

Docket Item:

Community College Approval: Klamath Community College, Associate of Applied Science Degree in CyberSecurity and Networking, within 11.1003, Computer and Information Systems Security.

Summary:

Klamath Community College proposes a new Associate of Applied Science Degree in CyberSecurity and Networking. 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 and Networking.



Klamath 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 and Networking.

Program Summary

The CyberSecurity and Networking AAS degree is designed for new students and existing professionals who would like to acquire technical training in information system support and administration with an emphasis on CyberSecurity techniques. This program is designed to help students earn industry-recognized, third-party certifications in hardware, software, networking, and CyberSecurity. The program includes an internship with a local company's information system (IS) department to add real job experience to the degree holder's resume.

Students who pursue this degree will have a strong foundation in hardware, software, networks, computer languages, embedded systems (robotics) as well as a solid background in CyberSecurity skills such as perimeter defense design, business continuity and disaster recovery, penetration testing, and ethical hacking. The curriculum will familiarize students with the theory and application of computer technology while offering an intensive, hands-on experience working with networks, hardware, software, embedded systems and CyberSecurity in a state-of-the-art computer lab facility.

A degree holder will have the additional benefit of being amply prepared for entry-level jobs in information systems support including technician positions involving a network environment in need of on-the-site CyberSecurity monitoring. Work in the field of CyberSecurity and network support includes the following: wired and wireless network design and administration, server management, robotic systems design, security design and administration.

Career opportunities for students who wish to enter the workforce immediately upon graduation include network systems support technician, computer user support technician, and network and systems administrator with CyberSecurity skills.

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

Over the past year, local business people, members of local government, and local educators were contacted to determine the type and depth of IT training currently offered at Klamath Community College (KCC). The participants identified a need for an AAS degree that offered training focused on passing third-party certification exams in computer user support and security.

All of the business and local government representatives relayed their struggles to maintain qualified staff for their information service departments and identified an urgent need for a local pool of qualified computer support technicians. The two areas these leaders would like to see improvement are 1) more local high school students entering the IT workforce with proper entry-level training and 2) opportunities for existing IT staff to train for industry-recognized certification.

Currently, Oregon Institute of Technology (OIT) is the only training facility for computer technology in the Klamath Falls area. These graduates do not normally take entry level support technician jobs due to high industry demand for OIT graduates in computer engineering and data management.

CyberSecurity and Networking Associate of Applied Science:

KCC has developed a curriculum from the input of these local business leaders to address the need for qualified computer support technicians with a two-year AAS program with an emphasis on CyberSecurity. The CyberSecurity and Networking AAS at KCC will prepare students to be “job ready” for entry-level support technician positions. Classes will focus on hands-on information service department skills training. Students will complete 10-week internships at one or the participating businesses. This curriculum was developed as a joint effort between KCC faculty and local business participants.

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

The program has been developed through the collaboration of local businesses and local government organizations. The business and organizations that participated in the program development are some of the largest employers in the Klamath Falls area and have information systems that require full-time employees to manage the system. These businesses will be active partners going forward. They will provide students opportunities to work as interns receiving on the job training as well as collaborating with KCC faculty to make sure the curriculum is relevant and current.

KCC faculty have met with these local businesses and organizations to exchange information and ideas on what types of skills are desirable for entry-level support technicians.

The key constituents are Jeld-Wen of Oregon, Ed Staub and Sons, Sky Lakes Medical Center, and Hunter Communications. KCC’s Information Service department also contributed to planning and designing the curriculum.

The program will work with local high schools to attract female and minority students that are underrepresented in computer technician jobs. KCC’s Information Services department will provide work-study positions for students. An advisory committee will include interested individuals and

businesses.

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

The participating local businesses have been meaningfully and systematically involved in the development of the CyberSecurity and Networking (CSN) AAS degree and the one-year Security Support Technician (SST) certificate starting fall term 2019. In the case of the local businesses involved, numerous meetings have taken place with the Klamath Community College (KCC) faculty. The first step was to have members of the information service (IS) staffs of the local businesses submit a list of skills and topics that they desire in a qualified employee working in computer support position. The KCC faculty then presented a curriculum with course descriptions and activities to the business partners. The business partners offered comments and suggestions to the proposed curriculum. The faculty then readjusted the curriculum accordingly.

Faculty of other programs at KCC have been in discussion with the faculty of the computer technology program to determine the best way to share curriculum so that students in these other programs can increase their exposure to computer technology training. These discussions are ongoing and will continue.

KCC has both a dual credit agreement and a dual enrollment agreement with the local school districts. The computer technology programs at KCC will participate in these agreements and offer high school students opportunities to take the CSN and the SST classes for college credit on their respective high school campus and on the KCC campus.

Students in the computer technology program will have the opportunity to take third party exams to demonstrate the mastery of desired skills. The program will offer CompTIA, Cisco CCNA, and Microsoft Administration exams in the campus testing center. KCC adapted the use of these exams from recommendations of the business partners that are advising KCC on developing the CSN AAS program.

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

The CyberSecurity and Networking AAS is designed to produce high quality graduates that are “job ready” and prepared to work as beginning IT/IS technicians or continue training at 4 year schools to become CyberSecurity specialists. This program will prepare students to sit for several progressively challenging industry recognized certifications required for most IT/IS technician job positions. Students that pursue this degree will have a strong foundation at multiple entry levels as required by most organizations looking for trained support technicians.

The primary entry levels are:

- hardware and software set up and maintenance
- network and operating system administration, both wired and wireless
- server setup and maintenance

- disaster recovery and business continuity
- intrusion detection, vulnerability assessment, basic system forensics, and ethical hacking

In addition, students will study C++ and C# coding, hardware design and architecture, and embedded systems, while also acquiring a solid background in general education subjects including mathematics, writing, social science, and communication. The curriculum will expose the student to the theory and application of computer technology, while offering an intensive, hands-on experience working with networks, hardware, software, and security.

Degree holders will have the additional benefit of being “job ready” for entry-level jobs in information systems support in network environments with a strong background in on-site security. The program will include an internship with a local company’s information system (IS) department and the chance to earn industry recognized third-party certifications in hardware, software, networking and security.

Work opportunities for students that wish to enter the work force immediately upon completing the CyberSecurity and Networking AAS include information systems support technicians, computer repair technicians, and network and system administrators. Students will be prepared to go on to further training to become CyberSecurity specialists.

Candidates for this AAS degree must satisfactorily complete all the requirements of the degree including a minimum of 95 required credits, 26 of which are in the General Education component. The General Education requirement allows the flexibility to continue professional development later, by applying the basic skills gained to more in-depth study.

One requirement for degree completion is for the student to complete one term of a cooperative internship with a local employer that utilizes an information system during the normal course of conducting business. These arrangements will be made on an individual basis and the student is under no obligation to accept permanent employment.

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

Klamath Community College has been a well-established community college for over 23 years. Klamath Community College (KCC) is accredited through the Northwest Commission on Colleges and Universities (NWCCU). Klamath Community College has an approximate \$16 million annual operating budget. Klamath Community College provides accessible, quality education and services in response to the diverse needs of their students, business partners, and community. The College supports student success in workforce training, academic transfer, and foundational skills development.

KCC's Cybersecurity and Networking AAS degree will have an academic articulation agreement with Oregon Institute of Technology's IT program.

KCC has approved a program budget for lab equipment and instructors' salaries for the 2019-2020 academic year. KCC already has the lab equipment and a state-of-the-art IT lab facility. An additional full-time instructor's salary has been approved for the 2019-2020 academic year.

To date, the local businesses that have been contacted are willing to provide internships to all qualified students that complete the required classes. More local businesses will be contacted going forward to ensure that all future students have an internship opportunity as the program grows and that there is an adequate variety of internships to match student interests and technical specialties.

Currently, KCC instructors are teaching pathway certificate classes on the Klamath Union High School campus to high school students that are taking dual credit. KCC has dual enrollment agreements with both of the local high school districts allowing high school students to take classes on the KCC campus during school hours using KCC's lab facilities.

Assurances

Klamath 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.