

CHOOSE AEROSPACE

Aviation
Maintenance
Curriculum



IN COLLABORATION WITH



Aviation Maintenance Curriculum PROGRAM OVERVIEW

The computer-based Choose Aerospace Aviation Maintenance Curriculum is the first of its kind, developed by the aviation community and offering would-be maintenance professionals a direct path to a rewarding career in aviation.

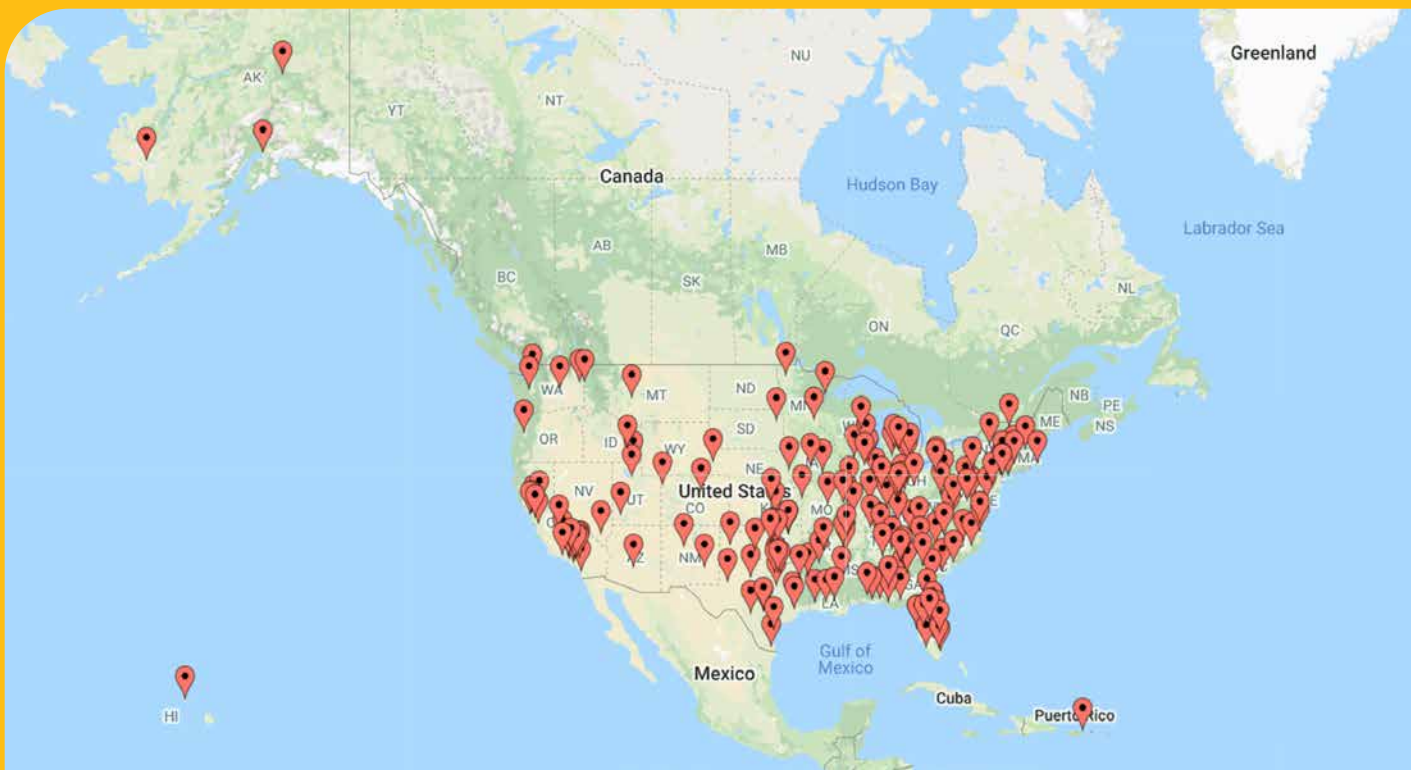
The curriculum aligns with emerging Federal Aviation Administration (FAA) Mechanic Airman Certification Standards (ACS) to cover the general knowledge and skill required for FAA mechanic certification. Through a nationally deployable e-learning platform, the Choose Aerospace curriculum uses a hybrid approach to learning, combining traditional delivery methods (classroom and in-person labs) with innovative, e-learning methods (video lecture, e-book, virtual and augmented reality simulations and exercises).

The curriculum is intended for use in the classroom as a credit-bearing course, but it can also be taught online and at a student-led pace. The only equipment required is an internet-enabled device and browser.

Graduates of the program have direct-to-employment and transfer credit opportunities. Those that choose to pursue certification with the FAA can do so by either finishing the required coursework at one of the more than 180 FAA-certificated schools in the U.S. or obtaining the work experience required to qualify as a certificated mechanic or repairman.

FAA Certified Aviation Maintenance Technician Schools

Interactive map available at atec-amt.org/school-map.



Why embark on a career in aviation maintenance?

The aviation sector is growing... *fast.*

Even in the wake of COVID-19, the most recent estimates suggest that demand for air transport will increase by an average of 4.3% per annum over the next 20 years.

The magic of leaving the ground continues to drive innovation.

Aviation is going beyond mobility between cities and continents – it will soon impact movement within cities and into space. This means more opportunity for aviation maintainers as a wave of visionaries impact the future of flight.



Aviation companies are hiring.

Demand is HIGH for individuals with aviation technical training.

The global aviation industry will need 626,000 new aviation mechanics over the next 20 years.¹ And with one third of the U.S. mechanic population at or near retirement age, new mechanics are also needed to replace exiting personnel.

In contrast, the supply of aviation technical personnel is LOW.

In 2020, the number of individuals obtaining an FAA mechanic certificate dropped 30 percent from the previous year. And 40 percent of schools said they expect graduate numbers to decline in 2021 due to pandemic-related impacts.²

Meaning wages for aviation mechanics and technicians are going UP.

The average starting salary for an FAA-certificated mechanic across all sectors of aviation is \$46,508.

Median pay for aircraft and avionics equipment mechanics and technicians for all levels of experience is \$66,684.³

Airline mechanics working on heavy jets can earn as much as \$75,000 annual base pay with as little as two years' experience.

¹ Boeing Pilot and Technician Outlook, 2021

² ATEC Pipeline Report, 2021

³ Bureau of Labor Statistics, Occupational Outlook Handbook, 2020

Career opportunities are practically endless.

Aviation technicians hold highly-transferable skills that can be used in a broad-range of industries. Here are just some of the career opportunities available for maintenance professionals who decide to join the aviation community.



Airlines

Cargo and passenger air carrier maintenance professionals work around the world. They fly with aircraft to perform maintenance, work at line stations to keep aircraft in service during regular operations, and perform heavy maintenance within required intervals in aircraft hangars.

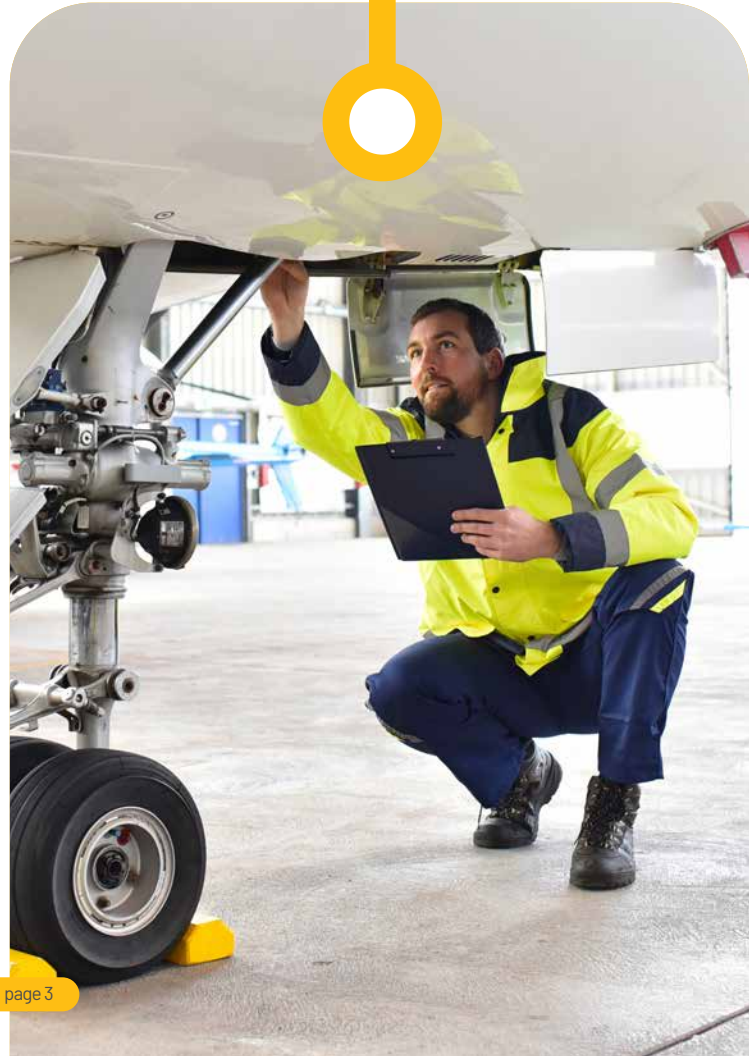


Business Aviation

Corporations and business owners who own or lease aircraft provide maintenance professionals the opportunity to work in a rapidly changing technical environment. Corporate aircraft are state-of-the-art machines containing mobile workspaces or operating highly sophisticated medical, firefighting, or search and rescue equipment.

Fixed-Base Operators

Companies located on an airport provide services such as fueling, aircraft care, parking, rental, sales, maintenance, and flight instruction. Career opportunities for maintenance professionals range from independent mechanic duties to director of maintenance.





Aircraft Manufacturers

Companies that build airplanes have associated maintenance facilities and offer worldwide troubleshooting and rectification services. Employment opportunities are available in a broad range of activities including training, auditing, production, aftermarket services, and sales.



Repair Stations

The maintenance, repair, and overhaul sector maintains aircraft, engines, and components for small general aviation aircraft, large transport category aircraft, and military aircraft. Repair station personnel can work on completed aircraft or apply special technical skills in composite, sheet metal, welding, non-destructive testing and more.



Schools

Educational institutions provide courses of study in highly technical subjects. Knowledge of the aviation system as a whole, and the interrelationship between certificate holder duties and privileges and regulatory requirements, are important for those pursuing careers in technical education.



Rotorcraft

Maintenance professionals supporting rotorcraft are used by governments in fire-fighting, search and rescue, drug eradication, to support law enforcement and medical emergency activities, and by private operators for sightseeing, construction, logging and other work requiring external load heavy lift operations.



Avionics

The technology-focused specialty enables automated aircraft flight functions, in-flight entertainment, global positioning system usage, and other electronic and integrated systems. Maintenance professionals in this sector must have specific knowledge in electronic systems used on aircraft.



Government

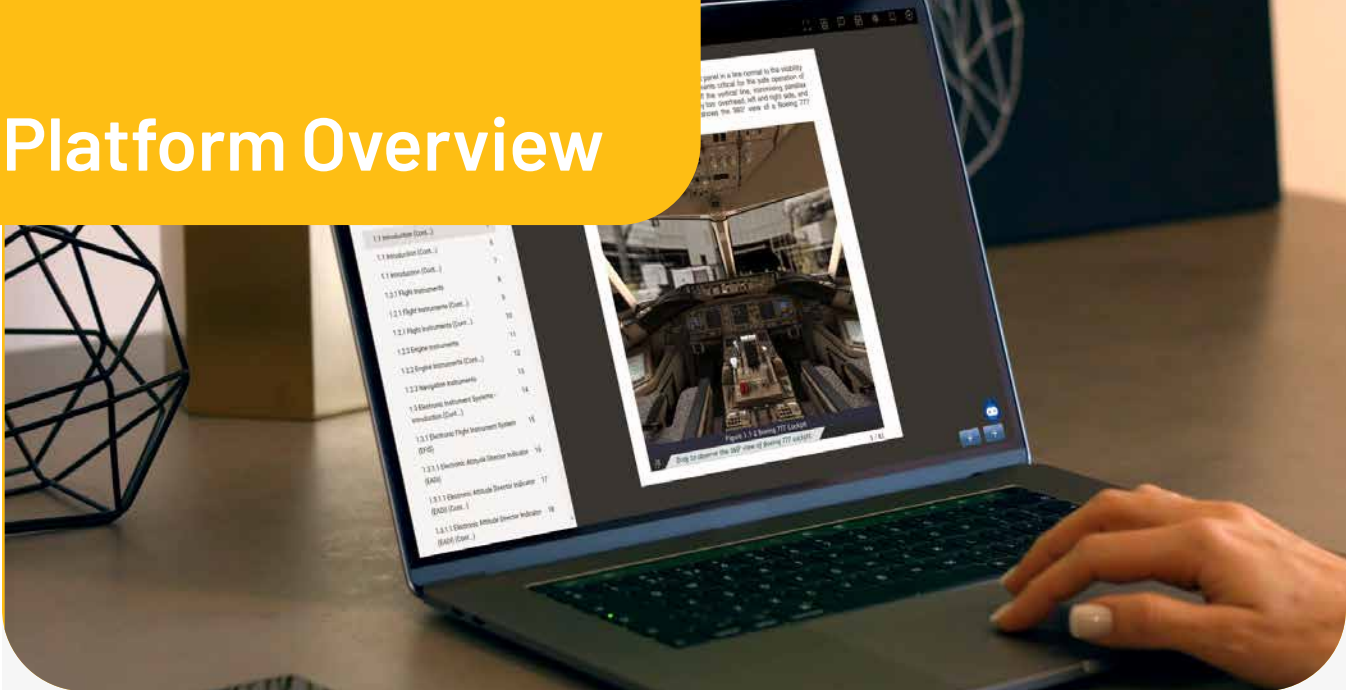
In addition to supporting government owned and operated aircraft fleets, aviation maintenance professionals can work for federal agencies like the FAA, the National Transportation Safety Board, and the Federal Emergency Management Agency supporting regulatory oversight or other technical activities.



New and Emerging Technologies

Rapidly expanding applications like remote inspection, electric propulsion, unmanned systems (drones), advanced air mobility, commercial space travel, and cyber software development will create opportunities for maintenance professionals that want to be on the front end of technological advancements.

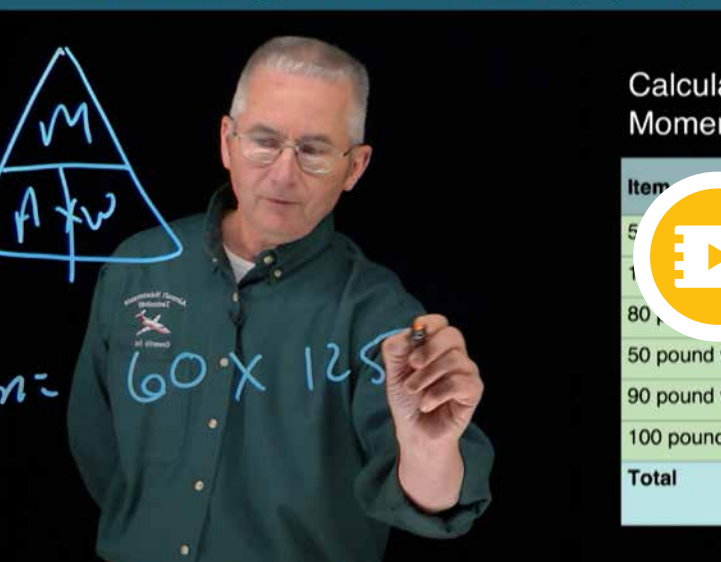
Platform Overview



The Choose Aerospace Curriculum is powered by **EducateWorkforce**, an online learning platform created by the Clemson University Center for Workforce Development. It features premium, industry-tested course material that will help prepare learners for a technical career in aviation.

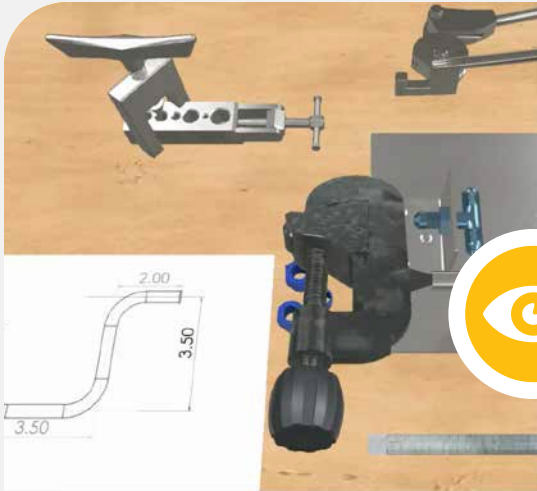
The curriculum integrates Universal Design for Learning principles, multimodal content offerings, and state-of-the-art educational tools to make learning more accessible, efficient, and enjoyable:

Calculating Center of Gravity (CG)



Video Lectures

Nearly 150 micro lectures are presented through engaging video for visual and auditory learners, complete with illustrations, images, and voiceover. Subtitles are also provided to increase accessibility.



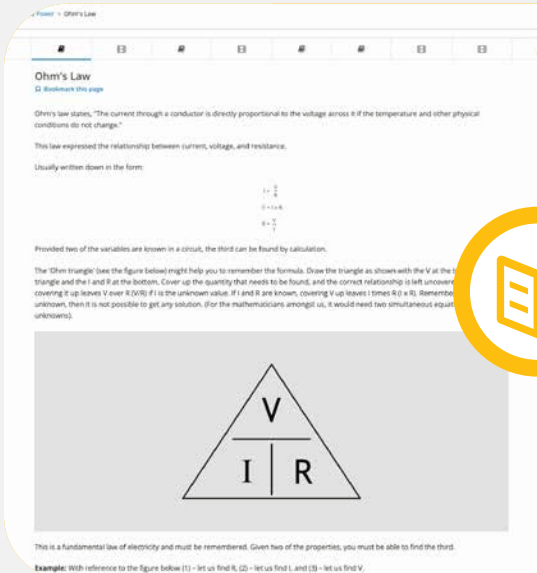
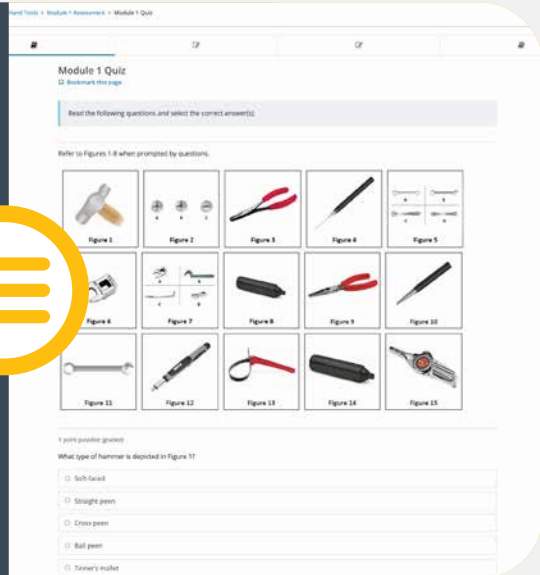
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s are smoothed out. Rotate the cutting tool by clicking and draggi

Virtual Reality Simulations

Nearly 400 virtual reality simulations serve as online labs, where learners can go beyond the lecture to immerse themselves in the material. These include practical activities, such as fueling a plane, and visualizations of abstract content, such as the flow of air over an airplane wing. No special equipment is required to view the simulations.

Interactive Assessments

All learning material is supported by interactive assessments aligned to the learning objectives. Many assessments provide students the opportunity to engage in higher order thinking skills. Immediate feedback as well as instructor-led grading systems are both available.



Open Textbooks

Robust open text is incorporated, including the FAA's General Aviation Maintenance Technician Handbook (FAA-H-8083-30A). Students can access this text within the platform, even linking directly to the related content page from a given lesson. A copy of a traditional textbook complements the auditory and kinesthetic aspects of the curriculum.

Industry Advisors

The curriculum was developed by qualified technical college instructors with decades of experience in aviation technical education, with advisement from a team of industry leaders representing all sectors of the aviation industry.



Subject Areas

The Choose Aerospace maintenance curriculum provides asynchronous instruction in the following subject areas:

FLUID LINES AND FITTINGS

MAINTENANCE AND INSPECTION REGULATIONS

MATERIALS, HARDWARE, AND PROCESSES

PHYSICS FOR AVIATION

CLEANING AND CORROSION CONTROL

HAND TOOLS AND MEASURING DEVICES

MATHEMATICS

WEIGHT AND BALANCE

AIRCRAFT DRAWINGS

FUNDAMENTALS OF ELECTRICITY AND ELECTRONICS

GROUND OPERATIONS AND SERVICING

While the approximately 500 hours of content is intended for delivery in the 11 and 12 grade year of high school, the modular content facilitates a flexible approach to meet a wide-range of schedule and program needs for secondary, post-secondary, and community-based workforce programs.

Instructor Requirements and Professional Development

Schools may determine teacher qualifications consistent with their own state and local requirements. It is recommended that teachers of the Choose Aerospace curriculum have at least three years' experience in a technical-related field.

Teachers must be familiar enough with the subject areas so that they can aptly support skill development and guide students through the computer-based content and any associated hands-on activities.

An instructor with FAA mechanic certification is highly recommended but not required.

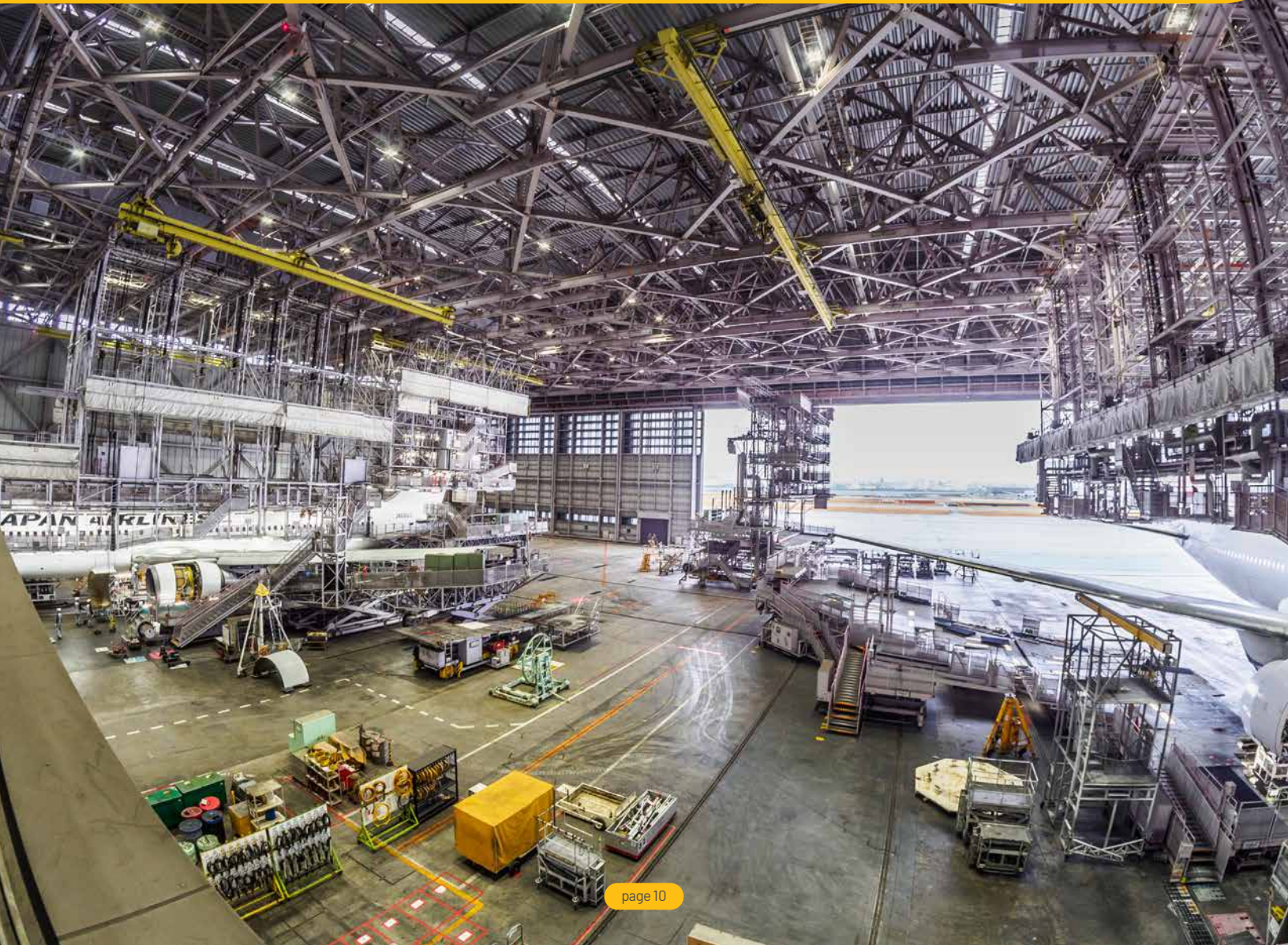
Material and Equipment Requirements

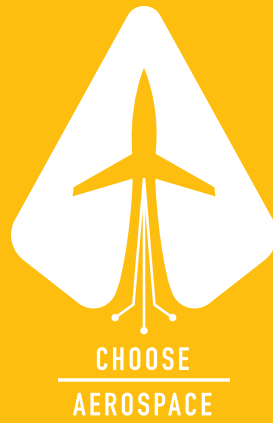
The content is computer-based, no special hardware or software is required.

Adoption of hands-on labs and projects is encouraged but not required. Instructions and suggested tool and material lists for practical elements to supplement the computer-based work are available.

Program Summary

- The curriculum aligns with the general portion of emerging FAA mechanic airman certification standards and covers the knowledge elements tested in the FAA mechanic general written knowledge exam.
- Students that complete the program may continue the training required to receive FAA certification by enrolling at one of the more than 180 FAA-certificated aviation maintenance technician schools in the U.S. or obtaining the experience required to qualify as a certificated mechanic or repairman.
- The browser-based curriculum is accessible to any student with a computer and internet connection. Adoption of hands-on elements are encouraged but not required, instructions and suggested tool and material lists are available.
- Students across the U.S. piloted the program starting in fall 2021. The curriculum will be available for adoption by new schools in the fall of 2022.
- Costs are incurred on a registered user basis at \$200 per student, per year. Local, federal, and industry funding sources are being explored for programs with financial need.





SPECIAL THANKS

to the following organizations that made financial contributions to the project.



For more information or to make application to adopt the curriculum, visit chooseaerospace.org/curriculum.