

Aviation Technologies

Whether general aviation aircraft or transport, modern aircraft require highly trained technicians to manage hardware, troubleshoot systems and maintain airframe structures and powerplants. The Aviation Technologies program is ranked among the best in the country and was developed with input from industry representatives and the Federal Aviation Administration (FAA) to provide the requisite skills and broad educational experience necessary in today's competitive environment. Optional paths within the major provide a great deal of flexibility in preparing for a career in the aviation industry. Students may pursue the FAA approved airframe and powerplant certificate in a five or seven semester sequence of coursework or they may include the airframe and powerplant certificate, with additional coursework, as part of their four-year bachelor's degree in Aviation Technologies.

The Bachelor of Science degree program in Aviation Technologies is designed to enhance technical training students who have received training in the areas of aviation maintenance, aviation flight, or electronics. This technical training may be acquired through SIU Carbondale, at other post-secondary institutions, in the military, or in the case of aviation maintenance, at other FAA approved maintenance or flight schools.

Aviation Technologies has signed a number of Program Articulation Agreements with aviation-related community college degree programs to facilitate the transfer of these particular community college aviation students to SIU Carbondale. The community colleges with which SIU has signed such an agreement include: Southwestern Illinois College (IL), Rock Valley College (IL), Indian Hills Community College (IA), and Community College of the Air Force.

Many students entering the Aviation Technologies program are encouraged to have completed an appropriate associate degree or its equivalent under the provisions of the Capstone Option (see below for additional information). Students may choose from four specializations: Aircraft Maintenance, Helicopter Maintenance, Aviation Electronics, and Aviation Maintenance Management.

Courses in each of these areas have been selected and designed to provide the student with optimum exposure to theory in the classroom and develop practical, hands-on skills both in the hangar and in specially-designed, task-dedicated laboratories. The Aviation Technologies facilities, located at Southern Illinois Airport between Carbondale and Murphysboro, Illinois, provides students with more than 14 million dollars of the best available equipment including fixed and rotary wing aircraft, airline-type cockpit procedure trainers (CPT's), an advanced composite structures laboratory and computer laboratory. Students should expect to spend \$500 to \$1,000 for a tool kit. In addition to University tuition and fees, lab fees are assessed for the lab portions of appropriate courses.

Bachelor of Science (B.S.) in Aviation Technologies

Aircraft Maintenance Specialization

The aircraft maintenance specialization provides students the opportunity to advance their technical knowledge and skills in flight management systems, advance composites, advance propulsion systems, and supply chain logistics. Additional elective courses complement this specialization.

B.S. Aviation Technologies - Aircraft Maintenance Specialization Degree Requirements

Degree Requirements	Credit Hours
University Core Curriculum Requirements	39
Requirements for Aircraft Maintenance Specialization	40

Degree Requirements	Credit Hours
Core Requirements ¹	7
AVT 305; AVT 310	
Specialization Requirements ²	15
AVT 405; AVT 410; AVT 416; AVT 380; AVT 390	
Specialization Electives ³	18
AVT 301 AND AVT 302, AVT 303, AVT 304 AND AVT 306, AVT 321, AVT 327, AVT 470; AVM 376, TRM 364; or advisor approved electives.	
Technical or Career Electives - An Associate in Applied Science degree or equivalent certification in Aviation Maintenance (Airframe and Powerplant) from an accredited college, community college, or technical institute meets this requirement.	41
Total	120

¹ All Aviation Technologies courses require a minimum grade of C.

² All Aviation Technologies courses requires a minimum grade of C.

³ All Aviation Technologies courses require a minimum grade of C.

Aviation Electronics Specialization

The Aviation Electronics (Avionics) specialization provides students the opportunity to advance their technical knowledge and skills in analog and digital circuits, digital data, flight line maintenance, and troubleshooting skills in aviation electronics.

B.S. Aviation Technologies - Aviation Electronics Specialization Degree Requirements

Degree Requirements	Credit Hours
University Core Curriculum Requirements	39
Requirements for Aviation Electronics Specialization	39
Core Requirements ¹	7
AVT 305; AVT 310	
Specialization Requirements ²	20
AVT 321; AVT 317; AVT 318; AVT 405; AVT 327	

Degree Requirements	Credit Hours
AVT 465	
Specialization Electives ³	12
AVT 301 & AVT 302, AVT 303, AVT 304 & AVT 306, AVT 380, AVT 390, AVT 410, AVT 416, AVT 470; AVM 376, TRM 364; or advisor approved electives.	
Technical or Career Electives	42
An Associate in Applied Science degree or equivalent certification in Aviation Maintenance (Airframe and/or Airframe and Powerplant) or Electronics from an accredited college, community college, or technical institute meets this requirement.	
Total	120

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Aviation Maintenance Management Specialization

The Aviation Maintenance Management specialization is an online degree completion program that allows professionals in the aviation and electronics industries to complete their bachelor degree while working full time. This specialization is ideally suited for individuals who fall into at least one of the following categories:

1. Completed an FAA Part 147 Aircraft Maintenance Technician School
2. Currently hold Airframe and/or Powerplant certification, or equivalent
3. Completed an associate degree in aircraft maintenance, electronics, or aviation flight
4. Has equivalent civilian or military work experience

The Aviation Maintenance Management curriculum allows students to advance their knowledge in the subjects of avionics communication and navigation systems; aircraft supply chain logistics; aircraft reliability, maintainability and fault prediction; aviation project management; aerospace financial practices, and other technical subjects.

B.S. Aviation Technologies - Aviation Maintenance Management Specialization Degree Requirements

Degree Requirements	Credit Hours
University Core Curriculum Requirements	39
Requirements for Aviation Maintenance Management Specialization	30

Degree Requirements	Credit Hours
AVT 329	3
AVT 470	3
AVT 475	3
AVT 478	3
AVT 380	3
AVT 485	3
AVT 488	3
AVT 390	3
IMAE 470A	3
IMAE 450 or TRM 470	3
Aviation Technologies Internship/Cooperative Experience	12
AVT 319 / AVT 320 or AVT 358 or approved electives	
Technical or Career Electives ¹	39
Total	120

¹ An Associate in Applied Science degree or equivalent certification in Aviation Maintenance (Airframe and Powerplant), aviation flight, or electronics from an accredited college, community college, or technical institute meets this requirement.

Helicopter Maintenance Specialization

The helicopter maintenance specialization provides students who have completed an FAA approved airframe and/or powerplant program with the opportunity to advance technical skills in helicopter theory, maintenance and overhaul, and inspection. Additional elective courses complement this specialization.

B.S. Aviation Technologies - Helicopter Maintenance Specialization Degree Requirements

Degree Requirements	Credit Hours
University Core Curriculum Requirements	39
Requirements for Helicopter Maintenance Specialization	43

Degree Requirements	Credit Hours
Core Requirements ¹	7
AVT 305; AVT 310	
Specialization Requirements ²	18
AVT 301; AVT 304	
AVT 302; AVT 306	
Specialization Electives ³	18
AVT 303, AVT 321, AVT 327, AVT 380, AVT 390, AVT 405, AVT 410, AVT 416, AVT 470; AVM 376, TRM 364; or advisor approved electives.	
Technical or Career Electives	38
An Associate in Applied Science degree or equivalent certification in Aviation Maintenance (Airframe and Powerplant) from an accredited college, community college, or technical institute meets this requirement.	
Total	120

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Aircraft Product Support Minor

The minor in Aircraft Product Support is a multi-disciplinary minor offered by the Aviation Management and the Aviation Technologies programs. The purpose of this minor is to provide additional preparation for students who wish to enter the field of aircraft product support with aerospace manufacturers, suppliers, airlines, the military and related aviation/aerospace industry segments. The courses required to complete this minor include: AVT 301 or AVT 376, AVT 461, AVT 380, AVT 390, AVT 470, and one additional approved course from either Aviation Management or Aviation Technologies degree programs. All prerequisites for these courses must be fulfilled prior to enrollment in each course. All students who wish to enroll in this minor must do so through either the Aviation Management advisor or the Aviation Technologies advisor. Aviation Management students must complete AVM 301 in their major. Aviation Technologies students may complete AVM 376 in their major.

FAA Approved Airframe and Powerplant Certificates

FAA Approved Airframe and Powerplant Certificates Requirements

Degree Requirements	Credit Hours
First Semester: MATH, AVT 101, AVT 110, AVT 111, AVT 113	18
Second Semester: AVT 112, AVT 116, AVT 204, AVT 206, AVT 214, AVT 340	20
Third Semester: AVT 211, AVT 212, AVT 213, AVT 310	14
Fourth Semester: AVT 305, AVT 316, AVT 345	12
Total	64

Airframe and/or Powerplant Maintenance Certificates

The University's Undergraduate Certificates in Airframe and/or Powerplant Maintenance will be issued upon completion of the respective coursework. Additional coursework may be required for FAA certification.

Undergraduate Certificate in Airframe & Powerplant Maintenance with Credit Hours

- MATH 125 Technical Math (4)
- AVT 212 Fuel Metering Systems (3)
- AVT 101 Applied Science (3)
- AVT 213 Engine Electrical, Ignition, and Starting Systems (4)
- AVT 110 Aircraft Structures (3)
- AVT 214 Propellers (3)
- AVT 112 Aircraft Electricity (4)
- AVT 305 Cabin Env. & Jet Trans Sys. (4)
- AVT 111 Materials Processing (5)
- AVT 310 Aircraft Electrical Systems (3)
- AVT 113 Federal Aviation Regs (3)
- AVT 116 Aircraft Instruments (3)
- AVT 316 Jet Propulsion Powerplant (4)
- AVT 340 Aircraft Inspection and Rigging (4)
- AVT 204 Aircraft Hydraulics (3)
- AVT 345 Power Plant Inspection and Testing (4)
- AVT 206 Metals Processing (3)
- AVT 211 Reciprocating Powerplant (4)

Total credit hours. 64

1. *All Aviation Technologies coursework requires an average of C or higher for graduation.*
2. *Courses that are part of the Chapter 14 of the Code of Federal Regulations part 147 curriculum require a minimum passing grade of 70%.*

Undergraduate Certificate in Airframe Maintenance with Credit Hours

- AVT 101 Applied Science (3)
- AVT 110 Aircraft Structures (3)

- AVT 111 Materials Processing (5)
- AVT 112 Aircraft Electricity (4)
- AVT 113 Federal Aviation Regulations (3)
- AVT 116 Aircraft Instruments (3)
- AVT 204 Aircraft Hydraulics (3)
- AVT 206 Metals Processing (3)
- AVT 305 Cabin Env. & Jet Transport Sys. (4)
- AVT 310 Aircraft Electrical Systems (3)
- AVT 340 Aircraft Inspection and Rigging (4)
- MATH 125 Technical Mathematics with Applications (4)

Total credit hours. 42

1. *All Aviation Technologies coursework requires an average of C or higher for graduation.*
2. *Courses that are part of the Chapter 14 of the Code of Federal Regulations part 147 curriculum require a minimum passing grade of 70%.*

Undergraduate Certificate in Powerplant Maintenance with Credit Hours

- AVT 101 Applied Science (3)
- AVT 111 Materials Processing (5)
- AVT 112 Aircraft Electricity (4)
- AVT 113 Federal Aviation Regulations (3)
- AVT 211 Reciprocating Powerplant (4)
- AVT 212 Fuel Metering Systems (3)
- AVT 214 Propellers (3)
- AVT 316 Jet Propulsion Powerplant (4)
- AVT 213 Engine Electrical, Ignition, and Starting Systems (4)
- AVT 345 Power Plant Inspection and Testing (4)
- MATH 125 Technical Mathematics with Applications (4)

Total credit hours. 41

1. *All Aviation Technologies coursework requires an average of C or higher for graduation.*
2. *Courses that are part of the Chapter 14 of the Code of Federal Regulations part 147 curriculum require a minimum passing grade of 70%.*

Capstone Option for Transfer Students

The SIU Carbondale Capstone Option may be available to eligible students who have earned an associates degree or the equivalent. The Capstone Option reduces the University Core Curriculum requirements from 39 to 30 hours, therefore reducing the time to degree completion. The Capstone Option allows qualified students to fulfill their degree requirements by completing no more than 60 semester hours of coursework beyond their associate degree. See the Capstone Option section for more information on this option.

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