

Aviation Maintenance Technologies

The Aviation Maintenance Technologies Department at Cincinnati State offers a Federal Aviation Administration (FAA) approved degree program in Aviation Maintenance Technology and three certificate programs. Each program prepares graduates for a career maintaining and servicing aircraft components and systems.

All technical courses are conducted at the Cincinnati State airport facility, located on the Cincinnati State West Campus in Harrison, Ohio. Some non-technical courses are offered at the West Campus, or may be taken on the Main (Clifton) campus or, in some cases, through online instruction.

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. 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. Coursework covers every system of today's aircraft.

Aviation Mechanics Airframe Certificate (AVAC)

The Aviation Mechanics Airframe Certificate includes the study of aircraft structures and the hydraulic, electrical, and landing gear systems. Lab experiences include aircraft inspection, troubleshooting, and repair. Following successful completion of the certificate, students may take Federal Aviation Administration (FAA) licensing tests. Certification requirements are subject to current FAA requirements and may change without notice.

Avionics Certificate (AVONC)

The Avionics Certificate provides advanced skills in aviation electronics for students who are FAA-certified aviation mechanics. Graduates are able to troubleshoot and repair various systems in a flight-line environment, including onboard computers, automatic pilot, instrument navigation and communication equipment, and powerplant electronic control systems.

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.

For more information, please contact the Center for Innovative Technologies at (513) 569-1743.

Aviation Maintenance Technology (AMT)

Semester 1		Lec	Lab	Credits
AMT 100	Aviation Standard Practices (B)	4	6	6
AMT 105	Aircraft Orientation (B)	2	5	4
MAT 121	Technical Algebra and Geometry with Statistics (G)	2	2	3
AMT 110	Aircraft Electricity (B)	3	3	4
FYE 1XX First Year Experience Elective (B)		1	0	1
AMT 115	Aircraft Weight and Balance (B)	3	3	4
Semester 2				
AMT 135	Aircraft Landing Gear Systems (T)	3	5	5
AMT 140	Airframe Electrical Systems (T)	4	4	6
PHY 115	Aviation Maintenance Physics (G)	3	3	4
AMT 120	Aircraft Non-Metal Structures (T)	3	4	5
AMT 130	Aircraft Welding Processes (T)	2	2	3

Semester 3

AMT 125	Aircraft Metal Structures (T)	3	5	5
AMT 145	Airframe Electronic Systems (T)	2	1	2
AMT 150	Airframe Systems (T)	3	3	4
AMT 155	Airframe Assembly and Rigging (T)	3	4	5
AMT 160	Airframe Inspection (T)	1	3	2
ENG 101	English Composition 1 (G)	3	0	3

Semester 4

AMT 191	Part-Time Cooperative Education 1: Aviation Maintenance Technology (T)	1	20	1
ENG 104	English Composition 2: Technical Communication (G)	3	0	3
AMT 201	Powerplant Maintenance 1 (T)	6	4	8
AMT 215	Aircraft Propellers (T)	2	2	4

Semester 5

AMT 192	Part-Time Cooperative Education 2: Aviation Maintenance Technology (T)	1	20	1
AMT 202	Powerplant Maintenance 2 (T)	5	5	7
AMT 205	Starting and Ignition Systems (T)	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	2	5
AMT 210	Engine Fuel and Lubrication Systems (T)	5	5	7
PHI 110	Ethics (G)	3	0	3

Total Credits:		79	135	111
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Electives**First Year Experience Elective**

FYE 100	College Survival Skills			1
FYE 105	College Success Strategies			2
FYE 110	Community College Experience			3

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 121	Technical Algebra and Geometry with Statistics	2	2	3
Semester 2				
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
Semester 3				
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
ENG 101	English Composition 1	3	0	3
Total Credits:		44	53	65

Avionics Certificate (AVONC)

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 121	Technical Algebra and Geometry with Statistics	2	2	3
Semester 2				
AMT 140	Airframe Electrical Systems	4	4	6
AMT 150	Airframe Systems	3	3	4
AMT 155	Airframe Assembly and Rigging	3	4	5
PHY 115	Aviation Maintenance Physics	3	3	4
Semester 3				
AMT 271	Avionics 1	3	2	4
ENG 101	English Composition 1	3	0	3
Semester 4				
AMT 272	Avionics 2	3	2	4
Total Credits:		36	37	51

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 121	Technical Algebra and Geometry with Statistics	2	2	3
Semester 2				
AMT 201	Powerplant Maintenance 1	6	4	8
AMT 215	Aircraft Propellers	2	2	4
PHY 115	Aviation Maintenance Physics	3	3	4
Semester 3				

AMT 202	Powerplant Maintenance 2	5	5	7
AMT 205	Starting and Ignition Systems	3	4	5
ENG 101	English Composition 1	3	0	3
Semester 4				
AMT 203	Powerplant Maintenance 3	4	2	5
AMT 210	Engine Fuel and Lubrication Systems	5	5	7
Total Credits:		45	44	64

Faculty

Program Chair/Advisor

Professor James Schmid, FAA A&P, ME
james.schmid@cincinnatiastate.edu

Co-op Coordinator

Professor Kimberly Richards, PhD
kimberly.richards@cincinnatiastate.edu

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: AFL 085 or appropriate placement test score

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: AFL 085 or appropriate placement test score

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 120 or appropriate placement test score

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 120 or appropriate placement test score

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 121

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

A course on aircraft instrument systems and communication and navigation systems.

Prerequisites: AMT 105 and AMT 110

AMT 150 Airframe Systems**4 Credits. 3 Lecture Hours. 3 Lab Hours.**

A course on systems for cabin atmosphere and control, position and warning, ice and rain control, fire protection, and aircraft fuel.

Prerequisites: AMT 100, AMT 105, and AMT 110

AMT 155 Airframe Assembly and Rigging**5 Credits. 3 Lecture Hours. 4 Lab Hours.**

A course on balancing rigging, and inspecting primary and secondary flight controls of rotor and fixed wing aircraft.

Prerequisites: AMT 100, AMT 105, and MAT 121

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 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 198 First Year Special Topics in Aviation Maintenance Technology

1-9 Credits. 0 Lecture Hour. 0 Lab Hour.

A course on selected topics related to Aviation Maintenance Technology, which gives students opportunities to study information not currently covered in other courses. Grades issued are A, B, C, D, or F.

Prerequisites: Instructor Approval

AMT 199 First Year Independent Project in Aviation Maintenance Technology

1-9 Credits. 0 Lecture Hour. 0 Lab Hour.

A project related to Aviation Maintenance Technology that is completed by one or more students to meet specific educational goals. Projects must have prior approval and supervision by Aviation Maintenance Technology faculty. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: Instructor Approval

AMT 201 Powerplant Maintenance 1

8 Credits. 6 Lecture Hours. 4 Lab Hours.

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

Prerequisites: AMT 100 and AMT 105

AMT 202 Powerplant Maintenance 2

7 Credits. 5 Lecture Hours. 5 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

5 Credits. 4 Lecture Hours. 2 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; ducted 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

7 Credits. 5 Lecture Hours. 5 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

4 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 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 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

AMT 298 Second Year Special Topics in Aviation Maintenance Technology**1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A course on selected topics related to Aviation Maintenance Technology, which gives students opportunities to study information not currently covered in other courses. Grades issued are A, B, C, D, or F.

Prerequisites: Instructor Approval

AMT 299 Second Year Independent Project in Aviation Maintenance Technology**1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A project related to Aviation Maintenance Technology that is completed by one or more students to meet specific educational goals. Projects must have prior approval and supervision by Aviation Maintenance Technology faculty. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: Instructor Approval