

Aviation Maintenance Science (AMS)

Courses

AMS 115 Aviation Mathematics and Physics 2 Credits (5.5,0)

This course covers the fundamentals of mathematics and physical sciences appropriate to the training of the aviation maintenance technician. The math topics include fractions, decimals, ratio, geometry, formulae, and proportions. The aviation physics topics include atmospheric properties, thermodynamics, fluid power, heat, power, work, basic machines, and sound.

AMS 116 Fundamentals of Electricity 4 Credits (6.75,3)

This course covers direct and alternating current electricity, electrical circuit design, measuring devices, transformers, solid state, and logic devices. Emphasis is placed on voltage, current, resistance, and impedance relationships. The classroom theory is reinforced with laboratory projects.

AMS 117 Tools, Materials and Processes 4 Credits (4.5,4)

This course introduces the student to common and precision measurement tools, aviation hardware, and materials used in aircraft manufacturing, maintenance and repair. Various methods of nondestructive testing are also studied and performed. The course studies the principles of corrosion control and allows the student to apply its theory. Aircraft drawings, blueprints, charts, and graphs are also introduced and applied.

AMS 118 Aircraft Familiarization and Regulations 2 Credits (5,1.75)

This course is a familiarization course in terminology, basic aerodynamics, and human factors. The course also offers a comprehensive summary of the privileges and limitations of the Federal Aviation Administration's (FAA) Federal Aviation Regulations (FAR, Title 14 Code of Federal Regulations) parts 43, 65, 91 as well as other regulations pertinent to aircraft maintenance. The course identifies the associated documents, publications, and records applicable to the maintenance technician. AMS 118 also identifies the standards for aircraft ground operation, movement, and associated safety procedures in addition to the concepts and computation of aircraft weight and balance.

AMS 261 Aircraft Metallic Structures 3 Credits (6.75,5.25)

A study of aircraft structural characteristics and methods of fabrication with an emphasis on aluminum sheet metal applications. Explains metal-working processes and develops the techniques necessary for airworthy manufacturing as well as acceptable methods of repair employed in the industry. The course also covers the theory and practice of aircraft welding relevant to several approved industry standards.

Prerequisites: AMS 115 and AMS 117 and AMS 118

AMS 262 Aircraft Composite Structures 3 Credits (4,3.5)

This is a course of study encompassing the structural and nonstructural use of composite, plastic, wood, and fabric materials on aircraft. Fabrication, repairs, finishing, and safety practices relating to these materials will be discussed and practiced. Included will be the application of adhesive and plastic resins, composite machining, and vacuum bagging of composite parts.

Prerequisites: AMS 117 and AMS 118

AMS 263 General Aviation Aircraft Systems 3 Credits (5.5,1.5)

This course covers the operating principles and basic troubleshooting techniques for aircraft systems found in general aviation aircraft. Theory of operation, inspection, and troubleshooting will be emphasized for all systems covered in the course. These systems include hydraulic systems, air conditioning and heating systems, oxygen systems, landing gear systems, brake systems, ice and rain detection/protection systems, fire detection/extinguishing systems, fuel systems, and flight controls.

Prerequisites: AMS 116 and AMS 117 and AMS 118

AMS 264 General Aviation Aircraft Electrical and Instrument Systems 3 Credits (6.75,3.75)

The theory/application of aircraft wiring, basic electrical troubleshooting of airframe systems, DC alternator power systems, and instruments/avionics for general aviation aircraft are developed through the use of laboratory projects and classroom material.

Prerequisites: AMS 116

AMS 271 Aircraft Reciprocating Powerplant and Systems 3 Credits (6.75,5.25)

AMS 271 is a study of various types of aircraft engines in use in the aviation industry. Reciprocating engine disassembly, inspection, and reassembly procedures are practiced. A study of the inspection, repair, and operation of powerplant fuel metering units and superchargers as well as induction, cooling, and exhaust systems.

Prerequisites: AMS 115 and AMS 117 and AMS 118

AMS 272 Powerplant Electrical and Instrument Systems 3 Credits (5.5,2)

A study of various electrical and instrumentation systems use in support of aircraft powerplants. Included in the course are the overhaul and testing procedures for reciprocating and turbine engine electrical system components, including auxiliary power units.

Prerequisites: AMS 116 and AMS 117 and AMS 118

AMS 273 Propeller Systems 2 Credits (3,2.5)

Maintenance, repair, and trouble-shooting theory and practices for propellers and propeller system components are covered as they pertain to reciprocating and turboprop engines found in modern aircraft.

Prerequisites: AMS 115 and AMS 116 and AMS 117 and AMS 118

AMS 274 Aircraft Turbines Powerplants and Systems 4 Credits (6.75,6.75)

A study of the construction and design of modern gas turbine engines used on the current generation of aircraft. Turbine engine systems will be studied, including lubrication, fuel scheduling, starting, and ignition. Emphasis is placed on proper inspection, troubleshooting, and maintenance techniques.

Prerequisites: AMS 116 and AMS 117 and AMS 118

AMS 299 Spec Topics in Avia Maint Sci 1-6 Credit

Individual independent or directed studies of selected topics.

AMS 365 Transport Category Aircraft Systems 3 Credits (4.5,3.5)

This course covers the operating principles and basic troubleshooting techniques for systems found in today's transport category aircraft. The theory of operation, troubleshooting, maintenance, and inspection will be emphasized for all systems covered in the course. These systems include hydraulic and pneumatic systems as well as environmental control systems; oxygen systems; landing gear systems; brake and anti-skid systems; ice and rain detection/ protection systems; fire detection/ extinguishing systems; fuel; and flight control systems. This course incorporates practical lab situations for learning reinforcement.

Prerequisites: AMS 116 and AMS 118 and AMS 263 and AMS 264

AMS 366 Transport Category Aircraft Electrical and Instrument Systems 3 Credits (6.75,4.5)

The theory/application of transport category aircraft power systems including AC power on large aircraft, and DC generator systems on multiengine turbine powered aircraft are developed. Electrical troubleshooting is addressed in depth, and large aircraft avionics/ instrument systems are presented in general.

Prerequisites: AMS 116 and AMS 264

AMS 375 Repair Station Operations 3 Credits (3.5,4.5)

This course contains a detailed study supported by the actual overhaul of operational reciprocating engines in a certificated engine repair station environment. Included is a study of the procedures and acceptable techniques used in engine disassembly, inspection, repair, and reassembly. Advanced techniques of nondestructive testing are included in this course.

Prerequisites: AMS 271 and AMS 272

AMS 376 Powerplant Line Maintenance 3 Credits (4,4.5)

A course of study that details the correct procedures and methods of installation, inspection, and operational checks of reciprocating and turbine engines. Includes adjustment and troubleshooting of fuel, oil, electrical, and propeller systems on operational aircraft engines.

Prerequisites: AMS 271 and AMS 272

AMS 380 Radio Communication Theory & Application 2 Credits (2,0)

Study of advanced radio communication and electronics preparing students for the FCC General Radio Telephone License (GROL) Examination (Elements 1 & 3) and The National Center for Aerospace and Transportation Technologies (NCATT) Aviation Electronic Technician (AET) certifications.

Prerequisites: AMS 116 and AMS 264 and AMS 366

AMS 384 General Aviation Avionics Systems Integration 4 Credits (0,0)

Study of aviation electronic equipment; installation; system testing. Wiring and integration of a General aviation avionics package and GPS. Operation, testing, and troubleshooting of general aviation avionics systems and wiring concepts.

Prerequisites: AMS 116 and AMS 264 and AMS 366 **Corequisites:** AMS 380

AMS 388 Air Transport Avionics Systems Line Maintenance 6 Credits (0,0)

Advanced principles in aircraft wiring and air transport avionics systems with hands-on wiring and ramp testing with a concentration in corporate and airline maintenance and troubleshooting.

Prerequisites: AMS 384