

Docket Item:

Community College Approval: Portland Community College, Certificate of Completion in Geospatial UAS Specialist within 45.0702 Geographic Information Science and Cartography.

Summary:

Portland Community College proposes a new Certificate of Completion in Geospatial UAS Specialist. Higher Education Coordinating Commission (HECC) staff completed a review of the proposed program. After analysis, HECC staff recommends approval of the degree as proposed.

Staff Recommendation:

The HECC recommends the adoption of the following resolution:
RESOLVED, that the Higher Education Coordinating Commission approve the following degree: CC in Geospatial UAS Specialist.



Portland Community College seeks the Oregon Higher Education Coordinating Commission's approval to offer an instructional program leading to a Certificate of Completion in Geospatial UAS Specialist.

Program Summary

UAS stands for Unoccupied Aerial Systems and is used interchangeably with drones. Professional civilian drone technologies are an emerging field with a growing demand for trained specialists in a wide variety of fields including Agriculture, Emergency Services, Atmospheric Sciences, and Geospatial services. Drones can be used to conduct aerial surveys of crops, infrastructure, forests, fire hazards, find missing or lost persons, and more. These technologies are changing the way land surveyors, construction professionals, and GIS professionals acquire, process and deliver geospatial data such as orthomosaics, digital surface models, 3D point clouds, and building as built. Students learn how to: ethically operate drones; plan flights for a variety of data collection types using appropriate sensors and tools; and to process, interpret and analyze the data being collected. An UAS Certificate provides an opportunity for students pursuing a degree in Geomatics, Engineering, or other related field to strengthen their employability with a cutting-edge skill set. It also provides an opportunity to current GIS, Surveying, Engineering, or other Geospatial professionals to get the training they need to stay current with new tools and technology for their jobs.

1. *Describe the need for this program by providing clear evidence.*

Professional civilian drone technologies are an emerging field with a growing demand for trained specialists in a wide variety of fields including Agriculture, Emergency Services, Atmospheric Sciences, and Geospatial services. Drones can be used to conduct aerial surveys of crops, infrastructure, forests, fire hazards, find missing or lost persons, and more. These technologies are changing the way land surveyors, construction professionals, and GIS professionals acquire, process and deliver geospatial data such as orthomosaics, digital surface models, 3D point clouds, and building as built.

The UAS industry is growing, as is the employment demand for surveying and geospatial technicians trained in emerging technologies like UAS. At the end of 2019, the FAA reported that there were more than 385,000 commercial UASs registered. These registrations are distributed throughout the country with higher densities in economic or commercial centers, such as the Portland Metropolitan area. By offering an UAS Certificate at PCC, we will be offering an accessible, quality education to support the academic, professional, and personal development for students, the larger geospatial community, and local industry.

The UAS Industry is growing and current trends show slow but steady growth. Public and Private industry are hiring geospatial technicians trained in emerging UAS technologies or supporting existing employees with training in these technologies. There are currently 115,000 licensed Remote Pilots in the U.S. with 7,884 in the NW Mountain Region (CO, ID, MT OR, UT, WA, WY).

Long-term trends show UAS technology expanding service in the construction, agriculture, insurance, police, fire, real estate, utilities, and clean energy markets. The potential for phenomenal growth exists as the criteria of operations for small package delivery are developed and adopted by the FAA.

According to the State of Oregon's Employment Department there are 10,560 geospatial professionals working across the State of Oregon with a high percentage of those employees located in the Portland/Vancouver MSA. It is predicted that demand for these skill sets will increase in the future with an estimated average of 144 jobs added yearly between 2016 and 2026. Surveying and GIS are designated as "High priority" High Demand/High Wage occupations for Oregon and are considered areas of Occupational Prioritization for Training in the Portland Metro area according to the State of Oregon. This degree replaces the inactivated Web Design and Development AAS degree.

2. *Does the community college utilize systemic methods for meaningful and ongoing involvement of the appropriate constituencies?*

We have received support and interest from the Professional Land Surveyors of Oregon, Oregon Department of Transportation, several Engineering firms, and Quantum Spatial. The PCC Geomatics & UAS Advisory Committee guides our curriculum development and ensures that we have industry partners that will provide internships and job opportunities for our students and graduates. For a discussion on industry needs for employees with both UAS and Geospatial skills we reached out to the members of our Geomatics Advisory Council. The consensus of the group, which includes AKS Engineering, ODOT, Quantum Spatial, Oregon Metro and Clean Water Services among others, is that the UAS Certificate would create additional employment opportunities for graduating students and professionals. Specifically, the need is for employees with the ability to process and interpret UAS collected data, even if they are not flying the UAS themselves. Students and current employees need both field and office training that the UAS Certificate provides both.

3. *Is the community college program aligned with appropriate education, workforce development, and economic development programs?*

The Oregon Employment Department's statistical measures are validated by the experiences of the PCC Geomatics Advisory Committee. The GIS Program has already incorporated feedback from multiple meetings of this group of professionals into the existing curriculum. These changes, along with the creation of a third UAS and Terrestrial Modelling class will provide the cutting edge skills desired in new technicians as well as provide incentive for current professionals to seek out PCC for advanced

training. These advanced skills include but are not limited to planning and executing UAS flights and High Precision GPS use in the field, creating digital imagery products for a multitude of clients and client determined uses, and manipulating and extracting information from digital point clouds in an office setting. The PCC Geomatics & UAS Advisory Committee guides our curriculum development and ensures that we have industry partners that will provide internships and job opportunities for our students and graduates.

4. *Does the community college program lead to student achievement of academic and technical knowledge, skills, and related proficiencies?*

Students are prepared to take Part 107 - Commercial Pilot Certificate as part of the coursework. If students pass, they are Commercial UAS pilots. The certificate encompasses a wide range of technologies - both software & hardware - creating technology savvy technicians that can easily adapt to changing technologies in the field. These technologies can be applied to other career areas as well: software and hardware skills are directly transferable to other career pathways in technology professions.

5. *Does the community college identify and have the resources to develop, implement, and sustain the program?*

Portland Community College has assessed the needs of the program and will support its current and ongoing needs. Measures have been put in place to make sure the program remains relevant to industry over time.

Assurances

Portland Community College has met or will meet the four institutional assurances required for program application.

- 1. *Access.*** The college and program will affirmatively provide access, accommodations, flexibility, and additional/supplemental services for special populations and protected classes of students.
- 2. *Continuous Improvement.*** The college has assessment, evaluation, feedback, and continuous improvement processes or systems in place. For the proposed program, there will be opportunities for input from and concerning the instructor(s), students, employers, and other partners/stakeholders. Program need and labor market information will be periodically re-evaluated and changes will be requested as needed.
- 3. *Adverse impact and detrimental duplication.*** The college will follow all current laws, rules, and procedures and has made good faith efforts to avoid or resolve adverse *intersegmental* and *intra*segmental impact and detrimental duplication problems with other relevant programs or institutions.
- 4. *Program records maintenance and congruence.*** The college acknowledges that the records concerning the program title, curriculum, CIP code, credit hours, etc. maintained by the Office are the official records and it is the college's responsibility to keep their records aligned with those of the Office.

HIGHER EDUCATION COORDINATING COMMISSION

April 8, 2021

Docket Item #:

The college will not make changes to the program without informing and/or receiving approval from the Office.