

Docket Item:

Community College Approval: Portland Community College, Associate of Applied Science Degree in Cybersecurity, within 11.1003 – Computer and Information Systems Security.

Summary:

Portland Community College proposes a new Associate of Applied Science Degree in Cybersecurity. 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 Cybersecurity.



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

Program Summary

Computer information systems are the lifeblood of the 21st century. The mainstream languages, tools, technologies, and techniques used in the coursework will prepare students to pursue careers in either the computer networking or information software fields. On the networking side computer configuration, network installation, network systems administration, security, forensics, and wireless networking are some career choices. In the software side, student career choices include all phases of application development, database programming, software quality assurance, and project management on both desktop and worldwide web platforms.

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

The US Department of Labor Bureau of Labor Statistics Occupational Outlook Handbook reports that...

“Employment of information security analysts is projected to grow 18 percent from 2014 to 2024, much faster than the average for all occupations...”

“Data from Boston-based labor analytics firm Burning Glass highlights the spike in demand: cybersecurity job postings grew 74% from 2007 to 2013, which is more than twice the growth rate of all IT jobs. The labor pool has yet to catch up”

<http://www.networkworld.com/article/2893365/security0/shortage-of-security-pros-worsens.html>

“More than 209,000 cybersecurity jobs in the U.S. are unfilled, and postings are up 74% over the past five years, according to a Peninsula Press (a project of the Stanford University Journalism Program) analysis of numbers from the Bureau of Labor Statistics.”

<http://www.csoonline.com/article/2953258/it-careers/cybersecurity-job-market-figures-2015-to-2019-indicate-severe-workforce-shortage.html>

The State of Oregon OLMIS website states that employment in this occupation in 2014 was at about the statewide average for all occupations. The total number of job openings is projected to be at about the statewide average number of job openings for all occupations through 2024. This occupation is expected to grow at a somewhat faster rate than the statewide average growth rate for all occupations through 2024.

Reasonable, but limited, employment opportunities exist.

The Computer Information Systems Industry Advisory Board has told the college that there is a local need for information technology personnel to be skilled and knowledgeable about cybersecurity and methods for recognizing and combating it. There is daily news telling us of cybersecurity threats on

our personal information, hacking of information from healthcare and credit card businesses and of course the alleged hacking of the DNC during the 2016 election.

PCC offers a Cybersecurity Fundamentals Less Than One-Year Certificate (28 credits). As of April 2019 there are 103 students who have identified the Cybersecurity Fundamentals Certificate as their academic goal. This large number indicates interest in Cybersecurity at PCC.

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

The basic design of the AAS was developed after receiving feedback from the Computer Information Systems Advisory Board. The Advisory Board then reviewed the AAS and associated coursework and approved the college's plan to move forward. The board believes that the content in the AAS will well prepare individuals for work.

The developers also worked closely with the Perkin's advisor to ensure the AAS would be attainable by the students.

Through the Center of Academic Excellence 2 Year (CAE2Y) program established by the National Security Agency and the Department of Homeland Security we were able to connect with a Mentor from Highline Community College in Des Moines, Washington. They have been awarded a Center of Academic Excellence in Cybersecurity designation and are providing PCC with guidance. This AAS is one step toward earning the CAE2Y status for PCC. A prestigious title within the information technology industry.

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

The program incorporates an exhaustively developed list of "knowledge units", developed by the Department of Homeland Security (DHS) and National Security Agency (NSA) for two-year community colleges, focused on ..." Proactively increasing our understanding of robust cyber defense (CD) technology, policy and practices that will enable our Nation to effectively prevent and respond to a catastrophic cyber event". These knowledge units are embedded within the content of the 90-credit AAS. The college has a less than one-year Cybersecurity Fundamentals Certificate. All courses required for the less than one-year certificate are wholly contained in the Cybersecurity AAS so the students can earn the Less Than One-Year Certificate and then they can choose to pursue the Cybersecurity AAS or the Computer Information Systems AAS as all courses in the certificate are wholly contained in both degrees. Students who want to pursue a bachelors' degree can transfer to Oregon Tech (OIT) Wilsonville campus which has a new IT-Cybersecurity dual degree program. The college partners with OIT in aligning course and to ensure smooth articulation from PCC to OIT for the students.

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

The courses required for the AAS are part of the current offerings from the Computer Information Systems department. The courses are offered regularly and they are offered at multiple campuses, centers, and through distance education. The schedule makes it easy for students to find and register for the courses they need for program completion.

The instructional model for all courses in this AAS are a mixture of classroom and/or web-based instruction that includes a combination of lecture and hands-on project work.

The comprehensive coursework is aligned with AAS outcomes which reflects the skills and knowledge individuals need to order to work competently in the field, as specified by the NSA and DHS. The curriculum for the Cybersecurity AAS covers the competencies specified in the list of knowledge units specified in the Center of Academic Excellence 2-Year Knowledge Unit Mapping Index, as listed by the National Cyberwatch Center and the National IA Education & Training Program. PCC follows a rigorous model of assessing degree and certificate outcomes on a yearly basis as expected by the accrediting agency, NWCCU. Instructors teaching the courses have demonstrated expertise in both the technology and instruction.

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

There is adequate capacity of college resources to support this new AAS. All required courses are part of the current catalog and are offered regularly at multiple campuses and web-based instruction. The course schedule includes daytime as well as evening classes. All of the courses in the AAS are taught by faculty in the Computer Information Systems and Computer Science academic departments which allows the college to leverage existing instructional resources and facilities. Enrollment is expected to be approximately 25 students per year for the AAS. PCC is a comprehensive community college which has been successfully serving the Portland-metropolitan area for over 55 years.

PCC students have access to career counseling, instructional support, and advising. The college provides full service library services at four campuses in the district. The college is committed to maintaining a complete catalog of lower division collegiate courses to accommodate students earning a certificate and preparing to earn an associates' degree.

PCC serves students with special needs including those with disabilities, displaced workers, and non-native speakers of English. Services include the provision of tutors, counselors, childcare, financial aid, and ESL instruction. Other services may include interpreters and communication devices for deaf and hearing impaired students, note taking options, taping of printed materials, test readers/writers,

enrollment assistance, career guidance, and corrective physical education. Staff and students also have access to consultations and workshops designed to increase awareness of disability issues. PCC as a public agency provides comprehensive services for student with disabilities in both the classroom and online formats. The college has a Disabilities Services office:

<http://www.pcc.edu/resources/disability/> PCC supports diversity in the student body and employment. The PCC Office of Affirmative Action and Equity (OAAE) provides leadership to facilitate, manage and coordinate college policies, procedures and programs related to diversity, inclusion and equity: <http://www.pcc.edu/about/affirmative-action/>.

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 *intrasegmental* 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.