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Empowering Colleges: Expanding the Geospatial Workforce

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GeoTech Center Information

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FAA UAS Collegiate Training Initiative

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UAS Collegiate Training Initiative

The FAA's 2018 Reauthorization Act required the FAA to establish a collegiate training initiative program relating to UAS. It also called for a process to designate an association of public, two-year institutions of higher education as Community and Technical College Centers of Excellence in Small UAS System Technology Training.

The Unmanned Aircraft Systems Collegiate Training Initiative (UAS-CTI) Program addresses the Section 631 requirement of the FAA 2018 Reauthorization Act. Any public two-year institutions of higher education that participate in the UAS-CTI program will also be designated as members of the Consortium for Small Unmanned Aircraft System Technology Training. The FAA will invite members of this consortium to participate in annual meetings and other events with the agency, and we will facilitate the development sharing of best practices through this consortium.

About the Initiative

The Unmanned Aircraft Systems Collegiate Training Initiative (UAS-CTI) is a new program designed for universities, colleges, and technical schools by the FAA to recognize institutions that prepare students for careers in unmanned aircraft systems (UAS) or drones. Post-secondary institutions with UAS curriculums that want to be recognized as UAS-CTI participants now have the opportunity to apply for this distinction. The results of this collaborative working relationship will include a continuous dialogue with stakeholders to connect universities with general industry, local governments, law enforcement, and regional economic development entities to address labor force needs.

Initial Institutions

Originally published August 18, 2020 on https://www.faa.gov/news/updates/?newsId=95732

The Federal Aviation Administration (FAA) announced 26 schools have been selected so far to participate in the Unmanned Aircraft Systems Collegiate Training Initiative (UAS-CTI).

The FAA's Collegiate Training Initiative (CTI) program allows educational

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Geospatial Science and Technology Educator Certification (GSTEdC) Pilot Program

In the summer of 2018, Charlie Fitzpatrick, K-12 Manager of the Education Team at the Environmental Systems Research Institute – Esri, the global market leader in GST software, confirmed that a number of states were beginning to require secondary teachers provide "evidence" of their GST competence in order to teach GST courses. For secondary and post-secondary educators, showing evidence of expertise through inclusion of a credential or certification on their resume provides additional benefits beyond a prerequisite to teach a course. A certification in GST provides the added value of offering proof to students, parents, and administrators of the skillset of the instructor. It contributes to job security and affords an opportunity for professional development and growth. It also places educators in a better position to acquire grants, have abstracts accepted to present papers at professional conferences, and furnishes evidence of expertise when collaborating with other institutions for curriculum development and articulation agreements. And if an educator's certification program is based on the skills and competencies needed by the workforce, the added benefit is that those critical competencies will become part of the curriculum taught in more classes and programs. As a consequence, industry will recognize the competencies the students from these programs have been exposed to, providing a bridge between secondary, post-secondary GST instruction, and the workforce.

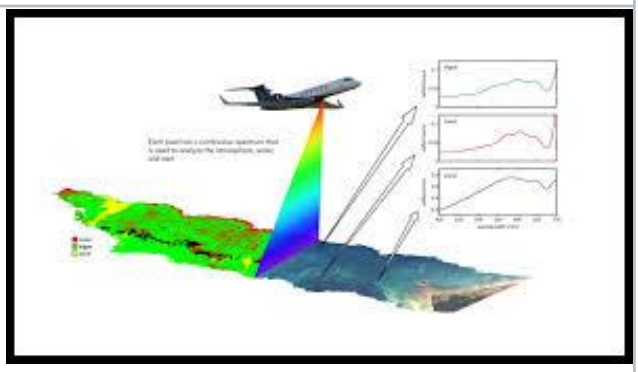
In 2019, the GeoTech Center was awarded a supplement grant to research the feasibility of the proposed GSTEdC program. Specifically, the pilot program sought to answer the following questions: 1) Would an educator certification program meet the needs (or be feasible) for secondary educators? 2) Would the same certification program be beneficial to post-secondary GST faculty? 3) What activities or requirements would be included in the program leading to certification? 4) What specific competencies would be covered within a certification? 5) How would educators work through the requirements of a certification program? 6) Would a certification program lead to the creation of more classes at the secondary level in GST (for example, the introduction of a course or the expansion of a program)?

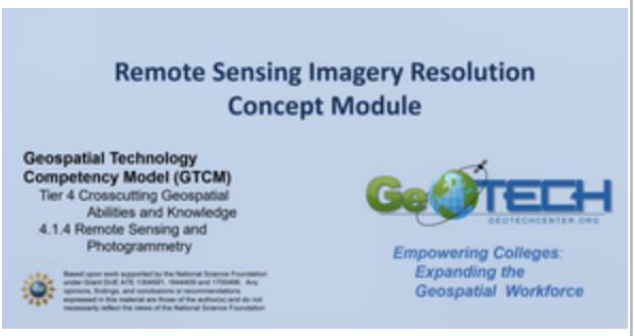
What did we Learn from the Pilot Program? Participants completed a Self-Assessment survey followed by the completion of a "Geospatial Awareness" MOOC and a series of Concept Modules (see figure below). The Self-Assessment survey included a list of competencies drawn from the Program Content Tool. The pathway was delivered via Canvas, an online learning management system. The final activity required that each participant complete a capstone project, including the submission of a detailed student exercise, an Instructor Resource Guide (IRG) for the exercise, and a Story Map. Participants were required to submit an evaluation after the completion of *each* step of the pathway. At the end of the pathway, participants were asked to sign an ethics statement, apply for certification, and complete a summative evaluation. The below narrative highlights some of our findings.

The initial findings from the participant evaluations and applications reveal that a certification program for educators is welcome and needed. Feedback from the pilot program participants regarding the MOOC supported the idea of a two-tier GSTEdC. At least half of the cohort indicated that they wanted to see higher level content in addition to the web-based content of the MOOC, such as desktop GIS and advanced applications. Other recommendations included creating a more network-based approach to the MOOC (with synchronous discussions and greater interactions with fellow participants and instructors), as well as more engaging concept modules. Participants also wanted to see example capstone projects, have an online curriculum repository, and have peers review capstone projects prior to submission. In addition, many participants requested college credit for the program.

The GeoTech is presently developing an NSF grant proposal to create a full GST educator certification program. If funded, geospatial educators will have a new and exciting opportunity to get certified in geospatial science and technology education.

Concept Modules (and Demo Videos)





With most programs moving to online instruction, the GeoTech Center wants you to know about resources that can be used as part of your courses. Students can freely access Concept Modules that review basic concepts from the GeoTech Center website and YouTube Channel. The modules are short (less than 20 minutes) and focus on concepts that students need to know yet are complex enough to need a refresher. Topics include:

1. Map Projections
2. Datums
3. Statistics (part 1 and 2)
4. Color
5. Metadata
6. Programming (part 1 and 2)
7. Scale
8. Topology
9. US Census
10. Attribute Relationships
11. Data Management
12. Remote Sensing Resolution
13. Remote Sensing Overview
14. Data Visualization (MAUP)

Demo videos are short demonstration videos designed to show students and educators how to perform a particular task in a step-by-step manner. The topics covered by the demonstration videos include managing geospatial data in ArcGIS Pro, collecting field data using real-time kinematic GPS, and implementing high accuracy workflows in drone data processing. To suggest topics for future demonstration videos, please contact the GeoTech Center team.

See the full list and links to these modules and Demonstration Videos on the GeoTech Center website at:

http://www.geotechcenter.org/concept-modules-and-demonstration-videos8203.html

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institutions to collaborate with the FAA to help students pursue their aviation career goals. The UAS-CTI program recognizes institutions that prepare students for careers in unmanned aircraft systems (UAS), commonly referred to as drones.

The following schools meet the eligibility guidelines and have been selected to participate in the program:

- Blue Mountain Community College, Pendleton, Oregon
- Central Oregon Community College, Bend, Oregon
- Dakota College, Bottineau, North Dakota
- Embry Riddle Aeronautical University, Daytona Beach, FL, Prescott, AZ, and Worldwide Campus
- Green River College, Auburn, Washington
- Gulf Coast Community College, Panama City, Florida
- Hazard Community and Technical College, Hazard, Kentucky
- Hinds Community College, Bolton, Mississippi
- Idaho State University, Poncatello, Idaho
- Indiana State University, Terra Haute, Indiana
- MiraCosta College, Carlsbad, California
- Mountain Empire Community College, Big Stone Gap, Virginia
- Mountwest Community and Technical College, Huntington, West Virginia
- Niagara Community College, Sanborn, New York
- North Carolina State University, Raleigh, North Carolina
- Northeastern Technical College, Cheraw, South Carolina
- Northland Community and Technical College, Thief River Falls, Minnesota
- Northwestern Michigan College, Traverse, Michigan
- Oklahoma City Community College, Stillwater, Oklahoma
- Palomar College District, San Marcos, California
- Santa Rosa Junior College, Windsor, California
- Southwestern College, Chula Vista, California
- Tallahassee Community College, Tallahassee, Florida
- University of Maine at Augusta, August, Maine
- University of North Dakota, Grand Forks, North Dakota
- WSU Tech, Wichita, Kansas

The FAA launched the UAS-CTI program in April. Participating institutions will engage with the FAA, other participants, general industry, local governments, law enforcement, and regional economic development entities to address labor force needs. This collaboration will ensure that UAS-CTI school graduates have the knowledge and skills needed to pursue a successful career in a UAS-related field.

Post-secondary institutions with UAS curriculums seeking recognition as UAS-CTI partners may still apply for this distinction. Program guide are posted on the FAA website. See:

https://www.faa.gov/uas/educational_users/collegiate_training_initiative/

The FAA Reauthorization Act of 2018 (Public Law 115-254) required the FAA to establish a collegiate training initiative program relating to unmanned aircraft and to establish a process to designate consortia of public, two-year institutions of higher education as Community and Technical College Centers of Excellence in Small Unmanned Aircraft System Technology Training.

Read the UAS Collegiate Training Initiative Program here, in .pdf format:

https://www.faa.gov/uas/educational_users/collegiate_training_initiative/media/UAS_CTI_Program.pdf