCE TECHNOLOGY

## Programs

- Aircraft Maintenance Technology Associate in Applied Science (<https://catalog.gvltec.edu/school-advanced-manufacturing-transportation-technology/aircraft-maintenance-technology/aircraft-maintenance-technology-aas/>)
- Aviation Airframe Structure/Systems Certificate in Applied Science (<https://catalog.gvltec.edu/school-advanced-manufacturing-transportation-technology/aircraft-maintenance-technology/aviation-airframe-structure-systems-certificate/>)
- Aviation Fundamentals Certificate in Applied Science (<https://catalog.gvltec.edu/school-advanced-manufacturing-transportation-technology/aircraft-maintenance-technology/aviation-fundamentals-certificate/>)
- Aviation Powerplant Theory/Systems Certificate in Applied Science (<https://catalog.gvltec.edu/school-advanced-manufacturing-transportation-technology/aircraft-maintenance-technology/aviation-powerplant-theory-systems-certificate/>)

## Courses

### ACM 101 General Regulations (2-0-2)

*Offered Fall Semester*

This course covers FAA regulations that pertain to the mechanics and the maintenance of aircraft engines and airframes, technical standard orders, manufacturers' maintenance and parts manuals, service letters, bulletins and instructions.

### ACM 102 Aviation Sciences (3-0-3)

*Offered Fall Semester*

This course is the study of the fundamentals of simple machines, heat dynamics, theory of flight and geometrical concepts as established for aviation applications.

### ACM 105 Basic Aircraft Electricity (3-4-4)

*Offered Fall Semester*

Prerequisites: MAT 032 and Placement into ENG 100

This course covers basic electricity, including AC and DC circuits, the use of electrical measuring instruments, the interpretation of electrical circuit diagrams, energy sources, batteries and their maintenance.

### ACM 110 Aircraft Drawings (1-1-1)

*Offered Fall Semester*

This course covers skills required to use drawings, identify symbols and schematic layouts, sketch repairs and alterations made to aircraft and interpret graphs and charts.

### ACM 115 Ground Handling & Servicing (2-4-3)

*Offered Fall Semester*

This course covers engine starting, ground operation, aircraft movement, ground handling safety requirements and aircraft servicing procedures. Also covered are interpretation and application of aircraft weight and balance procedures.

### ACM 120 Materials & Corrosion Control (3-5-4)

*Offered Fall Semester*

This course covers nondestructive testing, identification and selection of aircraft hardware and materials, use of hand tools and use of power and precision measuring tools, identification and use of cleaning materials, identification and treatment of aircraft corrosion.

### ACM 125 Wood Structure, Coverings & Finishes (2-1.5-2)

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the fundamentals of inspection, maintenance and repair of aircraft wood structures: selection, application and maintenance of aircraft fabric and fiberglass covering; and selection, application and maintenance of aircraft finishes, trim and lettering.

### ACM 130 Sheet Metal Layout & Repair (3-5-4)

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the principles of sheet metal layout, bending, rivet installations, structural inspection and repair methods for aircraft.

### ACM 140 Bonded Structures & Welding (2-4-3)

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers inspection, service and repair of metal and composite aircraft structures, including laminated, honeycomb and plastic materials, interior furnishings and access openings. Types of welds, setup of welding equipment, soldering techniques, brazing, gas welding and electric welding of aluminum, stainless steel, magnesium and titanium also are included.

### ACM 150 Assembly & Rigging (2-4-3)

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the methods and procedures used to maintain an aircraft in aerodynamically and structurally sound condition. Flight theory, aircraft assembly, jacking, structural alignment, rigging of fixed/rotor-wing aircraft, balancing and rigging of flight control surfaces are also included.

### ACM 155 Aircraft Environmental Systems (3-1-3)

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the skills required to inspect, check, service and repair aircraft heating, cooling, vapor cycle and air cycle air conditioning; pressurization, oxygen, ice and rain control; carbon monoxide detection; and fire protection systems.

### ACM 160 Utility & Warning Systems (3-1.5-3)

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 105, ACM 120

This course covers the principles of inspection, troubleshooting, servicing and repair of instrument systems; communication and navigation systems; and landing gear antiskid indicating and warning systems.

### ACM 165 Hydraulics & Pneumatic Systems (2-3-3)

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the operating principles for aircraft hydraulic and pneumatic power systems. The theory of fluid power, identification and selection of aircraft hydraulic fluids, servicing, troubleshooting, inspection and repair of hydraulic and pneumatic power systems and components are also covered in this course.

### ACM 167 Landing Gear Systems (2-3-3)

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the skills required to perform maintenance and service requirements for aircraft landing gear systems. The inspection, servicing, repair and operational check of landing gear, retracting systems, shock struts, brakes, wheels, tires and steering systems are covered in this course.

**ACM 170 Aircraft Electrical Systems (3-3-4)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 105, ACM 120

This course covers skills required to inspect, check, service, troubleshoot and repair aircraft electrical system controls, wiring installation, switches, indicators and protective devices.

**ACM 172 Aircraft Fuel Systems (1-1.5-1)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers maintenance of aircraft fuel systems, including inspection, service and repair principles for fuel system components; pressure fuel systems; quantity indicating systems; pressure and temperature systems; dump systems; troubleshooting; and fuel management procedures.

**ACM 174 Airframe Inspection (1-1.5-1)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the fundamentals of airframe inspection, including the purposes, requirements and type of inspection, inspection records and suggested methods for performing systematic inspection procedures.

**ACM 201 Lubricating Systems (2-1-2)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the use and classification of lubricants, oils and greases. The basic lubrication systems of opposed, radial and turbine engines are also covered.

**ACM 205 Ignition & Starting Systems (2-4-3)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 105, ACM 120

This course covers the theory and operation of aircraft powerplant ignition systems used on reciprocating and turbine engines, including the requirements for the inspection, servicing, repair and/or overhaul of magnetos, spark plugs, ignition harnesses, switches and turbine engine pneumatic starting systems. ACM starting systems are also included.

**ACM 210 Reciprocating Engine Overhaul (3-4.5-4)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the theory and development of the internal combustion engine used in aviation and the disassembly, inspection, service, repair and overhaul of opposed and radial aircraft engines.

**ACM 224 Turbine Engine Overhaul (3-5-4)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the history, theory, construction and principles of operation of turbine engines, including removal, installation, maintenance, testing, adjustment, hot section, inspection and overhaul.

**ACM 226 Engine Inspection (1-2-1)**

This course covers the procedures necessary for powerplant inspection to the conformity of the manufacturer's and FAA requirements.

**ACM 234 Propellers & Components (3-5-4)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the theory, installation, inspection, servicing, maintenance, repair and the principles of operation of fixed and controllable pitch propellers. This course also includes the study of propeller de-icing, anti-icing, synchronization and the use of propeller lubricants for reciprocating and turbo propeller engines.

**ACM 240 Engine Electrical, Instrumentation & Fire Protection (2-3-3)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 105, ACM 120

This course covers the skills required to inspect, check, service, troubleshoot and repair reciprocating and turbine engine starters and generators, alternators and charging systems, including wiring controls, switches, protective devices and temperature, pressure, RPM indicating and fire protection systems.

**ACM 245 Powerplant Fuel Systems (3-4-4)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the inspection, troubleshooting, servicing, repair and overhaul of powerplant fuel metering systems, including warning indicators, pressure and rate of flow instruments and carburetor overhaul.

**ACM 250 Induction, Cooling & Exhaust (2-3-3)**

*Offered Fall, Spring and Summer Semesters*

Prerequisites: ACM 101, ACM 120

This course covers the skills required to inspect, check, troubleshoot, service and repair reciprocating and turbine engine induction, cooling and exhaust systems.