

Course Descriptions for Aviation Technician – Aircraft Maintenance

Semester 1

AM 130 Aircraft Construction and Science

Students will be introduced to aerodynamics of fixed wing aircraft including an introduction to basic theory of flight in the standard atmospheres, temperature and pressure variations and standards, gas laws and Bernoulli's principle, fluid dynamics, aerodynamic loads, flight controls and lift and anti-lift devices, along with high speed flight. Materials used in aircraft construction and repair will be examined. The student will become familiar with wood, steel, aluminum, plastics and types of corrosion.

AM 170 Basic Circuits

This course will introduce the student to Atomic Theory, Direct Current (DC), Alternating Current (AC), circuit types, semiconductors, and basic electronic components used in aircraft systems. Students will perform calculations of resistive, capacitive, and inductive circuits using the laws and theorems associated with electricity.

AM 171 Basic Circuits Lab

This course will introduce the student to Direct Current (DC), Alternating Current (AC), circuit types, semiconductors, and basic electronic components used in aircraft systems. Students will construct resistive, capacitive, and inductive circuits and execute experiments to understand electrical behaviour in each circuit type. Students will apply basic work safety practices in the shop environment.

AM 175 Aircraft Reciprocating Engines Theory

Students will be introduced to the basics of piston engine operation and maintenance, including engine development, principles of operation, engine construction, inspection methods and overhaul procedures.

AM 176 Intro to Recip. Engines Lab

Students will learn reciprocating engine overhaul procedures in a shop environment, and adherence to shop safety standards. Engine overhaul will include disassembly, various inspection methods, cleaning and re-assembly using pertinent shop manuals. The student will conduct stud and bushing removals as well as spark plug inspection and cleaning.

AM 194 Standard Practices

Students will learn aircraft, hangar, and airport safety, including the applicable provincial and federal regulations, as well as standard tools and practices of the aviation industry. Students will also be introduced to aircraft hardware.

AM 195 Standard Practices Lab

Students will be introduced to shop safety rules, the importance of craftsmanship, and the use of hand and power tools. Students will be involved in using and inspecting various materials such as wood, and steel.

CS 007 Persuasive Writing

With a thematic focus on current issues, this course will help learners to express themselves clearly, correctly and persuasively in written form. Learners will also engage in analytical reading and critical thinking through assigned readings and discussions on a variety of topics. The course will also help learners to effectively compile and present research in essay form according to the APA style of documentation.

AM 178 Practical Aviation Mathematics

This applied mathematics course provides an introduction to Imperial units used for length, velocity, weight, volume and temperature. Basic math operations will be reviewed. Emphasis will be placed on Imperial units throughout this course.

Semester 2 is 18 weeks in duration, 31 hours per week.

AM 230 Advanced Theory of Flight

Students will be introduced to advanced aerodynamics of fixed wing aircraft in addition to weight and balance requirements and procedures as they relate to the field of aircraft maintenance. In addition the students will be introduced to the Canadian Aviation Regulations.

AM 270 Power Generation/Distribution

Students will examine aircraft electrical generation and distribution systems for both general aviation and air transport aircraft. Aircraft electrical schematics, components, motor theory and construction will be examined in detail.

AM 271 Power Generation/ Distribution Lab

Students will learn to inspect, evaluate, and maintain aircraft power generation and distribution systems in a shop (lab) environment. Aircraft batteries will be removed, serviced, and re-installed in aircraft. DC Generators and electrical motors will be disassembled, inspected/repared, reassembled, tested and installed into an aircraft electrical system.

AM 275 Reciprocating Engines Systems

Students will be introduced to carburetion principles, reciprocating engine ignition and starting systems, including operation and troubleshooting. Engine systems will be detailed including lubrication, induction, cooling and exhaust. Engine run-up, testing, troubleshooting and inhibiting procedures will also be highlighted.

AM 276 Reciprocating Engines Systems Lab

The student will perform the removal, inspection, replacement, repair and testing of several engine components including magnetos, ignition harness and starters. The student will conduct oil filter contaminant inspections, engine installation and removal, engine troubleshooting and inhibiting and the use of appropriate shop manuals and procedures. Students will apply basic work safety practices in the shop environment.

AM 288 Introduction to Gas Turbine Powerplants

Students will be introduced to gas turbine powerplants. Students will examine the historical development, types, operation and construction of gas turbine powerplants in a classroom environment.

AM 294 Metallic Structures & Aeronautical Prod.

Students will be introduced to the fundamentals of sheet metal repair, structures, landing gear systems, quarantine and bonded stores. Students will be introduced to weight and balance requirements and procedures.

AM 295 Metallic Structures & Weight & Bal Lab

The student will develop skills required to carry out basic aircraft sheet metal repairs. Projects will focus on techniques of installing solid rivets, rivet layout, and bend allowance, installation of common aircraft fasteners. Students will also conduct weight and balance of an aircraft along with the appropriate documentation. Students will apply basic work safety practices in the shop environment.

Semester 3 is 16 weeks in duration, at 31 hours per week

AM 394 Airframe Systems & Flight Control

Students will continue exploration of various aircraft systems, their components and maintenance and servicing of these systems.

AM 300 AME Responsibilities

The students will examine human factors and their relationship to aircraft maintenance. Students will identify human capabilities and limitations to co-workers and the effect they may have on the efficiency and the safety of aircraft. Elements such as stress, fatigue, assertiveness, and health issues will be examined.

AM 370 Flight Instrumentation

Students will explore aircraft instrumentation (mechanical, electrical, and magnetic), system and engine monitoring and alerting, display types, and maintenance of those systems.

AM 371 Instrumentation Lab

Students will apply maintenance techniques on aircraft instrumentation (mechanical, electrical and magnetic). Engine monitoring and alerting, display types, pitot pressure, static pressure, and temperature instruments will be examined in a lab environment. Maintenance of power distribution systems will be reinforced. Students will apply basic work safety practices in the shop environment.

AM 375 Reciprocating Aero Engines Theory

The student will study advanced aircraft piston engine systems including fuel injection, supercharging and turbocharging. The student will also examine propellers and related systems.

AM 376 Recip Engine Maintenance Lab

Students will carry out practical 'hands on' exercises in the running of aircraft piston engines and maintenance of their systems. The student will gain access to information through publications and apply this information to maintenance tasks. Students will apply basic work safety practices in the shop environment.

AM 395 Structural Repair and Flight Control Lab

Students will complete projects on aircraft control systems in accordance with applicable maintenance manuals, regulations and equipment. Students will apply basic work safety practices in the shop environment.

AM 388 Gas Turbine Powerplant Maint

Students will examine maintenance and servicing of gas turbine powerplants. This course will also introduce and prepare them to operate a running turbine engine. Students will examine basic work safety practices when working around a live engine.

AM 389 Gas Turbine Powerplant Maintenance Lab

In this course, the student will be conducting inspections on a variety of engines and components. Students will also be required to analyze and troubleshoot faults. Students will apply basic work safety practices in the shop environment.

AM 382 Rotary Wing Theory of Flight

Students will be introduced to rotary wing nomenclature, theory of flight, rotor controls, power train systems and an introduction to vibration in a classroom environment.

AM 384 Rotary Wing Theory of Flight Lab

Students will take hands on approach to become familiar with a helicopter and its basic components. Students will be introduced to helicopter ground handling techniques as well as safety around a helicopter. Students will conduct maintenance, servicing and inspections on a tail rotor drive shaft, freewheel unit and gearboxes. This class is conducted in a lab environment. Students will apply basic work safety practices in the shop environment.

Semester 4 is 18 weeks in duration, 30 hours per week.

AM 403 Composites / NDT

The student will be introduced to composite materials, construction and repair of a composite structure in a theory/lab environment. Students will apply basic work safety practices in the shop environment. The student will examine various methods used in non-destructive testing of aircraft and engine components.

AM 495 Aircraft Syst & Inspection Lab

Students will complete practical hands-on projects designed to enable the student to apply developed theory. Emphasis will be placed on completing the required tasks in accordance with applicable maintenance manuals, regulations, and equipment, using safe work practices. Students will apply basic work safety practices in the shop environment.

AM 470 Aircraft Advanced Avionics and Electrical Systems

The student will study digital fundamentals and advanced aircraft electrical systems, including auto flight systems, advanced radio systems, and flight data recording retrieval. Radio theory and aeronautical communication systems will be studied in detail.

AM 471 Avionics Maintenance Procedures

The student will practice maintenance procedures on aircraft electrical, instrument and radio systems. Students will carry out functional tests on systems and gain familiarity with documentation and procedures that apply to these systems. Scheduled inspections and servicing of systems will be carried out. Students will apply basic work safety practices in the shop environment.

AM 488 Gas Turbine Aero Engine Theory

This course provides students with advanced level learning of fuel systems, lubrication systems, inspection/servicing and engine performance checks related to gas turbine engines.

AM 489 Gas Turbine Aero Engine Shop

This advanced level course has students inspecting and completing maintenance and servicing on various turbine engines and components. The student will also complete a hot section inspection on a selected turbine engine. Students will be performing maintenance practices including methods to ensure correct operation of propellers. Students will apply basic work safety practices in the shop environment.

AM 400 Canadian Aviation Regulations

The student will study sections of Canadian Aviation Regulations relevant to aircraft maintenance.

AM 483 Rotary Wing Maintenance

Applications of rotary wing principles and concepts will be reinforced. The effects of vibration, harmonics, sound waves, systems, and maintenance techniques as applied to rotary wing aircraft will be studied in detail in a lab/theory environment. Students will apply basic work safety practices in the shop environment.

AM 490 Airframe Systems & Inspection

Students will continue to explore various aircraft systems, components and the maintenance requirements for these systems.