UAS-Collegiate Training Initiative

5th Anniversary Review: 2020-25

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A 5TH ANNIVERSARY REVIEW

INTRODUCTION: OVERCOMING THE PANDEMIC

Launched on April 30, 2020, the Federal Aviation Administration's Unmanned Aircraft Systems - Collegiate Training Initiative (UAS-CTI) program is an undisputed success. Overcoming challenges presented by beginning during the COVID-19 pandemic, the UAS-CTI program has taken root and thrived over its first five years of existence.

Beginning with an initial cadre of 26 schools, by January 2025, the program has grown to more than 145 schools. This collection of technical schools and 2- and 4-year colleges and universities has collaborated with state, local, tribal, and territorial (SLTT) governments as well as federal agencies to build and share best practices, lessons learned, and innovative ideas.

The Goal: Develop Tomorrow's Workforce Today

Precision agriculture, Geographic Information System (GIS) mapping, delivering medicine, assisting firefighters, providing enhanced situational awareness for public safety officials – these are just a few ways that drones are benefiting communities across the country. Due in part to this rapid growth of the drone industry, Congress mandated, in the 2018 FAA Reauthorization Act, that the FAA ensure this new technology would be safely integrated into the National Airspace System.

The Reauthorization Act specifically required the FAA to create a new program to prepare students for careers as UAS pilots. Thus, the FAA UAS-CTI program was born.

Consortium: A Public-Private Partnership

In addition, the FAA Reauthorization Act mandated the creation of a consortium of two-year public colleges within the UAS-CTI Program that work with industry, government, and other organizations. These community and technical colleges have programs focused on Small Unmanned Aircraft System Technology Training.

The consortium meets quarterly to discuss topics of interest to the schools and their communities. One focus area is applying to and receiving grants. Other focus areas include job classifications, curricula development, and network enhancement.

Early Steps: New Program, New Challenges

The FAA administers two other CTI programs, most notably the Air Traffic Control CTI, and planned to structure the UAS-CTI similarly. However, the UAS-CTI team quickly realized that their program would be very different, due to the absence of appropriated funds for the UAS-CTI in the 2018 FAA Reauthorization Act. This meant that the UAS-CTI member schools would have to take the lead in developing curricula, creating and sharing best practices, and so on without any financial assistance from the FAA.

Working with an FAA colleague in Legislative Affairs (APL), the team identified and reached out to eight (8) national education associations, informing the associations of this new drone initiative. On April 30, 2020, the UAS-CTI team hosted its inaugural webinar, which was attended by over 300 participants from the different national education associations. Attendees learned about the benefits of program membership, including sharing of best practices, networking opportunities, topic-specific meetings (for example, use cases involving public safety, infrastructure, or agriculture), and grant information. Attendees also took advantage of having FAA subject matter experts (SMEs) available to answer their questions at the inaugural and subsequent meetings.

The UAS-CTI team introduced a program specific email inbox for the program and discussed the process for becoming a UAS-CTI member school. The process includes a questionnaire to determine eligibility that directly correlates to the Congressionally identified targets. If the school was eligible, a memorandum of understanding (MOU) was signed by the FAA and the school. The team worked closely with the FAA Office of General Counsel (AGC) to craft language for the MOU that reflected the boundaries, requirements, and expectations of the program.

Building a Community

The UAS-CTI program is a true cross-agency effort. In addition to collaborating with colleagues from AGC and APL, the team coordinated with other AUS divisions as well as the FAA Office of Communications (AOC). These AOC colleagues assisted in the creation of a

program logo, school certificate, and a press release template that new participants could use to announce their entry into the UAS-CTI program.

The first 26 MOUs were signed in July 2020 and were announced at the 2020 FAA UAS Symposium. An announcement was published in the FAA Daily Broadcast that August, and the UAS-CTI team and AOC collaborated on social media updates regarding the program and its accomplishments and participants.

On September 24, 2020, a kick-off meeting was held with the first class of UAS-CTI participants. The meeting included presentations about the FAASafety Team Drone Pros and Drone Safety Awareness Week (now “Drone Safety Day”). Poll questions engaged the audience and breakout room sessions generated topics for future webinars, the needs of schools, and how to share information.

In the program’s first year of existence, the UAS-CTI team held over 100 meetings with interested colleges and universities, for-profit UAS Educational Service Providers, and national and regional post-secondary organizations. There were also numerous internal briefings about the program with colleagues across the Agency. The team has continued regular meetings to further develop and strengthen networking and engagement with external and internal stakeholders.

Two popular webinars from the program’s early years were “From Ideas to Reality: Developing, Starting and Maintaining a Drone Program (for Colleges and Universities)” and “Remote ID, Ops Over People, and Night Ops.” These webinars were followed by the in-person “Droning On” event series hosted by UAS-CTI schools throughout eight of the nine FAA regions. Working with regional offices, the UAS-CTI team highlighted careers in the drone industry and how drones are being used by SLTT governments, including in public safety and public health. Feedback on the webinars and in-person events from FAA facilitators, school faculty members, students, public safety organizations, and local government agencies has been overwhelmingly positive.

Combined, the meetings, briefings, and webinars created momentum for the UAS-CTI with external and internal stakeholders and fostered the continued growth of the program.

DELIVERING RESULTS

Considering the minimal allotment of FAA resources in terms of personnel and budget, the UAS-CTI program has produced outsized results in its first five years.

Online Repository

A key element to success of the UAS-CTI program was developing a way to share knowledge. There had to be a place where schools could share best practices, attend and view recorded webinars, post news about events, and provide resources to all participants with ease. During initial planning for the program, the team knew that building this repository would be a challenge due to the lack of appropriated funding.

The solution came from the National Center for Autonomous Technologies (NCAT) based at Northland Community and Technical College in Thief River Falls, MN. NCAT is a National Science Foundation multi-million-dollar grant-funded center and offered to create and maintain a UAS-CTI repository. NCAT and the UAS-CTI team met on November 3, 2020, to discuss what was needed for the repository to flourish. Monthly meetings followed and in April 2021, the repository went "live." In addition to hosting best practices developed by the schools, the repository offers program graphics, curriculum course offerings, points of contact, and more.

Job Code Classifications

During the kick-off meeting on September 24, 2020, the attendees repeatedly voiced their concern about the lack of UAS job data provided by the Bureau of Labor Statistics. This data is important for creating UAS programs in colleges and universities, and the necessity of tracking the data propelled a collaboration between the Department of Transportation, Department of Labor, Department of Education, and ONET (an online database developed by the Department of Labor that provides detailed information about occupations). In November 2020, the UAS-CTI team created a working group of college and university faculty and administrators, UAS industry representatives, for-profit UAS Education Service Providers, and law enforcement officials.

Chaired by a school representative, the FAA UAS-CTI Occupational Workgroup held its first meeting on January 27, 2021. Members broke into subgroups to review existing ONET occupations and at the conclusion of their efforts, sent five occupation modifications that were

reviewed and adopted by DOL/ONET. The modifications update job descriptions to include drone tasks in the following occupations:

- Electro-Mechanical and Mechatronics Technologists and Technicians
- Remote Sensing Technicians
- Remote Sensing Scientists and Technologists
- Commercial Pilots
- Camera Operators, Television, Video, and Film

Once the modifications were adopted, the workgroup began the next phase: create a UAS discipline and submit it to the Federal Register for public comment. New Standard Occupational Classification (SOC) job titles are added to ONET every 10 years – the next addition is in 2028. In August 2024, a new detailed occupation, Commercial Uncrewed Aircraft Operators was published for comment. Due to these efforts and in recognition of UAS-CTI accomplishments, DOL ONET reached out in January 2025 and asked the team to review proposed task descriptions for several drone industry jobs.

Aviation Workforce Development Grants

In 2022, FAA awarded Aviation Workforce Development Grants to four UAS-CTI Program schools.

Florida State College at Jacksonville established an “Aviation Career Education for Students (ACES)” program for high school students in Northeast Florida to provide meaningful aviation education and exposure to the aviation field.

Elizabeth City State University created a program that brought learning to local school districts via a mobile Aerospace Education Lab, equipped with a state-of-the-art desktop flight simulator, aircraft design station, desktop wind tunnel, weather station, GPS and radio receiver, 3D printers, mini quadcopter UAVs, and a set of hands-on aviation-themed Science, Technology Engineering, and Mathematics (STEM) experiments.

The University of North Dakota and Northwestern Michigan College both took on projects designed to prepare secondary teachers to introduce UAS applications into their high school

programs or develop standalone UAS programs. The project included a two-day, train-the-trainer course.

Since those initial grants, the National Science Foundation – Advanced Technological Education has awarded further grants to multiple UAS-CTI schools, including:

- Embry-Riddle Aeronautical University, Daytona Beach, FL: Project to develop both a UAS program and ground school flight program, which will result in portable, cost-free training curricula for schools nationwide.
- Cape Cod Community College, Plymouth, MA: Project to create a pathway for high school students to become a certified aviation maintenance technician starting in junior year of high school and add a National Center for Aerospace and Transportation Technologies/Aircraft Electronics Technician Avionics Certification Program that will produce 24-48 certified avionics technicians per year.
- Harrisburg University of Science and Technology, Harrisburg, PA: Project will alter the program's delivery method to ensure the program is more convenient for high school teachers to gain a Remote Pilot Certificate and become vetted to teach the credit-bearing courses. The program will also expand the existing UAS curriculum.
- North Dakota State College of Science, Wahpeton, ND: Project will develop an Associate of Applied Science Degree in Aviation Maintenance Technology, develop collaborations with local/regional aviation organizations and facilitate FAA Part 147 Certifications.

It bears noting that a record number of schools, industries, and organizations applied for grants in 2025.

These UAS-CTI schools and projects illustrate how colleges and universities across the country are facilitating UAS workforce development and advancement of UAS technology.

STEM AVSED

The FAA has focused on Science, Technology, Engineering and Math (STEM) activities for years and many employees have volunteered their time to engage with schools. The UAS-CTI team met with STEM AVSED regional representatives to discuss the programs and to share information about UAS-CTI.

Youth Drone Initiative

Launched in April 2024 and targeted at students aged 11-18, the Youth Drone Initiative is for leaders in schools and youth-oriented organizations with drone programs, offer courses on drones, or are planning to implement a drone program or courses. As with UAS-CTI, the FAA hosts meetings and other events and distributes drone resources for continued success of the Youth Drone Initiative.

Other Outreach

For the past two years, Drone Safety Day has been hosted at UAS-CTI campuses and many member schools host virtual and in-person events during this valuable drone safety campaign. The UAS-CTI team and member schools often collaborate with FAA DronePros, the FAA Safety Team's representatives with expertise in drones.

Finally, early in the initiative, a UAS-CTI school offered to create a GIS map of FAA DronePros. Students in an "Intro to GIS" course create and maintain the map, which has become an essential tool for recreational and commercial drone pilots and is updated annually on the FAASafety.gov website.

Drone Curriculum

Another effort of the UAS-CTI working groups is a "Universal Design Learning" curriculum that will be available to UAS-CTI schools and to schools looking to start a drone program. Developed by the UAS-CTI Curriculum Work Group, the curriculum focuses on the training goals outlined in the 2018 FAA Reauthorization Act.

BUILDING ON OUR FOUNDATION

Considering the minimal amount of FAA resources in terms of personnel and budget, the UAS-CTI program has produced outsized results in its first five years.

Where We Are…

As noted, the UAS-CTI program had grown from 26 schools to more than 145 at the start of 2025. The team engages in an active campaign using network connections, conferences, and online events to recruit new members and maintain existing relationships.

The foundation of the program's early success was the UAS-CTI team's ability to build and nurture positive relationships with professors, instructors, and administrators. The support received by academia combined with interest generated by industry partners and FAA colleagues has been critical to maintaining and growing the program. Industry, SLTT governments, regional and national associations, and UAS Educational Service Providers continue to support and express interest in being involved with the UAS-CTI.

Still, challenges exist. Lack of funding, attrition of qualified instructors, and changing school priorities have all had an impact on schools ceasing active participation in the program and lapsing membership. The team continues to explore avenues to address these issues and expand the program's reach.

…And Where We Are Going

It is important to understand that not all schools have the same access to resources and opportunities. A small, rural community college will have fewer resources than a major university. The UAS-CTI program exists to connect participating schools with one another for support, and to direct all schools to necessary resources. For example, the team recently established contact with a workforce and rehabilitation center and discussed workforce development programs for veterans and people with disabilities. These programs will be part of our future engagement activities.

Congress has expressed its wish that the FAA promote and boost UAS workforce development. Following the creation of the program in the 2018 FAA Reauthorization Act, section 424 of the 2024 FAA Reauthorization Act provides that the FAA should "(l)everage the UAS CTI to address staffing challenges and skills gaps within the FAA to support efforts to facilitate the safe integration of UAS and other new airspace entrants into the NAS." Further, section 428(b)(2) encourages the FAA to utilize the administrator's direct-hire authorities with respect to the UAS-CTI program.

In addition, section 913 of the 2024 FAA Reauthorization Act provides that the Secretary of Transportation is to establish a drone education and training grant program to make grants to educational institutions for workforce training for small UAS. The grants are to be funded for $5M annually for each of the 2025-2028 fiscal years.

These provisions demonstrate that Congress recognizes both the accomplishments and the potential of the UAS-CTI program.

The team's goals for the near-term future include:

- Exploring funding opportunities for UAS-CTI schools
- Creating a "direct hire" program for UAS-CTI graduates with UAS-CTI Consortium partners and the FAA
- Improving retention rates in UAS programs
- Expanding the program's reach to include more areas of the United States

The first five years of the UAS-CTI program have been undeniably exciting and successful. Who knows what new heights it and the team can attain in the years to come?

UAS-CTI schools hosted Droning On events. At Northern New Mexico College, we had a Drodeo!

Northern New Mexico College; Droning On: Southwest Edition

UAS-CTI Points of Contact meet for dinner during XPONENTIAL 2023 at the Teacher's Lounge in Denver

Middle Tennessee State University:

UAS Lab flight day