

## Using Technology Pedagogy to Enable Workforce Development, Inclusion and Diversity into the Aerospace Industry

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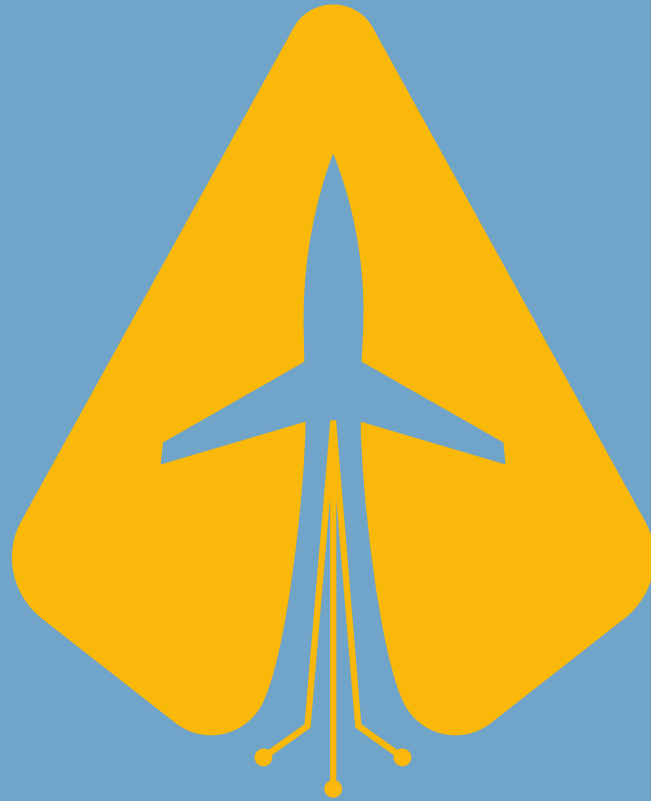
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# The Challenge

- [Boeing's 2022-2041 Pilot Technician Outlook](#) projects that the North American market will need 134,000 new technicians in the next 20 years, demand for the North America commercial aviation market has eclipsed pre-pandemic levels by nearly 10%
- [Oliver Wyman predicts](#) that the gap between the supply and demand for mechanics will develop in the U.S. by 2022 and reach a peak of 9 percent by 2027
- Preliminary data from the 2022 [ATEC Pipeline Report](#):
  - A&P schools produce 67 percent of all new certificated mechanics
  - Even with new programs coming on board, enrollments are flat, schools expect more of the same this year
  - Nationally, nearly two out of every five available AMTS seats remain open
  - Insufficient career awareness is consistently cited as the biggest barrier to growing aviation programs
  - While high school partner programs are cited as a great feeder for A&P schools, they are not common given the challenges associated with high schools obtaining the required facility, equipment, and materials

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## About

Choose Aerospace is a partnership of aerospace stakeholders, joined together to address one of the biggest threats to continued industry growth: the availability of a diverse, qualified technical workforce.

The charitable organization is managed by the Aviation Technician Education Council, a non-profit trade association that represents aviation technical education, including nearly 75% of all FAA-certificated aviation maintenance technician schools in the U.S.



# Leadership



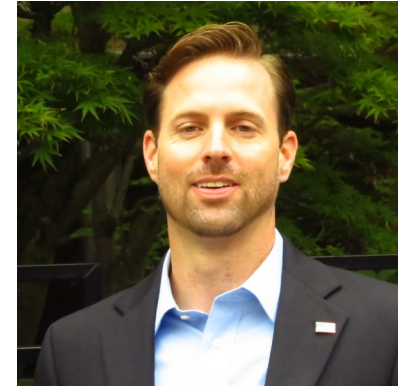
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Carl Washburn, AMT Department Head, Greenville Technical College

## ARCS Aviation – Content Developers

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Fazil Punnassery, SME

Aziz Sulaim, Lead Business Development

Sacha Berwin, XR SME

John Jensen, Lead Programmer



# Advisory Committee Members

AAR Corp

Aircraft Maintenance Technicians Association

Aircraft Mechanics Fraternal Association

American Airlines

Aviation Institute of Maintenance

Aviation Technical Services

Aviation Workforce Solutions

Delta Air Lines

Duncan Aviation

Federal Aviation Administration

General Atomics

Horizon Air and the Alaska Air Group

Liberty University

Marshall University

Mentoring Mission

National Transportation Safety Board (former board member)

Oklahoma Department of Career and Technical Education

Pathways to Aviation

Piedmont Airlines

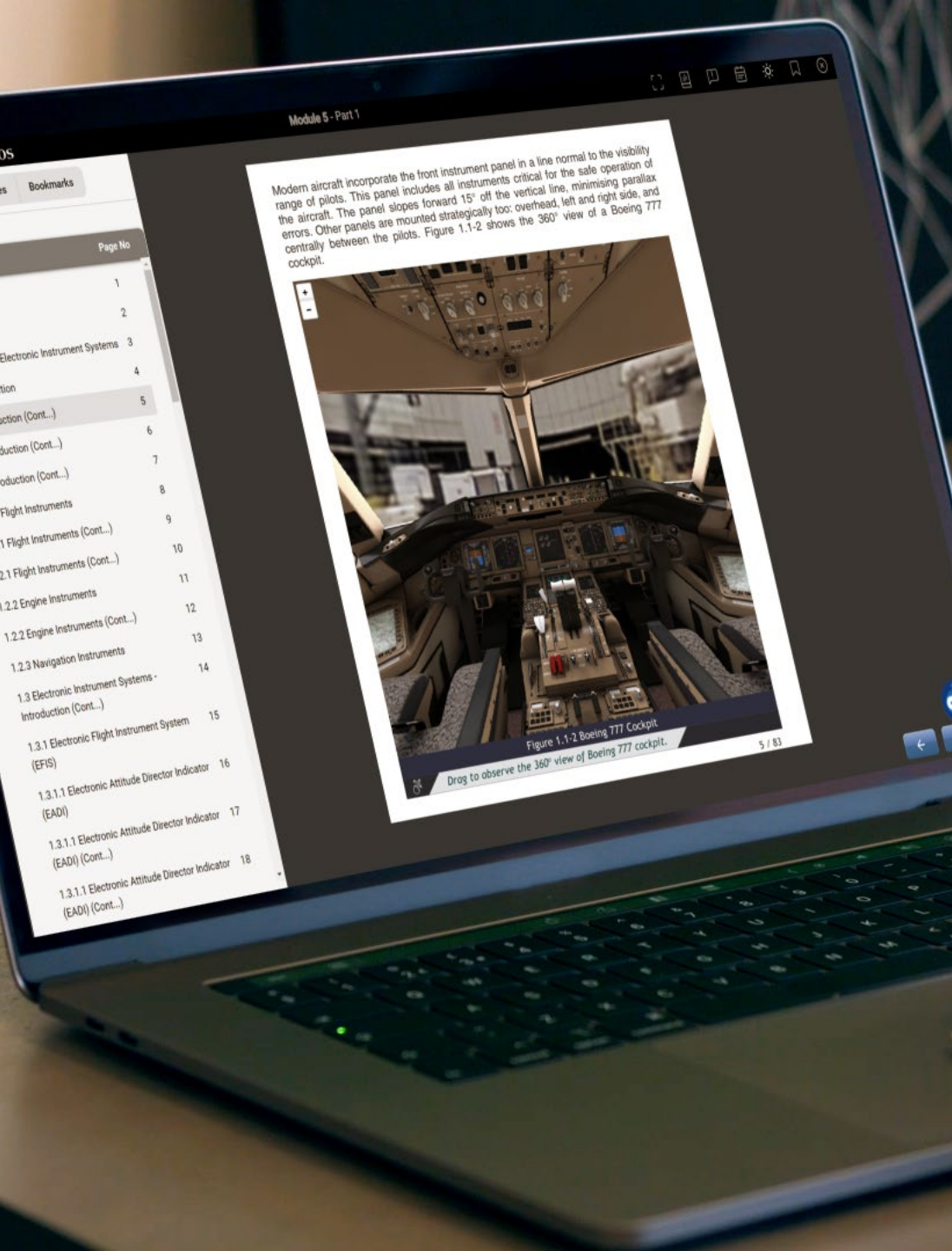
Portland Community College

Professional Aviation Maintenance Association

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# Aviation Maintenance Curriculum

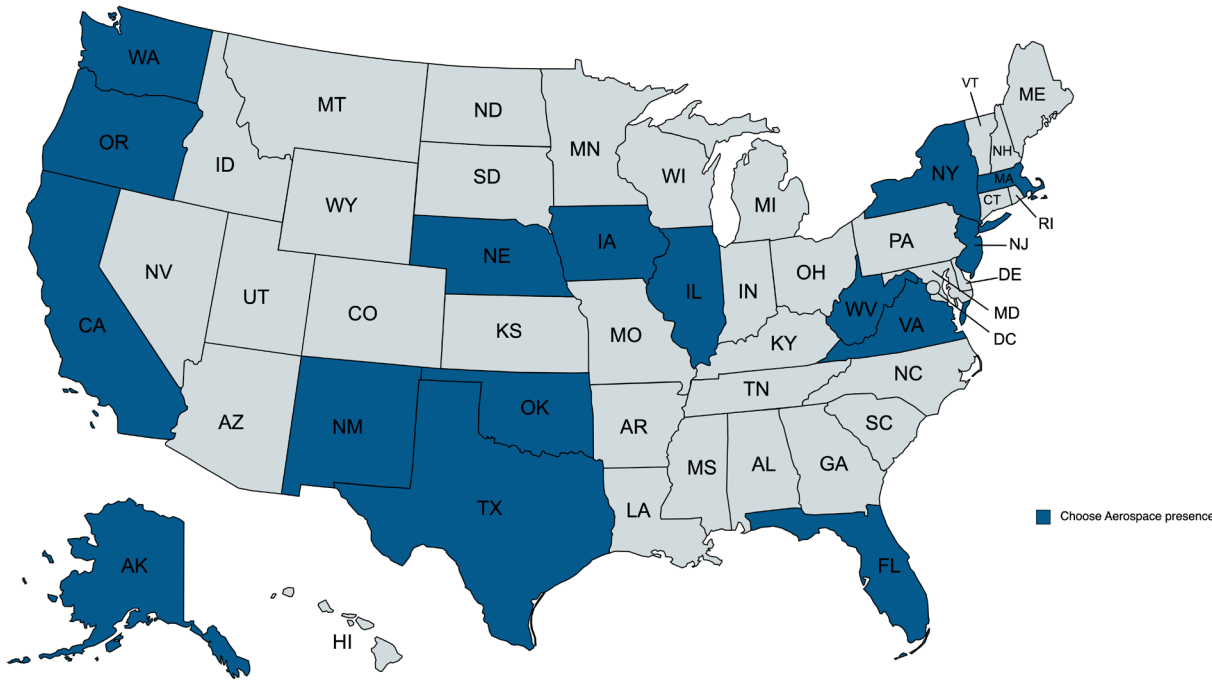
- Approximately 500 hours of content covers the general subject areas in the FAA [Mechanic Airman Certification Standards](#)
- Intended for deployment in community workforce programs and high schools to **create awareness in aviation careers**, and to provide matriculation opportunities into A&P schools
- Limited equipment, materials, and teacher qualifications required, supplemental hands-on elements available
- License fees \$200 per student, per year
- Scalable dependent on federal funding and industry contributions

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# Participating Programs



Created with mapchart.net

	States	Schools	Students
2021-2022 Pilot Test	8	9	140
2022-2023 Academic Year	16	16	500
2027 Goal	--	--	10,000



# Demographics

Race and Ethnicity (n=69)	Percent
White	37.68%
Hispanic or Latino	24.64%
Asian/Pacific Islander	8.7%
Black	10.14%
American Indian/Alaska Native	5.8%
Other/Prefer not to say	13.04%

Gender (n=49)	Percent
Male	83.67%
Female	12.24%
Prefer not to say/self describe	4.08%



# Pathway Development

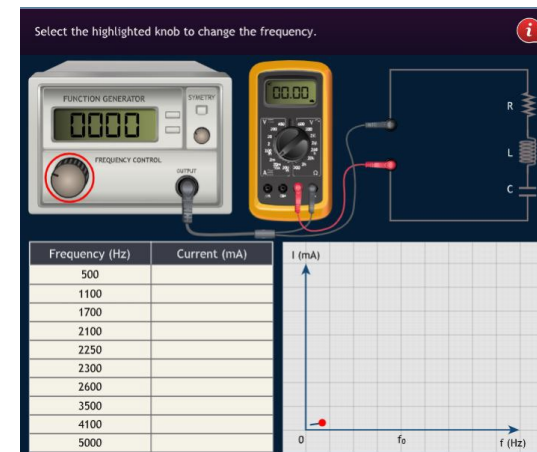
- Curriculum is deployable in—
  - community-based programs,
  - veteran programs, and
  - high schools
- Creates awareness and multiple pathways to certification—
  - matriculate into A&P schools
  - direct hire as a non-certificated technician (“flow through” programs)
  - feed into apprenticeship program
- Facilitate pathway development by—
  - making the FAA knowledge test accessible to students
  - developing an industry recognized credential
  - educating the A&P community on feeder opportunities

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# Computer-Based Content

The curriculum includes video lectures, interactive assessments, interactions and virtual reality to simulate hands-on learning.



# Video Lectures

Lectures are presented through engaging video for visual and auditory learners, complete with illustrations, images and voiceover.



AAA-PRF-147-FL101 - 1.3 - Fabricating Rigid Fluid Lines

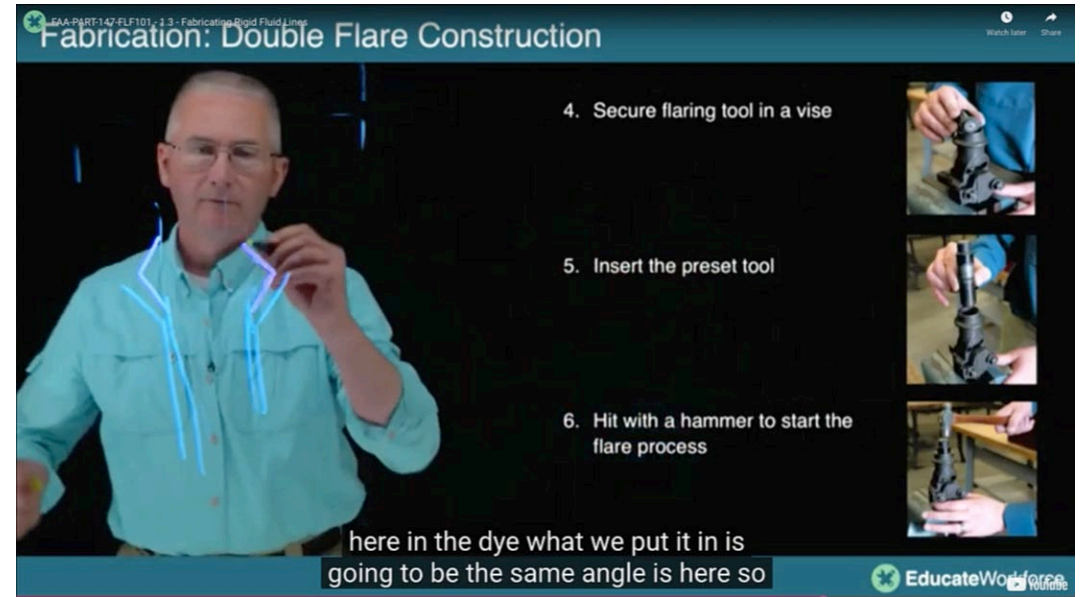
## Fabrication: Double Flare Construction

4. Secure flaring tool in a vise

5. Insert the preset tool

6. Hit with a hammer to start the flare process

here in the dye what we put it in is going to be the same angle is here so

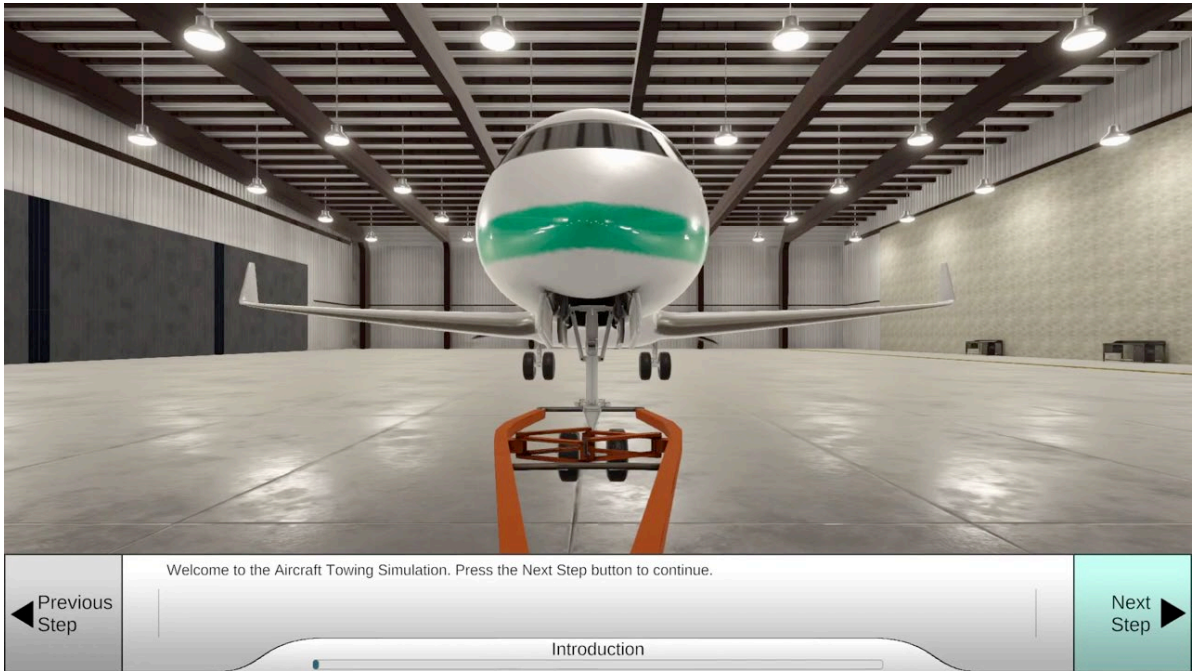
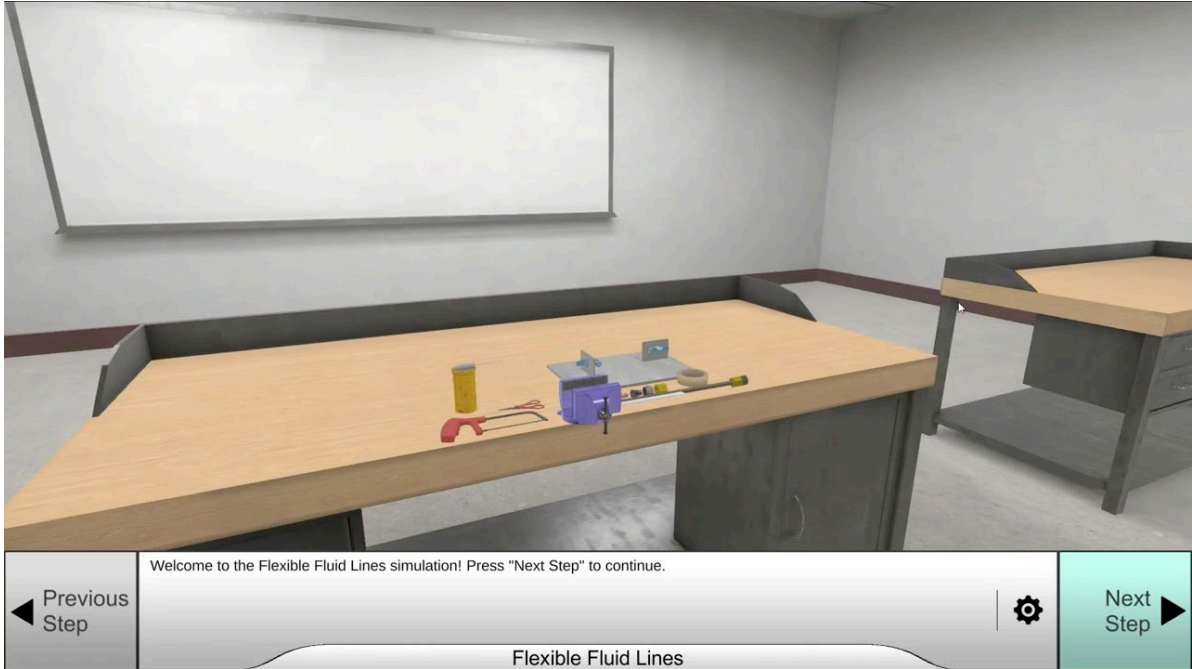
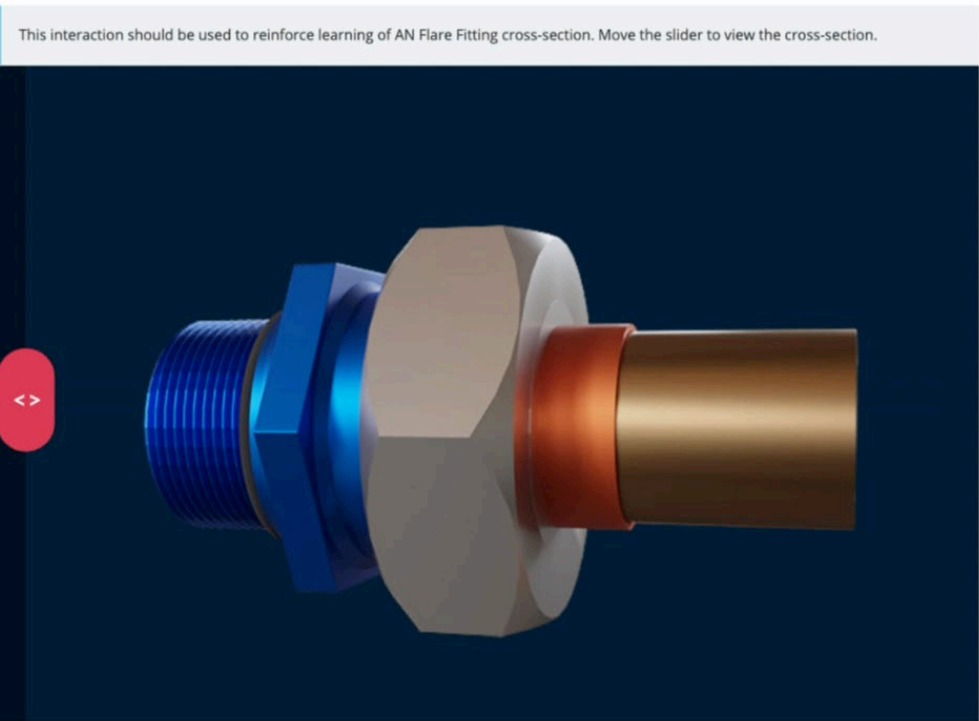


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# Interactions + Simulations

Serve as online labs, where learners can go beyond the lecture to engage with the material.



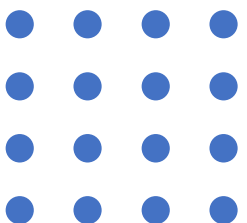
## Choose Aerospace Course: Aircraft Drawings

### Learning Gains

Aircraft Drawings	Pre-Test	Post-Test	Sample Size	Student enrollment
Average	58.8%	80.6%	45	91

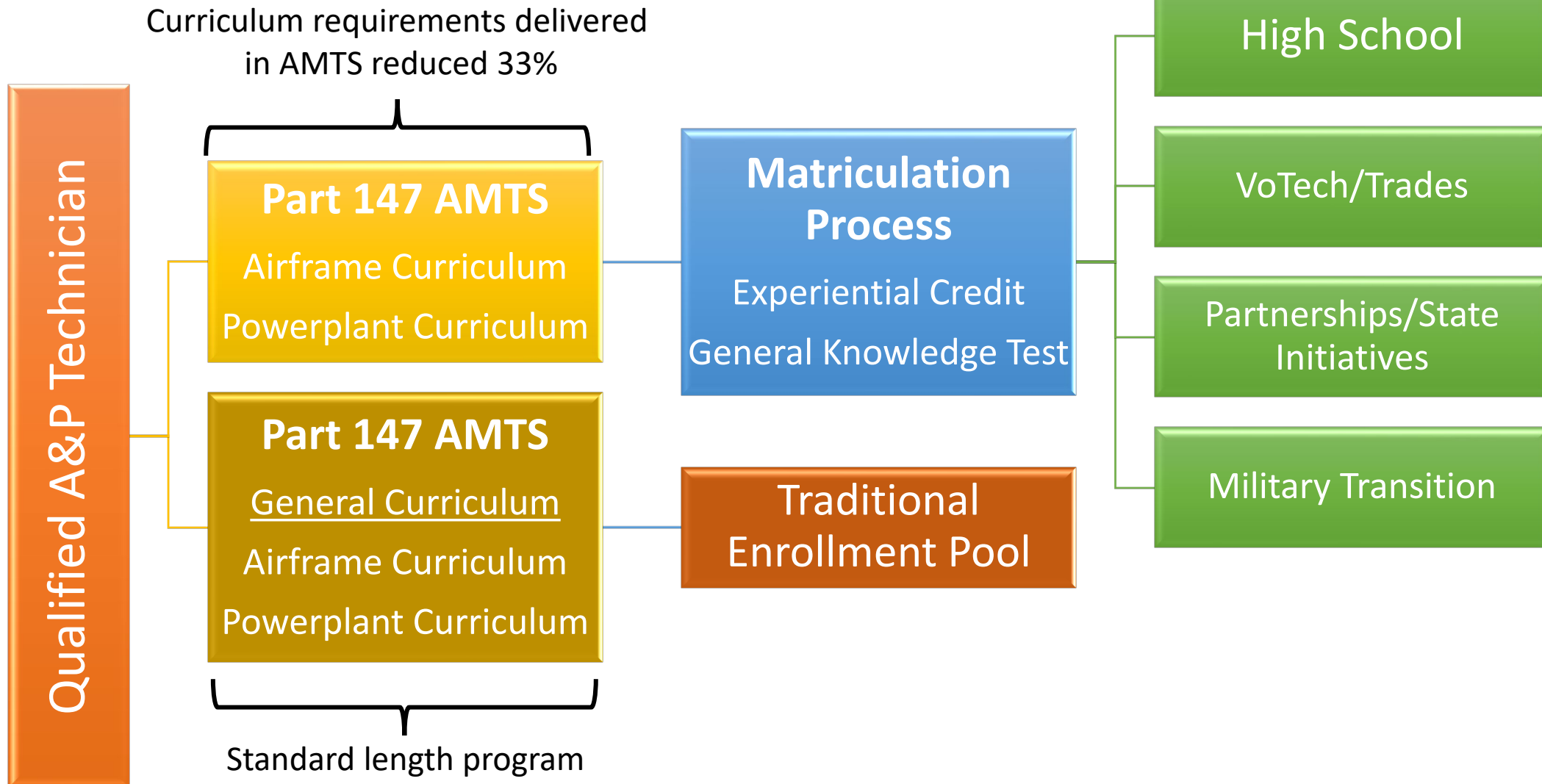
### Course satisfaction (n=20)\*

- Students were generally satisfied with this course (Mean =3)
- Students would recommend this course to others (Mean=3.4)
- Likert scale of 1-5, higher number is better





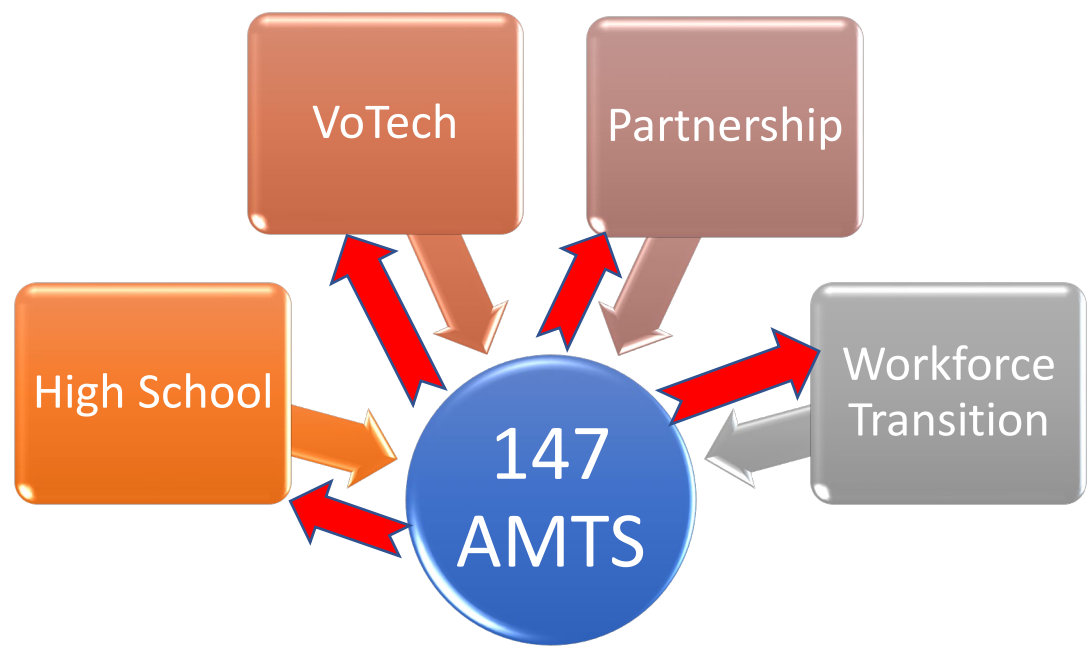
## General Curriculum (ChooseAerospace)





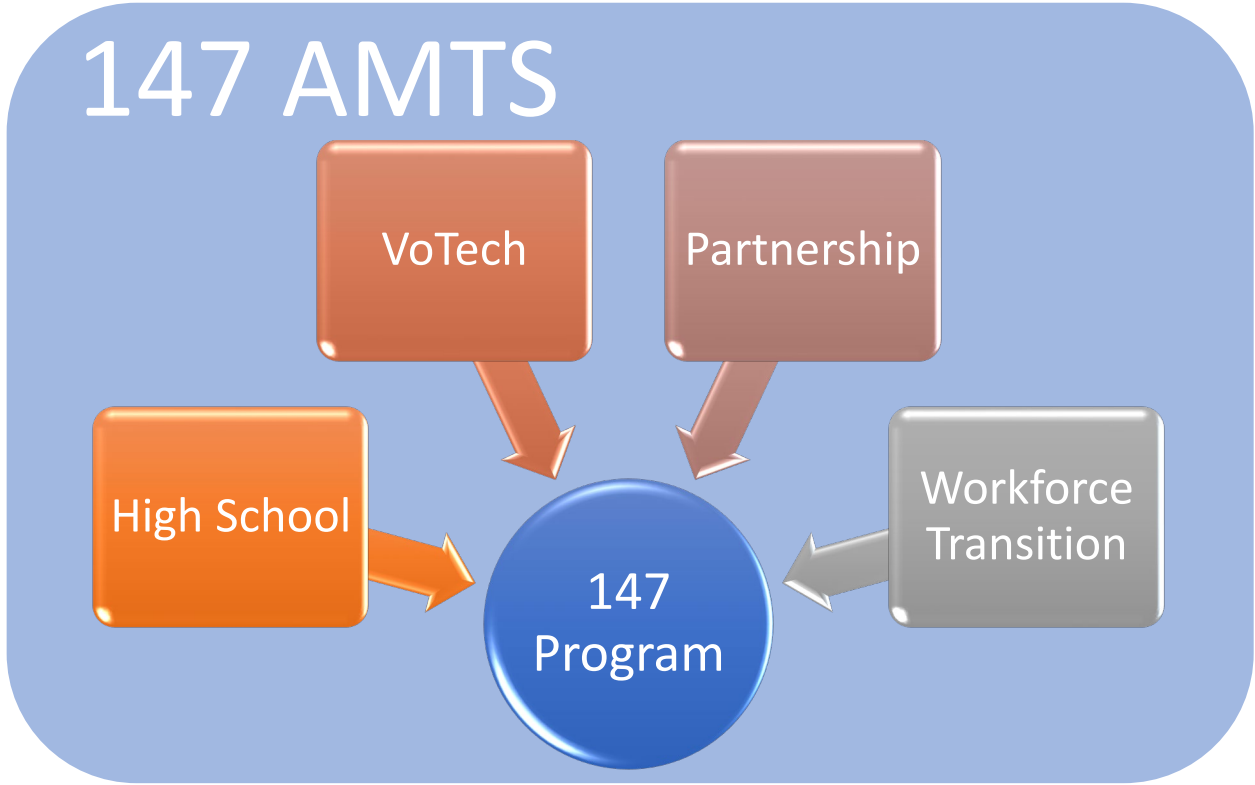


### Independent Site – Mentorship Model



- Mentor school provides support & advice
- Independent sites not tied to Ops Spec
- Performance not impact mentor school

### Satellite Site – Partnership Model



- Partner school provides curriculum oversight
- Satellite sites tied to Ops Spec
- Performance could impact partner school, but have more control



# Questions?

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AAR Corp

Dr. Karen Johnson

Associate Professor

Southern Illinois University

[www.chooseaerospace.org](http://www.chooseaerospace.org)

