

WESTERN IOWA TECH COMMUNITY COLLEGE

AVIATION MAINTENANCE

HANDBOOK

06/2026

AVIATION MAINTENANCE

COURSE INFORMATION

The courses were developed to allow you to gain the knowledge and skills required to obtain your Airframe, Powerplant, or Airframe / Powerplant certification from the Federal Aviation Administration. This certificate opens the door to a career in aviation maintenance.

The FAA requires an individual to be certified as "competent" in both knowledge and skills prior to receiving authorization to take the nine (9) exams. These exams are written, oral and practical in nature. These exams are independent of Western Iowa Tech. Upon successful completion of the AVM courses at WITCC, you will be issued the required documentation certification which will allow you to complete the nine (9) FAA exams.

The courses are designed using the Airman Certification Standards (ACS) as a fundamental guide for knowledge and skills.

The courses are divided into three segments: General, Airframe, and Powerplant. These segments are further divided into additional specific topics. There are a total 40 topics covering a total of 1997 ACS requirements. For complete details, see the link to the FAA-ACS noted above.

The aviation maintenance industry considers the Airframe – Powerplant Certificate as a "License to Learn". This is the first step in a lifetime of learning.

THE INDUSTRY

There is no doubt that the aviation industry is a key element in the world economy. With over 100,000 commercial flights on an average day, the safe movement of people and cargo by air is essential. Without maintenance, the aviation industry will cease to exist. In a recent survey, industry experts estimated a pilot shortage of 600,000 in the next 10 years, and a shortage of 750,000 maintenance personnel. This estimate covered only commercial operations, and not General Aviation.

TOOLS

The General portion of the course does not require hand tools, however, at the start of the second semester you will begin the Airframe portion of your training. You will need to have some basic hand tools.

Appendix A: is a list of the tools that you will be needing to complete the WITCC Aviation Maintenance course. You can obtain these tools from the supplier of your choice. Please note that this list DOES NOT MEET what most employers require an A&P to have when they start working for them.

WITCC has made arrangements with two major suppliers of hand tools to the aviation industry. Both offer very substantial discounts to students enrolled in Part 147 schools. Please consult their websites for details on the tool bundles they offer. Note that the prices on the websites do not reflect the student discounts offered.

Sonic

Tekton

Both of these companies have excellent reputations, and warranties. The cost of the tools will be between $3000 to $5000 depending on bundle and options. If you are using Financial Aid, this cost can be covered under their programs. Please contact the Aviation Maintenance staff if you have any questions.

RESTRICTIONS

There are some restrictions that you need to be aware of.

1) FAA regulations require aviation mechanic certificate applicants to demonstrate the ability to read, write, speak, and understand English.
2) The hangar doors are the TSA boundary for the Secure Area. Movement in the Secure area is controlled by the Department of Homeland Security (DHS) and the Transportation Security Administration (TSA).
3) FAA regulations and many aviation employers require compliance with drug and alcohol testing policies. Individuals pursuing aviation maintenance careers should be aware of these requirements.

Aviation Maintenance is a very rewarding industry; there is a mixture of old school and modern technology. WITCC has designed this AVM Program to prepare you to enter the workforce as a trained, competent, and safe employee. The course in many ways will mimic

a typical FBO (Fixed Base Operation) or an MRO (Maintenance, Repair, Overhaul) facility. While aircraft operations are the business, SAFETY is a lifestyle.

There are some unique situations in aviation that require SAFETY to be a primary concern.

TEXTBOOKS

The textbooks are based on FAA publications. There are a number of privately published textbook series available. WITCC will be using the ASA / AMT Series as the primary textbooks for the AVM courses. This series consists of four textbooks, which will cover all topics for the entire course. These textbooks can be purchased to support courses as needed. General text for semester 1 & 2, Airframe Systems and Airframe Structures (two textbooks) for semesters 2 & 3, and Powerplant for semesters 4 & 5. Total textbook costs should not exceed $300 for the entire course. The FAA maintains an extensive library of downloadable handbooks and manuals which are free to download. A list of suggested downloads is in Appendix B.

ACCOMMODATIONS

See our website for accommodations information.

NONDISCRIMINATION STATEMENT

It is the policy of Western Iowa Tech Community College not to discriminate on the basis of race, creed, color, sex (including pregnancy), national origin, religion, age, disability, sexual orientation, socioeconomic status, actual or potential parent, family or marital status, or other characteristic protected by law in its programs, activities, or employment practices as required by state and federal civil rights regulation. Individuals who feel they have been discriminated against can reference the Western Iowa Tech website, www.witcc.edu/title-ix/, for more information and contacts.

Individuals may report concerns or questions to the Title IX/Equity Coordinator at equity@witcc.edu. The Notice of

Nondiscrimination is located at Board Policy 206.1.

If you have questions or complaints, please contact Dean of Human Resources (employees) 4647 Stone Avenue, Sioux City, IA 51106; 712.317.3304; equity@witcc.edu or Dean of Opportunity and Engagement (students) 4647 Stone Avenue, Sioux City, IA 51106; 712.317.3369; equity@witcc.edu.

Appendix A: Tools

SOCKETS AND COMBINATION WRENCHES	1/4" Drive, 12 Point	3/8" Drive 12 Point	COMBO WRENCH
3/16	X		
7/32	X		
1/4	X	X	X
9/32	X		
5/16	X	X	X
11/32	X		
3/8	X	X	X
7/16	X	X	X
1/2	X	X	X
9/16	X	X	X
5/8		X	X
11/16		X	X
3/4		X	X
13/16		X	X
7/8		X	X
15/16			X
1			X
1 1/16			X
Ratchet Handle	1/4"	3/8"	
Socket Extensions	2 ,4, 6 inch	4, 6, 8"	
SWIVEL	X	X	
Adjustable Wrench	6" , 10"		
Hex Key set	.050 to 3/8. in		

Screwdriver set:

Straight Blade	3 mm, 4 mm, 8mm
Phillips Tip	#1,#2,#3
1/4" Hex: for non standard tips	
Stubby	PH 2
Stubby	3/8"

Pliers

- Needle Nose
- Locking
- Channel Lock type
- Duck Bill
- Wire cutter

SOCKETS AND COMBINATION WRENCHES		1/4" Drive, 12 Point	3/8" Drive 12 Point	COMBO WRENCH
	Safety Wire			
	Snips			
	Shears			
Miscellaneous				
	Punch / Drift/ Chisel set			
	Utility Knife			
	Steel scale			
	Measuring Tape			
	Brass brush			
	Feeler Gauge			
	Inspection Mirror			
	Inspection light			
	Hammer	16 Oz Ball-peen		
	Hammer	16 oz. Dead-blow		
Storage				

Note: This list is subject to change. This list, while required for the WITCC AVM program, will NOT meet the requirements for new employees at most repair facilities.

Appendix B: Contact information:

Textbooks		
	ASA	https://asa2fly.com/
	Avotec	https://www.avotek.com/
Tools	Sonic Tools	https://sonictoolsusa.com/business/aviation/
	Tekton Tools	https://www.tekton.com/bundle-bdl99948
FAA Publications	General Handbook	https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/amtg_handbook.pdf
	Airframe Handbook	https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/FAA-H-8083-31B_Aviation_Maintenance_Technician_Handbook.pdf
	Powerplant Handbook	https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/amt_powerplant_handbook.pdf
	AC-43:	https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_43.13-1B_w-chg1.pdf