

# Aviation Maintenance Technology (AMT, AVAC, & AVPC)

## Aviation Maintenance Technology (AMT)

The Aviation Maintenance Technology program provides students with the skills needed to keep aircraft operating safely and efficiently by servicing, repairing, and overhauling aircraft components and systems. Coursework covers every system of today's aircraft.

Graduates of the program earn an Associate of Applied Science degree and are prepared to take the FAA licensing tests for Airframe Mechanic and Powerplant Mechanic.

For more information, please contact the Engineering and Information Technologies Division at (513) 569-1743.

To apply for this program at Cincinnati State, visit the Admissions (<http://www.cincinnati.edu/academics/admission/>) section of the College website.

## Aviation Mechanics Airframe Certificate (AVAC)

The Aviation Mechanics Airframe Certificate includes the study of aircraft structures and hydraulic, electrical, and landing gear systems. Lab experiences include aircraft inspection, troubleshooting, and repair.

Following successful completion of the Airframe Certificate requirements, students may take Federal Aviation Administration (FAA) licensing tests. Certification requirements are subject to current FAA requirements and may change without notice.

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## Aviation Mechanics Powerplant Certificate (AVPC)

The Aviation Mechanics Powerplant Certificate includes the study of all types of aircraft engines (small and large piston, and jet), along with the study of engine systems and propellers. Lab experiences include inspection, troubleshooting, and repair of aircraft engines.

Following successful completion of the certificate, students may take Federal Aviation Administration (FAA) licensing tests. Certification requirements are subject to current FAA regulations and may change without notice.

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## Aviation Maintenance Technology (AMT)

| Semester 1 |   | Lec | Lab | Credits |
|------------|---|-----|-----|---------|
| AMT 100    | Aviation Standard Practices ( <b>B</b> )  | 4   | 6   | 6       |
| AMT 105    | Aircraft Orientation ( <b>B</b> )   | 2   | 5   | 4       |
| AMT 110    | Aircraft Electricity ( <b>B</b> )   | 3   | 3   | 4       |
| AMT 115    | Aircraft Weight and Balance ( <b>B</b> )  | 3   | 3   | 4       |
| MAT 122    | Aviation Mathematics ( <b>G</b> )   | 2   | 2   | 3       |
| FYE 1XX    | First Year Experience Elective ( <b>B</b> )                                     | 1   | 0   | 1       |
| Semester 2 |   |     |     |         |
| AMT 135    | Aircraft Landing Gear Systems ( <b>T</b> )                                      | 3   | 5   | 5       |
| AMT 140    | Airframe Electrical Systems ( <b>T</b> )  | 4   | 4   | 6       |
| PHY 115    | Aviation Maintenance Physics ( <b>G</b> )                                       | 3   | 3   | 4       |
| AMT 120    | Aircraft Non-Metal Structures ( <b>T</b> )                                      | 3   | 4   | 5       |
| ENG 101    | English Composition 1 ( <b>G</b> )  | 3   | 0   | 3       |
| Semester 3 |   |     |     |         |
| AMT 125    | Aircraft Metal Structures ( <b>T</b> )  | 3   | 5   | 5       |
| AMT 145    | Airframe Electronic Systems ( <b>T</b> )  | 3   | 3   | 4       |
| AMT 150    | Airframe Systems ( <b>T</b> )   | 3   | 4   | 5       |
| AMT 155    | Airframe Assembly and Rigging ( <b>T</b> )                                      | 3   | 3   | 4       |
| AMT 160    | Airframe Inspection ( <b>T</b> )  | 1   | 3   | 2       |
| AMT 190    | Career Preparation: Aviation Maintenance Technology ( <b>B</b> )                | 1   | 0   | 1       |
| Semester 4 |   |     |     |         |
| AMT 191    | Part-Time Cooperative Education 1: Aviation Maintenance Technology ( <b>T</b> ) | 1   | 20  | 1       |
| ENG 104    | English Composition 2: Technical Communication ( <b>G</b> )                     | 3   | 0   | 3       |
| AMT 201    | Powerplant Maintenance 1 ( <b>T</b> )   | 4   | 6   | 6       |
| AMT 215    | Aircraft Propellers ( <b>T</b> )  | 2   | 2   | 3       |
| Semester 5 |   |     |     |         |
| AMT 192    | Part-Time Cooperative Education 2: Aviation Maintenance Technology ( <b>T</b> ) | 1   | 20  | 1       |
| AMT 202    | Powerplant Maintenance 2 ( <b>T</b> )   | 4   | 6   | 6       |
| AMT 205    | Starting and Ignition Systems ( <b>T</b> )                                      | 3   | 4   | 5       |
| Semester 6 |   |     |     |         |

|                       |   |           |            |            |
|-----------------------|---|-----------|------------|------------|
| AMT 193               | Part-Time Cooperative Education 3: Aviation Maintenance Technology ( T) | 1         | 20         | 1          |
| AMT 203               | Powerplant Maintenance 3 ( T)   | 4         | 6          | 6          |
| AMT 210               | Engine Fuel and Lubrication Systems ( T)                                | 4         | 6          | 6          |
| PHI 110               | Ethics ( G)   | 3         | 0          | 3          |
| <b>Total Credits:</b> |   | <b>75</b> | <b>143</b> | <b>107</b> |

## Electives

### First Year Experience Elective

|         |  |   |
|---------|--|---|
| FYE 100 | College Success Strategies: Overview                 | 1 |
| FYE 105 | College Success Strategies: Overview and Application | 2 |
| FYE 110 | College Success Strategies: Practice and Application | 3 |

Some courses are offered in alternative versions identified with a letter after the course number-- for example, ENG 101 and ENG 101A.

- This curriculum displays only course numbers without the added letter.
- The alternative version, when available, meets the requirements of the course version without the added letter.

The letters G, B, and T (displayed after course titles or elective descriptions) identify types of courses required by the Ohio Department of Higher Education as part of an associate's degree curriculum.

G = General Education course in this curriculum

B = Basic Skills course in this curriculum

T = Technical course in this curriculum

## Aviation Mechanics Airframe Certificate (AVAC)

| Semester 1        |                               | Lec | Lab | Credits |
|-------------------|-------------------------------|-----|-----|---------|
| AMT 100           | Aviation Standard Practices   | 4   | 6   | 6       |
| AMT 105           | Aircraft Orientation          | 2   | 5   | 4       |
| AMT 110           | Aircraft Electricity          | 3   | 3   | 4       |
| AMT 115           | Aircraft Weight and Balance   | 3   | 3   | 4       |
| MAT 122           | Aviation Mathematics          | 2   | 2   | 3       |
| <b>Semester 2</b> |                               |     |     |         |
| AMT 120           | Aircraft Non-Metal Structures | 3   | 4   | 5       |
| AMT 130           | Aircraft Welding Processes    | 2   | 2   | 3       |
| AMT 135           | Aircraft Landing Gear Systems | 3   | 5   | 5       |
| AMT 140           | Airframe Electrical Systems   | 4   | 4   | 6       |
| PHY 115           | Aviation Maintenance Physics  | 3   | 3   | 4       |
| <b>Semester 3</b> |                               |     |     |         |
| AMT 125           | Aircraft Metal Structures     | 3   | 5   | 5       |
| AMT 145           | Airframe Electronic Systems   | 2   | 1   | 2       |
| AMT 150           | Airframe Systems              | 3   | 3   | 4       |
| AMT 155           | Airframe Assembly and Rigging | 3   | 4   | 5       |

|                       |                     |           |           |           |
|-----------------------|---------------------|-----------|-----------|-----------|
| AMT 160               | Airframe Inspection | 1         | 3         | 2         |
| <b>Total Credits:</b> |                     | <b>41</b> | <b>53</b> | <b>62</b> |

## Aviation Mechanics Powerplant Certificate (AVPC)

| Semester 1            |                                     | Lec       | Lab       | Credits   |
|-----------------------|-------------------------------------|-----------|-----------|-----------|
| AMT 100               | Aviation Standard Practices         | 4         | 6         | 6         |
| AMT 105               | Aircraft Orientation                | 2         | 5         | 4         |
| AMT 110               | Aircraft Electricity                | 3         | 3         | 4         |
| AMT 115               | Aircraft Weight and Balance         | 3         | 3         | 4         |
| MAT 122               | Aviation Mathematics                | 2         | 2         | 3         |
| <b>Semester 2</b>     |                                     |           |           |           |
| AMT 201               | Powerplant Maintenance 1            | 4         | 6         | 6         |
| AMT 215               | Aircraft Propellers                 | 3         | 3         | 4         |
| PHY 115               | Aviation Maintenance Physics        | 3         | 3         | 4         |
| <b>Semester 3</b>     |                                     |           |           |           |
| AMT 202               | Powerplant Maintenance 2            | 4         | 6         | 6         |
| AMT 205               | Starting and Ignition Systems       | 3         | 4         | 5         |
| <b>Semester 4</b>     |                                     |           |           |           |
| AMT 203               | Powerplant Maintenance 3            | 4         | 6         | 6         |
| AMT 210               | Engine Fuel and Lubrication Systems | 4         | 6         | 6         |
| <b>Total Credits:</b> |                                     | <b>39</b> | <b>53</b> | <b>58</b> |

Some courses are offered in alternative versions identified with a letter after the course number-- for example, ENG 101 and ENG 101A.

- This curriculum displays only course numbers without the added letter.
- The alternative version, when available, meets the requirements of the course version without the added letter.

## Aviation Maintenance Technology (AMT)

- Apply concepts of basic aircraft electricity.
- Determine and document aircraft weight and balance calculations.
- Identify aircraft corrosion and demonstrate aircraft corrosion cleaning techniques.
- Interpret aircraft and powerplant maintenance technical data and engineering drawings.
- Gain experience inspecting and repairing metal and non-metal structures.
- Demonstrate ground operations and servicing of aircraft and powerplants.
- Identify and apply Federal Aviation Regulation Maintenance Standards.
- Complete appropriate FAA required maintenance forms and records for aircraft maintenance.
- Recognize FAA Airworthiness Directives, Type Certificate Data Sheets, and Approved and Acceptable Data sheets.
- Complete maintenance on aircraft turbine engine and piston engines.

## Faculty

### Program Chair/Advisor

Jeff Wright, MS, FAA A&P, DME  
jeffrey.wright@cincinnatiastate.edu

### Co-op Coordinator

Jennifer Geiger  
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## Engineering and Information Technologies Division Advising

(513) 569-1743

## Courses

### AMT 100 Aviation Standard Practices

**6 Credits. 4 Lecture Hours. 6 Lab Hours.**

A course that uses FAA-approved instruction for foundation concepts and techniques in aviation maintenance. Topics include: fluid lines and fittings, materials and processes, and cleaning and corrosion control.  
Prerequisites: None

### AMT 105 Aircraft Orientation

**4 Credits. 2 Lecture Hours. 5 Lab Hours.**

A course on foundation concepts in aviation maintenance. Topics include: aircraft drawings, ground operations and servicing, mechanic privileges, and basic concepts of physics.  
Prerequisites: None

### AMT 110 Aircraft Electricity

**4 Credits. 3 Lecture Hours. 3 Lab Hours.**

A course that uses FAA-approved instruction for foundation concepts and techniques in aviation maintenance. Topics include: basic concepts of math, physics, and electricity; aircraft drawings; and maintenance forms and records.  
Prerequisites: MAT 093 or appropriate placement

### AMT 115 Aircraft Weight and Balance

**4 Credits. 3 Lecture Hours. 3 Lab Hours.**

A course on foundation concepts and techniques related to aircraft weight and balance. Topics include: maintenance forms and records, and maintenance publications.  
Prerequisites: MAT 093 or appropriate placement

### AMT 120 Aircraft Non-Metal Structures

**5 Credits. 3 Lecture Hours. 4 Lab Hours.**

A course on wood structures, aircraft covering, aircraft finishes, and inspection of bonded structures.  
Prerequisites: AMT 105

### AMT 125 Aircraft Metal Structures

**5 Credits. 3 Lecture Hours. 5 Lab Hours.**

A course on repairing and maintaining sheet metal structures. Topics include: selecting and installing rivets and fasteners, forming and bending sheet metal, and laying out repairs.  
Prerequisites: AMT 100 and AMT 105

### AMT 130 Aircraft Welding Processes

**3 Credits. 2 Lecture Hours. 2 Lab Hours.**

A course on welding of magnesium, titanium, aluminum, and steel in aircraft. The course does not prepare students for certification specific to welding.  
Prerequisites: None

### AMT 135 Aircraft Landing Gear Systems

**5 Credits. 3 Lecture Hours. 5 Lab Hours.**

A course on repairing and maintaining aircraft landing gear systems and hydraulic and pneumatic power systems.  
Prerequisites: AMT 105 and MAT 122 or appropriate placement

### AMT 140 Airframe Electrical Systems

**6 Credits. 4 Lecture Hours. 4 Lab Hours.**

A course on troubleshooting aircraft electrical systems and inspecting direct current generators.  
Prerequisites: AMT 105 and AMT 110

### AMT 145 Airframe Electronic Systems

**4 Credits. 3 Lecture Hours. 3 Lab Hours.**

A course on aircraft instrument systems and communication and navigation systems.  
Prerequisites: AMT 105 and AMT 110

### AMT 150 Airframe Systems

**5 Credits. 3 Lecture Hours. 4 Lab Hours.**

A course on systems for cabin atmosphere and control, position and warning, ice and rain control, fire protection, water and waste systems, and aircraft fuel.  
Prerequisites: AMT 100 and AMT 105 and AMT 110

### AMT 155 Airframe Assembly and Rigging

**4 Credits. 3 Lecture Hours. 3 Lab Hours.**

A course on balancing rigging, and inspecting primary and secondary flight controls of rotor and fixed wing aircraft.  
Prerequisites: AMT 100 and AMT 105, and MAT 122 or appropriate placement

### AMT 160 Airframe Inspection

**2 Credits. 1 Lecture Hour. 3 Lab Hours.**

A course on inspection of airframes and sheet metal structures, repair of sheet metal structures, and conformity inspections on rotor and fixed wing aircraft.  
Prerequisites: AMT 105 and AMT 115

### AMT 190 Career Preparation: Aviation Maintenance Technology

**1 Credit. 1 Lecture Hour. 0 Lab Hour.**

A course on career planning and exploration for students in Aviation Maintenance Technologies. Topics include: self assessment, career research, resume development, interview skills, job search strategies, and cooperative education policies and procedures.  
Prerequisites: None

### AMT 191 Part-Time Cooperative Education 1: Aviation Maintenance Technology

**1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their first part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.  
Prerequisites: AMT 100

### AMT 192 Part-Time Cooperative Education 2: Aviation Maintenance Technology

**1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their first part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.  
Prerequisites: AMT 191

**AMT 193 Part-Time Cooperative Education 3: Aviation Maintenance Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their third part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: AMT 192

**AMT 194 Part-Time Cooperative Education 4: Aviation Maintenance Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their fourth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: AMT 193

**AMT 195 Part-Time Cooperative Education 5: Aviation Maintenance Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their fifth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: AMT 194

**AMT 196 Part-Time Cooperative Education 6: Aviation Maintenance Technology****1 Credit. 1 Lecture Hour. 20 Lab Hours.**

Students seeking an associate's degree participate in their sixth part-time field learning experience related to their degree. Students are expected to register for academic courses during the same semester. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: AMT 195

**AMT 201 Powerplant Maintenance 1****6 Credits. 4 Lecture Hours. 6 Lab Hours.**

A course that uses FAA-approved instruction for concepts and techniques in inspection and repair of radial engines; overhaul of reciprocating engines; and inspection, check, service and repair of reciprocating engines and engine systems.

Prerequisites: AMT 100 and AMT 105

**AMT 202 Powerplant Maintenance 2****6 Credits. 4 Lecture Hours. 6 Lab Hours.**

A continuation of AMT 201, using FAA-approved instruction for concepts and techniques in installation, troubleshooting, and removal of reciprocating engines; overhaul of turbine engines; and induction and engine airflow systems.

Prerequisites: AMT 201

**AMT 203 Powerplant Maintenance 3****6 Credits. 4 Lecture Hours. 6 Lab Hours.**

A continuation of AMT 202, using FAA-approved instruction in the subject areas of inspection, check, service, and repair of turbine engines and turbine engine installations; installation, troubleshooting, and removal of turbine engines; performing powerplant conformity and airworthiness inspection; engine exhaust and reverser systems; unducted fans; and auxiliary power units.

Prerequisites: AMT 202

**AMT 205 Starting and Ignition Systems****5 Credits. 3 Lecture Hours. 4 Lab Hours.**

A course that uses FAA-approved instruction for concepts and techniques in ignition and starting systems for reciprocating and turbine aircraft engines. Topics include: inspection, troubleshooting, and repair.

Prerequisites: AMT 105 and AMT 110

**AMT 210 Engine Fuel and Lubrication Systems****6 Credits. 4 Lecture Hours. 6 Lab Hours.**

A course that uses FAA-approved instruction for concepts and techniques in lubrication systems, fuel metering systems, and engine fuel systems.

Prerequisites: AMT 100 and AMT 105

**AMT 215 Aircraft Propellers****3 Credits. 2 Lecture Hours. 2 Lab Hours.**

A course that uses FAA-approved instruction for concepts and techniques in removal, installation, inspection, and repair of fixed and variable pitch aircraft propellers and propeller governing systems.

Prerequisites: AMT 105 and AMT 115

**AMT 250 Unmanned Aerial Systems****3 Credits. 2 Lecture Hours. 2 Lab Hours.**

A course on constructing, assembling, inspecting, repairing, and maintaining a small unmanned aerial system (drone). Topics include: designing and constructing a platform, soldering circuit boards and electrical components, programming operating and control systems, assembling propulsion systems, and checking operations.

Prerequisites: None

**AMT 255 Unmanned Aerial Systems - Remote Pilot Certification****2 Credits. 1 Lecture Hour. 2 Lab Hours.**

A course on safely and legally operating an unmanned aerial system (UAS) as an operator, observer, and operations administrator in compliance with Federal Aviation Regulations. The course also prepares students to successfully complete the Federal Aviation Administration FAR Part 107 Remote Pilot certification exam.

Prerequisites: None

**AMT 270 Avionics Orientation****4 Credits. 3 Lecture Hours. 2 Lab Hours.**

A course on aircraft and avionics systems topics and terminology. Topics include: aircraft parts, aircraft axis and controls, flight controls, theory of flight, pre- and post-flight inspection, and ground movement and storage of aircraft. The course prepares students to successfully complete the National Center for Aircraft Technician Training exam for Aircraft Electronics Technician.

Prerequisites: None

**AMT 271 Avionics 1****4 Credits. 3 Lecture Hours. 2 Lab Hours.**

A course on concepts and skills for repair of avionics equipment. Topics include: procedures used by air carriers and repair stations; avionics publications, forms, and records; tools and equipment; buildup of wire bundles; review of Boolean Algebra; and ARINC codes.

Prerequisites: AMT 155

**AMT 272 Avionics 2****4 Credits. 3 Lecture Hours. 2 Lab Hours.**

A continuation of AMT 271. Topics include: logic gates, troubleshooting analog and digital electronic systems to line replicable units, amplifier theory, on-board navigation and maintenance computer systems, and intercom and passenger entertainment systems.

Prerequisites: AMT 271

**AMT 290 FAA General, Airframe, and Powerplant Certification Test Preparation****4 Credits. 4 Lecture Hours. 0 Lab Hour.**

A course that prepares students to successfully complete the Federal Aviation Administration (FAA) General, Airframe, and Powerplant written, oral, and practical tests. To enroll in the course, student must be a graduate of a Part 147 school or hold FAA-signed Form 8610-2. Prerequisites: Graduate of a Part 147 school or hold FAA-signed Form 8610-2

**AMT 291 Full-Time Cooperative Education 1: Aviation Maintenance Technology****2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their first full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: None

**AMT 292 Full-Time Cooperative Education 2: Aviation Maintenance Technology****2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their second full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: AMT 291

**AMT 293 Full-Time Cooperative Education 3: Aviation Maintenance Technology****2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their third full-time field learning experience related to their degree. Students must follow cooperative education policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: AMT 292

**AMT 294 Internship 1: Aviation Maintenance Technology****2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their first unpaid field learning experience related to their degree. Students must follow applicable policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: AMT 100

**AMT 295 Internship 2: Aviation Maintenance Technology****2 Credits. 1 Lecture Hour. 40 Lab Hours.**

Students seeking an associate's degree participate in their second unpaid field learning experience related to their degree. Students must follow applicable policies and procedures to earn credit. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: AMT 294