

AVIATION MAINTENANCE TECHNOLOGY

Rock Creek Campus
Building 2, Room 230
971-722-7246

www.pcc.edu/amt

CAREER AND PROGRAM DESCRIPTION

An aircraft mechanic certified under Part 65 of the Federal Aviation Regulations may maintain or alter aircraft within limitations specified by the regulations. The certificate also permits the holder to supervise other people in maintaining aircraft and to approve work for return to service. In addition, the certified mechanic may perform 100-hour inspections. After performing 100-hour inspections or maintenance, the mechanic must certify airworthiness or approval for return to service in a signed entry in the appropriate aircraft record.

The Aviation Maintenance Technology Program is approved by the State Division of Vocational Education, the Veterans Administration and the Federal Aviation Administration.

The certified AMT mechanic is considered to be a general practitioner at keeping aircraft in safe condition and may also decide to specialize in: hydraulics, pneumatics, rigging, inspection, bonded repair, corrosion control, sheet metal repair, electrical systems, avionics installation, propeller service, welding, painting, record keeping or engine service.

DEGREES AND CERTIFICATES OFFERED

Associate of Applied Science Degree

Aviation Maintenance Technology

Two-year Certificate

Aviation Maintenance Technology

One-year Certificate

Aviation Maintenance Technology: Airframe
Aviation Maintenance Technology: Powerplant

PREREQUISITES AND REQUIREMENTS

All candidates for the AMT Program must have the placement test scores that demonstrate competency in basic reading, writing, and mathematics prior to program entry. AMT 101 is a prerequisite for all AMT courses. Students who are attending only one class and are not an AMT Program participant are an exception.

Minimum test scores are:

- Placement into MTH 60
- Placement into RD 90
- Placement into WR 90

The Aviation Maintenance Program is offered in a recommended sequence of 24 courses, each an 18-day module. However, flexibility in program design does allow some variation in sequence. Any variation must be approved by the department representative.

The program is divided into the following three areas of study:

General Subject Areas: These courses, plus demonstrated math competency, contain requirements which are common to both air-

frame and powerplant ratings. AMT 203 and AMT 204 are required prior to entry into the airframe and powerplant areas.

Math competency is met by: successful completion of PCC Math 60 or by successful completion (70% minimum) of the AMT Department Math Competency Test. Department approval is required to take the department Math Competency Test and requires either: placement into higher than Math 60 or completion of higher than Math 60. This test may not be repeated within the same term.

Airframe Subject Areas: Students who have completed all of the courses in the airframe and general subject areas, plus WLD 210, may receive a certificate of completion which qualifies them to take FAA tests for an Aviation Mechanic Certificate with the Airframe rating.

Powerplant Subject Areas: Students who have completed all of the courses in the powerplant and general subject areas may receive a certificate of completion which qualifies them to take FAA tests for an Aviation Mechanic Certificate with the Powerplant rating.

AVIATION MAINTENANCE TECHNOLOGY AAS DEGREE

Minimum 108 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of sixteen credits of General Education. Students should consult with program advisors for course planning.

Aviation Maintenance Technology Degree Credit Summary

AMT	90
General Education	16
WLD	2
	Credit Total 108

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

AMT 105	Aviation CFRs & Related Subjects	4
AMT 106	Aircraft Applied Science	4
AMT 107	Materials & Processes	4
General Education		4

Second Term

AMT 102	Aircraft Electricity I	4
AMT 203	Aircraft Electricity II	4
AMT 204	Aircraft Electricity III	4
General Education		4

Third Term

AMT 108	AMT Practicum/General	2
AMT 109	Assembly & Rigging	4
AMT 208	Aircraft Systems	4
AMT 211	Composite Structures	4

Fourth Term

AMT 212	Sheet Metal	4
AMT 213	Hydraulics Pneumatics and Landing Gear	4
WLD 210	Aviation Welding	2

Fifth Term

AMT 115	Aircraft Structures & Inspection	4
AMT 117	Reciprocating Engine Theory and Maintenance	4
AMT 214	Instruments, Communication and Navigation Systems	4
AMT 216	AMT Practicum/Airframe	2

Sixth Term

AMT 121	Turbine Engine Theory and Maintenance	4
AMT 219	Turbine Engine Overhaul	4
AMT 222	Reciprocating Engine Overhaul	4
General Education		4

Seventh Term

AMT 120	Propellers and Engine Installation	4
AMT 123	Ignition Systems	4
AMT 124	Fuel Metering Systems	4
General Education		4

Eighth Term

AMT 218	Powerplant Inspection	4
AMT 225	AMT Practicum/Powerplant	2

**AVIATION MAINTENANCE TECHNOLOGY
TWO-YEAR CERTIFICATE**

Minimum 92 credits. Students must meet certificate requirements. The Aviation Maintenance Technology Certificate is a related certificate. All courses are contained in the Aviation Maintenance Technology AAS Degree.

Aviation Maintenance Technology Certificate**Credit Summary**

AMT	90
WLD	2
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	Credit Total 92

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

AMT 105	Aviation CFRs & Related Subjects	4
AMT 106	Aircraft Applied Science	4
AMT 107	Materials & Processes	4

Second Term

AMT 102	Aircraft Electricity I	4
AMT 203	Aircraft Electricity II	4
AMT 204	Aircraft Electricity III	4

Third Term

AMT 108	AMT Practicum/General	2
AMT 109	Assembly & Rigging	4
AMT 208	Aircraft Systems	4
AMT 211	Composite Structures	4

Fourth Term

AMT 212	Sheet Metal	4
AMT 213	Hydraulics Pneumatics and Landing Gear	4
WLD 210	Aviation Welding	2

Fifth Term

AMT 115	Aircraft Structures & Inspection	4
AMT 117	Reciprocating Engine Theory and Maintenance	4
AMT 214	Instruments, Communication and Navigation Systems	4
AMT 216	AMT Practicum/Airframe	2

Sixth Term

AMT 121	Turbine Engine Theory and Maintenance	4
AMT 218	Powerplant Inspection	4
AMT 222	Reciprocating Engine Overhaul	4

Seventh Term

AMT 120	Propellers and Engine Installation	4
AMT 123	Ignition Systems	4
AMT 124	Fuel Metering Systems	4

Eighth Term

AMT 219	Turbine Engine Overhaul	4
AMT 225	AMT Practicum/Powerplant	2

**AVIATION MAINTENANCE TECHNOLOGY:
AIRFRAME ONE-YEAR CERTIFICATE**

Minimum 58 credits. Students must meet certificate requirements. The Airframe Certificate is a related certificate. All courses within the certificate are contained in the Aviation Maintenance Technology AAS Degree.

Airframe Certificate Credit Summary

AMT	56
WLD	2
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	Credit Total 58

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

AMT 105	Aviation CFRs & Related Subjects	4
AMT 106	Aircraft Applied Science	4
AMT 107	Materials & Processes	4

Second Term

AMT 102	Aircraft Electricity I	4
AMT 203	Aircraft Electricity II	4
AMT 204	Aircraft Electricity III	4

Third Term

AMT 108	AMT Practicum/General	2
AMT 109	Assembly & Rigging	4
AMT 208	Aircraft Systems	4
AMT 211	Composite Structures	4

Fourth Term

AMT 212	Sheet Metal	4
AMT 213	Hydraulics Pneumatics and Landing Gear	4
WLD 210	Aviation Welding	2

Fifth Term

AMT 115	Aircraft Structures & Inspection	4
AMT 214	Instruments, Communication and Navigation Systems	4
AMT 216	AMT Practicum/Airframe	2

**AVIATION MAINTENANCE TECHNOLOGY:
POWERPLANT ONE-YEAR CERTIFICATE**

Minimum 60 credits. Students must meet certificate requirements. The Powerplant Certificate is a related certificate. All courses are contained in the Aviation Maintenance Technology AAS Degree.

Powerplant Certificate Credit Summary

AMT	60
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	Credit Total 60

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

AMT 105	Aviation CFRs & Related Subjects	4
AMT 106	Aircraft Applied Science	4
AMT 107	Materials & Processes	4

Second Term

AMT 102	Aircraft Electricity I	4
AMT 203	Aircraft Electricity II	4
AMT 204	Aircraft Electricity III	4

Third Term			
AMT	108	AMT Practicum/General	2
AMT	121	Turbine Engine Theory and Maintenance	4
AMT	123	Ignition Systems	4
AMT	219	Turbine Engine Overhaul	4
Fourth Term			
AMT	117	Reciprocating Engine Theory and Maintenance	4
AMT	120	Propellers and Engine Installation	4
AMT	124	Fuel Metering Systems	4
Fifth Term			
AMT	218	Powerplant Inspection	4
AMT	222	Reciprocating Engine Overhaul	4
AMT	225	AMT Practicum/Powerplant	2

COURSE DESCRIPTIONS

AMT 101 Introduction to A & P (Airframe and Powerplant) 1.00 Familiarization with aviation maintenance technology, including: program requirements, safety, aircraft and engines, general-purpose common hand tools, work ethics and career opportunities. This course is a prerequisite for all other AMT courses. Audit available.

AMT 102 Aircraft Electricity I 4.00 Aircraft Electricity I Includes basic electrical theory, interpretation of electrical schematics, principles of component operation, and alternating current theory. Prerequisites: Placement into RD 90 or higher; WR 90 or higher; AMT 101 with a minimum grade of "C" or higher. Prerequisite or concurrent registration: MTH 60 or with AMT Department Chair permission, the department Math test with 70% or higher. Audit available.

AMT 105 Aviation CFR and Related Subjects 4.00 Presents federal aviation regulations as they pertain to the aircraft mechanic, plus some "action" learning on servicing and operation of the aircraft on the ground. Prerequisites: Placement into RD 90 or higher; WR 90 or higher; AMT 101 with a minimum grade of "C" or higher. Prerequisite or concurrent registration: MTH 60 or with AMT Department Chair permission, the AMT Department Math test with a 70% or higher. Audit available.

AMT 106 Aircraft Applied Science 4.00 Covers aircraft weight and balance procedures and associated record keeping. Also covers aircraft drawings, precision measuring tools and some basic principles of physics. Prerequisites: Placement into RD 90 or higher; placement into WR 90 or higher; AMT 101 with a minimum grade of "C" or higher. Prerequisite or concurrent registration: MTH 60 or with AMT Department Chair permission, the AMT Department Math test with a 70% or higher. Audit available.

AMT 107 Materials and Processes 4.00 Covers several general aircraft maintenance subjects including power tools, shop equipment, aircraft hardware, fluid lines and fittings, non-destructive testing methods, heat treatment, aircraft cleaning, and corrosion control. Prerequisites: Placement into RD 90 or higher; placement into WR 90 or higher; AMT 101 with a minimum grade of "C" or higher. Prerequisite or concurrent registration: MTH 60 or with AMT Department Chair permission, the AMT Department Math test with a 70% or higher. Audit available.

AMT 108 AMT Practicum/General 2.00 Provides further development of students' skills through practical application before graduation from the FAA- approved Airframe or Powerplant curriculum. This course is used as a comprehensive tool to evaluate student strengths and weaknesses. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106, AMT 107, and MTH 60 or Department Math test with a 70% or higher. Audit available.

AMT 109 Assembly and Rigging 4.00 Covers methods of assembly and rigging commonly used in preparing both fixed and rotary wing aircraft for a safe test flight. Includes analysis of test flight reports and recommended rigging corrections necessary to produce a safe and efficient aircraft. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 115 Aircraft Structures and Inspection 4.00 Examines structural designs and methods of inspecting the aircraft to assure continued operation in the "as engineered" configuration. Emphasizes the interpretation of airworthiness directives, service bulletins and other maintenance documents. Technical writing skills required to complete FAA forms and records. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 117 Reciprocating Engine Theory and Maintenance 4.00 Covers aircraft reciprocating engine theory and various maintenance procedures and techniques. Includes the use of manufacturer's publications. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 120 Propellers and Engine Installation 4.00 Examines propeller theory and repair within limitations imposed by FAA Regulation Part 65, plus control and auxiliary systems, such as anti-ice and synchronization. Unducted fan systems are explored and engine removal and installation are accomplished. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 121 Turbine Engine Theory and Maintenance 4.00 Presents theory for all turbine engines, but does not build expertise in any one design. Maintenance includes inspection, checking, servicing and repairing turbine engines and turbine engine installations. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 123 Ignition Systems 4.00 Covers reciprocating and turbine engine ignition system theory and overhaul practices, plus the relationships of the complete ignition system to the powerplant and its operation. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 124 Fuel Metering Systems 4.00 Examines the many methods used to move air and fuel into and through an engine in a ratio producing safe and efficient engine operation under widely varying conditions. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 203 Aircraft Electricity II 4.00 Presents basic electronic theory; inspection and servicing of aircraft batteries; study of electrical system components; the installation and servicing of airframe/engine electrical wiring, controls, switches, indicators and protective devices; and electrical system inspection and troubleshooting. Prerequisites: Placement into RD 90 or higher; WR 90 or higher; AMT 101 with a minimum grade of "C" or higher. Prerequisite or concurrent registration: MTH 60 or with AMT Department Chair permission, the AMT Department Math test with a 70% or higher. Audit available.

AMT 204 Aircraft Electricity III 4.00 Covers airframe/engine electrical components; inspection, check, service and repair of alternating and direct current electrical systems; the application of electrical principles used in sensing, indicating and control of airframe and powerplant systems. Prerequisites: Placement into RD 90 or higher; WR 90 or higher; AMT 101 with a minimum grade of "C" or higher. Prerequisite or concurrent registration: MTH 60 or with AMT Department Chair permission, the AMT Department Math test with a 70% or higher. Audit available.

AMT 208 Aircraft Systems 4.00 Study of various airframe systems including ice and rain, cabin atmosphere, position and warning, and fire protection. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 211 Composite Structures 4.00 Covers modern bonded structures such as honeycomb and laminated components. Includes discussion of inspection and limited repairs to wood structures. Examines methods of removing finishes, corrosion proofing and painting aircraft and aircraft components. Includes inspection and recovering operations for fabric covered aircraft. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 212 Sheet Metal 4.00 Covers methods for sheet metal repairs to aircraft and methods of forming repair parts for damaged aircraft. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 213 Hydraulics, Pneumatics, and Landing Gear 4.00 Covers inspection and repair of aircraft landing gear and hydraulic system components. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 214 Instruments, Communication and Navigation Systems 4.00 Presents basic functions, internal workings and maintenance procedures for instruments, communication, navigation and autopilot systems used on complex, modern aircraft. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 216 AMT Practicum/Airframe 2.00 Provides further development of students' skills through practical application before graduating from the FAA-approved Airframe curriculum. This course is used as a comprehensive tool to evaluate student strengths and weaknesses. Prerequisite: AMT 108. Prerequisite/concurrent: AMT 208, AMT 109, AMT 211, AMT 212, AMT 213, AMT 214, AMT 115, WLD 210. Audit available.

AMT 218 Powerplant Inspection 4.00 Covers proper inspection of the entire engine installation, including exhaust systems, engine instrumentation, lubrication systems and control systems. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 219 Turbine Engine Overhaul 4.00 Covers removing, disassembling, cleaning, inspecting, reassembling and reinstalling a turbine engine. Emphasizes engine manufacturer's publications. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 222 Reciprocating Engine Overhaul 4.00 Covers machining and overhaul processes for reciprocating engines. Prerequisites: AMT 203, AMT 204, MTH 60 or with AMT Department Chair permission, the AMT department Math test with 70% or higher. Audit available.

AMT 225 AMT Practicum/Powerplant 2.00 Provides further development of students' skills through practical application before graduating from the FAA-approved Powerplant curriculum. This course is used as a comprehensive tool to evaluate student strengths and weaknesses. Prerequisite: AMT 108 Prerequisites/concurrent: AMT 117, AMT 218, AMT 219, AMT 120, AMT 121, AMT 222, AMT 123, AMT 124. Audit available.

AMT 228 A&P Shop Practice Some students feel the need for more shop experience in areas of choice. When it is within the practical capabilities of the department to offer that experience, the student may take one or more shop practice modules. The module may, under some circumstances, be substituted for the A & P Make-up course. Completion of most of the required A & P courses is desirable. Audit available.