AVIATION MAINTENANCE TECHNOLOGY

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Rock Creek Campus
Building 2, Room 230
971-722-7256 or 971-722-7233
www.pcc.edu/amt

CAREER AND PROGRAM DESCRIPTION

An aircraft mechanic certificated 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 certificated 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 certificated 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.

The Aviation Maintenance Technology Program is approved by the State Division of Vocational Education, the Veterans Administration and the Federal Aviation Administration and is offered in a recommended sequence of 24 courses, most of which are 18-day modules. However, flexibility in program design does allow some variation in sequence. Any variation must be approved by the department representative.

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

ADMISSION PREREQUISITES

Academic Prerequisites
For all AMT Certificates and AAS degree:
- Completion of AMT 101
- Placement into IRW 90 or (RD 90 or higher)
- Placement into IRW 90 or (WR 90 or higher)
- Completion of MTH 60 at PCC or if a student places into a higher than a math 60 class at PCC, they must take the (free) AMT department math test. AMT Department Chair permission is required to take the AMT department math test.

Other Prerequisites
- None

PROGRAM REQUIREMENTS

Academic Requirements
The program is divided into the following three areas of study:
- General Subject Areas: These courses, contain requirements which are common to both airframe and powerplant ratings. AMT 102, AMT 105, AMT 106, AMT 107, AMT 108, AMT 203
- Powerplant Subject Areas: Students who have completed all of the courses in the powerplant 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 Powerplant rating.
- 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.

Other Requirements
- None

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. Math/computation competency is met through the courses in the program of study indicated with a § symbol. Students should consult with program advisors for course planning.

COURSE OF STUDY

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

<table>
<thead>
<tr>
<th>Term</th>
<th>Courses</th>
<th>Credits</th>
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<tr>
<td>First Term</td>
<td>AMT 105, Aircraft CFRs and Related Subjects</td>
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<td>AMT 106§, Aircraft Applied Science</td>
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<td>AMT 107§, Materials &amp; Processes</td>
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<td>General Education</td>
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<tr>
<td>Second Term</td>
<td>AMT 102§, Aircraft Electricity I</td>
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<td>AMT 203§, Aircraft Electricity II</td>
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<tr>
<td>Third Term</td>
<td>AMT 108, AMT Practicum/General</td>
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<td>AMT 109, Assembly &amp; Rigging</td>
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<td>AMT 208§, Aircraft Systems</td>
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<td>AMT 211, Composite Structures</td>
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<td>Fourth Term</td>
<td>AMT 212§, Hydraulics, Pneumatics and Landing Gear</td>
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<td>Fifth Term</td>
<td>AMT 115§, Aircraft Structures &amp; Inspection</td>
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<td>AMT 117, Reciprocating Engine Theory &amp; Maintenance</td>
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<td>AMT 214, Instruments, Communication &amp; Navigation Systems</td>
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<td>AMT 216, AMT Practicum/Airframe</td>
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<tr>
<td>Sixth Term</td>
<td>AMT 121, Turbine Engine Theory and Maintenance</td>
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<td>AMT 219, Turbine Engine Overhaul</td>
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<td>AMT 222, Reciprocating Engine Overhaul</td>
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<td></td>
<td>General Education</td>
<td>4</td>
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<tr>
<td>Seventh Term</td>
<td>AMT 120§, Propellers and Engine Installation</td>
<td>4</td>
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AVIATION MAINTENANCE TECHNOLOGY

First Term
- AMT 105 4
- AMT 106 4
- AMT 107 4

Second Term
- AMT 102 4
- AMT 203 4
- AMT 204 4

Third Term
- AMT 108 2
- AMT 109 4
- AMT 208 4
- AMT 211 4
- AMT 213 4

Fourth Term
- AMT 212 4
- AMT 213 4
- WLD 210 2

Fifth Term
- AMT 115 4
- AMT 117 4
- AMT 214 4
- AMT 216 2

Sixth Term
- AMT 121 4
- AMT 218 4
- AMT 222 4

Seventh Term
- AMT 120 4
- AMT 123 4
- AMT 124 4

Eighth Term
- AMT 219 4

Total Credits: 92

§ Course cannot be substituted with another course.

AVIATION MAINTENANCE TECHNOLOGY: AIRFRAME ONE-YEAR CERTIFICATE
Minimum 58 credits. Students must meet all certificate requirements.

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

First Term
- AMT 105 4
- AMT 106 4
- AMT 107 4

Second Term
- AMT 102 4
- AMT 203 4
- AMT 204 4

Third Term
- AMT 108 2
- AMT 109 4
- AMT 208 4
- AMT 211 4
- AMT 213 4

Fourth Term
- AMT 212 4
- AMT 213 4
- WLD 210 2

Fifth Term
- AMT 115 4
- AMT 214 4
- AMT 216 2

Total Credits: 58

§ Course cannot be substituted with another course.

AVIATION MAINTENANCE TECHNOLOGY: POWERPLANT ONE-YEAR CERTIFICATE
Minimum 60 credits. Students must meet all certificate requirements.

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

First Term
- AMT 105 4
- AMT 106 4
- AMT 107 4

Second Term
- AMT 102 4
- AMT 203 4
- AMT 204 4

Third Term
- AMT 108 2
- AMT 121 4
- AMT 123 4
- AMT 124 4
- AMT 219 4

Fourth Term
- AMT 121 4

Total Credits: 60

§ Course cannot be substituted with another course.
AMT 101. Introduction to Aviation Maintenance Technology. 1 Credit.
Covers aviation maintenance technology careers, including program admission and completion requirements, continuing training and certification requirements, general industry safety standards, and career opportunities within the aviation maintenance industry. This course is a prerequisite for all other AMT courses.

AMT 102. Aircraft Electricity I. 4 Credits.
Includes basic electrical theory, interpretation of electrical schematics, principles of component operation, and alternating current theory. Prerequisites: AMT 101, placement into RD 90 and WR 90 or higher and (completion of MTH 60 at PCC or the AMT Department Math test with a 70% or higher). Audit available.

AMT 105. Aviation CFRs and Related Subjects. 4 Credits.
Prepresents 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: AMT 101, placement into RD 90 and WR 90 or higher and (completion of MTH 60 at PCC or the AMT Department Math test with a 70% or higher). Audit available.

AMT 106. Aircraft Applied Science. 4 Credits.
Covers aircraft weight and balance procedures and associated record keeping. Also covers aircraft drawings, precision measuring tools and some basic principles of physics. Prerequisites: AMT 101, placement into RD 90 and WR 90 or higher and (completion of MTH 60 at PCC or the AMT Department Math test with a 70% or higher). Audit available.

AMT 107. Materials & Processes. 4 Credits.
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: AMT 101, placement into RD 90 and WR 90 or higher and (completion of MTH 60 at PCC or the AMT Department Math test with a 70% or higher). Audit available.

AMT 108. AMT Practicum/General. 2 Credits.
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, and MTH 60 or Department Math test with a 70% or higher. Audit available.

AMT 109. Assembly & Rigging. 4 Credits.
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 102, AMT 203, AMT 204, AMT 105, AMT 106, AMT 107. Audit available.

AMT 115. Aircraft Structures & Inspection. 4 Credits.
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. Covers technical writing skills required to complete FAA forms and records. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107. Audit available.

AMT 117. Reciprocating Engine Theory & Maintenance. 4 Credits.
Covers aircraft reciprocating engine theory and various maintenance procedures and techniques. Includes the use of manufacturer’s publications. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107. Audit available.

AMT 120. Propellers and Engine Installation. 4 Credits.
Examines propeller theory and repair within limitations imposed by FAA Regulation Part 61, plus control and auxiliary systems, such as anti-ice and synchronization. Explores unducted fan systems and engine removal and installation. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106, AMT 107. Audit available.

AMT 121. Turbine Engine Theory and Maintenance. 4 Credits.
Covers general theory for all turbine engines. Includes maintenance inspection, checking, servicing and repairing turbine engines and turbine engine installations. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106, AMT 107. Audit available.

AMT 122. Reciprocating Engine Overhaul. 4 Credits.
Covers aircraft reciprocating engine theory and various maintenance procedures and techniques. Includes the use of manufacturer’s publications. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107. Audit available.

AMT 123. Ignition Systems. 4 Credits.
Covers reciprocating and turbine engine ignition system theories and overhaul practices, as well as the relationships of the complete ignition system to the powerplant and its operation. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107. Audit available.

AMT 124. Fuel Metering Systems. 4 Credits.
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 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107. Audit available.

AMT 210. Powerplant Inspection. 4 Credits.
Covers aircraft engines and systems, engine instrumentation, lubrication systems and control systems. Includes shop equipment, aircraft hardware, fluid lines and fittings, non-destructive testing methods, heat treatment, aircraft cleaning, and corrosion control. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107. Audit available.

AMT 211. Composite Structures. 4 Credits.
Covers modern bonded structures such as honeycomb and laminated composites. 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 102, AMT 203, AMT 204, AMT 105, AMT 106, and AMT 107. Audit available.

AMT 212. Sheet Metal. 4 Credits.
Covers methods for sheet metal repair to aircraft and methods of forming repair parts for damaged aircraft. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106, and AMT 107. Audit available.

AMT 213. Hydraulics, Pneumatics and Landing Gear. 4 Credits.
Covers inspection and repair of aircraft landing gear and hydraulic system components. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107. Audit available.

AMT 214. Instruments, Communication & Navigation Systems. 4 Credits.
Examines 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 instrument and system inspection and troubleshooting. Prerequisites: AMT 101, placement into RD 90 and WR 90 or higher and (completion of MTH 60 at PCC or the AMT Department Math test with a 70% or higher). Audit available.

AMT 215. Aircraft Systems. 4 Credits.
Examines various airframe systems. Includes ice and rain protection, cabin atmosphere, position and warning, and fire protection. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106, and AMT 107. Audit available.

AMT 216. AMT Practicum/Airframe. 2 Credits.
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. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107. Audit available.

AMT 220. Powerplant Inspection. 4 Credits.
Covers proper inspection of the entire engine installation, including exhaust systems, engine instrumentation, lubrication systems and control systems. Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107. Audit available.
AMT 219. Turbine Engine Overhaul. 4 Credits.
Covers removing, disassembling, cleaning, inspecting, reassembling and reinstalling a turbine engine. Emphasizes engine manufacturer’s publications.
Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106, AMT 107.
Audit available.

AMT 222. Reciprocating Engine Overhaul. 4 Credits.
Covers machining and overhaul processes for reciprocating engines.
Prerequisites: AMT 102, AMT 203, AMT 204, AMT 105, AMT 106 and AMT 107.
Audit available.

AMT 225. AMT Practicum/ Powerplant. 2 Credits.
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. 1-4 Credit.
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.