

Docket Item:

Community College Approval: Portland Community College, Associate of Applied Science in Geomatics within 45.0702 Geographic Information Science and Cartography.

Summary:

Portland Community College proposes a new Associate of Applied Science in Geomatics. 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: AAS in Geomatics.



Portland Community College seeks the Oregon Higher Education Coordinating Commission's approval to offer an instructional program leading to an Associate of Applied Science in Geomatics.

Program Summary

The purpose of the Geomatics Associates of Applied Science degree is to provide students with the fundamental knowledge and skills in land surveying, cartography, and geospatial technologies such as Geographic Information Systems (GIS), Remote Sensing, Global Positioning Systems (GPS), and Unmanned Aerial Systems (UAS). The Geomatics degree will prepare students to become GIS and Surveying professionals.

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

The purpose of the Geomatics Associates of Applied Science degree is to provide students with the fundamental knowledge and skills in land surveying, cartography, and geospatial technologies such as Geographic Information Systems (GIS), Remote Sensing, Global Positioning Systems (GPS), and Unmanned Aerial Systems (UAS). The Geomatics degree will prepare students to become GIS and Surveying professionals.

Industry demand is very high for Geomatics professionals. The State of Oregon Employment Department calls the lack of hireable applicants a high priority area. This year, a large employer of Geomatics professionals, Oregon Department of Transportation, had more available positions than qualified applicants. The State of Oregon's Employment Department has indicated that Geomatics training is a "high priority" for the Portland metro area.

Qualify for entry-level (technician) positions in surveying, GIS, GPS, engineering or other similar positions.

Geomatics is the collection, analysis, and interpretation of spatially-referenced data on the Earth. A program of study in Geomatics is a collaboration between surveying, engineering, and geospatial technologies. Students learn by integrating tools and techniques used in land surveying, remote sensing, geographic information systems (GIS), global positioning systems (GPS), unmanned aerial systems (UAS), photogrammetry and cartography. Geomatics is a young field, less than 40 years old that has quickly integrated into everyday life.

The Geomatics industry is growing. The demand for data collection, data processing and mapping professionals is growing. Demand is exceeding supply by a significant measurable amount at the local,

regional and national scales. While GIS is a rather young field, surveying is an aging profession with the average age being about 55-60 years old. The baby boomer retirement wave has hit the surveying field hard and like many technical fields in the US there have been no trained professionals behind them.

According to the State of Oregon's Employment Department, 38% of the available surveying jobs (88 positions) openings went unfilled in 2016 and 17% of mapping/GIS jobs went unfilled. It is predicted that demand for these skill sets will increase in the future. According to the State of Oregon's Employment Department the demand for both the surveying and GIS/mapping professionals will grow by 47% with a need of 483 new professionals by 2024. It is also expected that most of the demand will be in the Portland metro region. 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.

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, and David, Evans, and Associates. It will be essential to develop an Advisory Committee to help guide our curriculum develop and ensure that we have industry partners that will provide internships and job opportunities for our students and graduates.

An Advisory Board that includes industry professionals from both the private and public sector will meet regularly to advise about industry trends and concerns as well as educational opportunities. They will participate in program review activities with the faculty from the discipline area.

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

The degree was carefully designed by a dedicated group of faculty members to be inclusive to students who have not been historically represented in this career area. Supports like labs and tutors are in place to help with math studies and subject area studies. The degree was also designed to align with the newly proposed Civil and Construction Engineering Technology AAS degree so students could apply the first two terms of coursework to either degree as they decide which educational and occupational pathway to pursue. According to the State of Oregon's Employment Department the demand for both the surveying and GIS/mapping professionals will grow by 47% which contributes to the area's economy.

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

The program worked with advisory board to ensure workplace skill sets align with curriculum and degree path. The program collaborated with the Civil and Construction Engineering Technology

program to align common coursework in the first two terms of each degree so students will not lose credits if they move between programs. There are tutoring supports in place to help students with Math and program area content. Students will be able to apply the skills learned in the following areas:

- a. UAS (Unoccupied Aerial Systems)
- b. Photogrammetry & Remote Sensing
- c. Lidar/3D Modelling
- d. GIS (Geographic Information Systems)
- e. CAD (Computer Aided Drafting)
- f. Land Surveying
- g. GIS Programming / Automation
- h. Global Positioning Systems (GPS)

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