

2020-21

Instructional Program Review

Computer Engineering Technology Program

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6B. Describe program weaknesses.
6C. Describe support needed.
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Instructional Program Review Rubric

1. PROGRAM/DISCIPLINE MISSION/GOALS AND LINK TO STRATEGIC PLAN

1A. DESCRIBE PROGRESS TOWARD GOALS SET IN PREVIOUS REVIEW, ANNUAL BUDGET PRESENTATIONS, AND/OR STRATEGIC BUDGET PLANNING.

- Goal 1 (Prosperity): Improve student success in workforce employability through certifications and resume/portfolio development opportunities
 - Measurable Target: Set a goal of five students earning a CompTIA A+ and/or a CCENT prior to Fall 18
 - Third-party certification and work experience are the two most important artifacts on an IT/IS Technician's resume. In order to improve a student's probability of employment in the IT/IS field, the CET program will look for relevant third-party certifications and additional internship opportunities
- Goal 2 (Access): Improve student access to education opportunities in a variety of locations
 Measurable Target: Student enrollment is about 15 students per class
 - The Computer Engineering Technology and Computer Support Technician programs will seek to improve both the quantity and range of student populations enrolling at KCC. There will be a strong emphasis on developing partnerships with the local high school districts to promote College Now or undertake Dual enrollment classes.
- Goal 3 (Excellence): Increase accessible pathways towards 4-year degrees
 - Measurable Target: Increase in the number of students that are enrolling in four-year schools and are successful in obtaining a four-year degree
 - The Computer Engineering Technology and Computer Support Technician programs will enhance its reputation both locally and statewide through unique programs, in addition to enhanced customer service and campus quality.
- Goal 4 (Community): Increase internship opportunities
 - Measurable Target: Add an additional three internship opportunities per year over the next three years
 - Increase the pool of job-ready student interns by 30% over the next 3 years
 - Increase the number of CCENT and CompTIA A+ certification holders to five per year by year three
 - Internships lead to successful degree completion and employment. In order to improve student success, the Computer Engineering Technology and Computer Support Technician programs will identifying additional community partners to provide internships as well as developing courses, trainings, or instructional modules that will give students necessary skills for a successful internship experience.
- Goal A (Prosperity): Improve income attainment
 - Measurable Target: Increase the number of third-party certification options
 - Increase the number of students that earn more than two certifications
 - Develop multiple pathway options with the AAS that will lead an increase in the number of third-party certifications that a student can earn which will lead to better employment opportunities without a bachelor's degree.
- Goal B (Access): Recruit more students coming out of high school
 - Measurable Target: The goal is to attract fifteen or more traditional students per year

 Currently most of the students in the CET program are non-traditional students. The program is only adding five or fewer traditional students (students that have recently graduated from high school) per year

1B. HAVE YOU MET YOUR PREVIOUSLY SET GOALS? IF NOT, HOW DO YOU PLAN TO MEET THEM?

□Yes

⊠No

We have not met our goal of students obtaining third party certification. However, the program has made progress. In 2021, two students have passed the COMPTIA A+ exam and have agreed to assist other students through a peer mentoring approach to pass this exam. We believe that our goal will be reached by this time next year.

Our high school recruitment has been hampered by lack of access to the schools during the Covid-19 pandemic. That access will be reinstated this summer (2021) with two summer camps in computer programming and robotics for local high school and middle school students. This summer, our goal is to develop an engaging curriculum for our camps and to provide mentoring for both students and teachers that participate. We will evaluate this summer's activity and develop a plan to expand our program to a year-round program. The ultimate objective is to establish dual credit and dual enrollment courses in both of our local school districts in the next two years.

2. PROGRAM/DISCIPLINE DESCRIPTION AND OVERVIEW

2A. PROVIDE THE CATALOG DESCRIPTION OF THE PROGRAM.

COMPUTER ENGINEERING TECHNOLOGY AAS

TWO-YEAR ASSOCIATE OF APPLIED SCIENCE DEGREE

The Computer Engineering Technology AAS degree is designed for students who would like to acquire technical training in information system support and transfer to the baccalaureate degree program in computer engineering technology at Oregon Institute of Technology (OIT), with which KCC has an articulation agreement. Reverse transfer is part of this agreement. Students who graduate with this AAS degree will have most of their first two years of lower-division course work completed for OIT.

Students who pursue this degree will have a strong foundation in hardware, software, networks, and embedded systems as well as a solid background in general education courses in communications, mathematics, and social science. The curriculum will familiarize student with the theory and application of computer technology while offering an intensive, hands-on experience working with networks, hardware, and software.

A degree holder will have the additional benefit of being amply prepared for entry-level jobs in information systems support including positions involving a network environment and/or computer repair. The program includes an internship with a local company's information system (IS) department as well as the chance to earn industry-recognized, third-party certifications in hardware, software, and networking.

Work in the field of computer engineering includes the following: application-specific integrated circuit development, hardware development, embedded systems design, network design and administration, and software development and testing. Career opportunities for students who wish to enter the workforce immediately upon graduation include information systems support technician, computer repair technician, and network and systems administrator.

PROGRAM LEARNING OUTCOMES

Upon successful completion of the program, students will be able to:

- Apply the common network protocols, standards, and the fundamentals of IP addressing.
- Demonstrate how to connect network hardware and configure network software in a server system.
- Demonstrate how to configure a wireless network.
- Demonstrate workplace safety and hardware handling procedures.
- Identify, test, and install PC hardware components.
- Demonstrate the procedures for installing, configuring, and backing up software.
- Demonstrate the ability to communicate with nontechnical end users and provide a high level of customer service.

PROGRAM REQUIREMENTS

Complete a one-term cooperative internship with a local employer that utilizes an information system during the normal course of conducting business. Arrangements for this learning experience will be made on an individual basis, and the student is under no obligation to accept permanent employment.

Number of credit hours necessary for completion: 92

COMPUTER SUPPORT TECHNICIAN CERTIFICATE

ONE-YEAR CERTIFICATE OF COMPLETION

This certificate is intended for students who seek technical training in information system support that involves a network environment and hardware repair.

Students will have a strong foundation in hardware, networks, and software, as well as a solid background in mathematics, writing, and communication. The curriculum provides students an intensive, hands-on experience working with networks, hardware, and software.

Those who complete this program will have the advantage of being amply prepared for entry-level positions in information systems support involving a network environment and computer repair. The program includes an internship with a local company's information system (IS) department as well as the opportunity to earn industry-recognized, third-party certifications in hardware, software, and networking.

Employment opportunities for those wishing to enter the work force immediately upon program completion include information systems support technician, computer repair technician, and network and systems administrator.

PROGRAM LEARNING OUTCOMES

Upon successful completion of the certificate, students will be able to:

- Apply the common network protocols, standards, and the fundamentals of IP addressing.
- Demonstrate how to connect network hardware and configure network software in a server system.
- Demonstrate how to configure a wireless network.
- Demonstrate workplace safety and hardware handling procedures.
- Identify, test, and install PC hardware components.
- Demonstrate the procedures for installing, configuring, and backing up software.
- Demonstrate the ability to communicate with nontechnical end users and provide a high level of customer service.

PROGRAM REQUIREMENTS

Complete a one-term cooperative internship with a local employer that utilizes an information system during the normal course of conducting business. Arrangements for this learning experience will be made on an individual basis, and the student is under no obligation to accept permanent employment.

Number of credit hours necessary for completion: 47

COMPUTER SUPPORT TECHNICIAN CAREER PATHWAY CERTIFICATE

LESS-THAN-ONE-YEAR CERTIFICATE OF COMPLETION

The Computer Support Technician Career Pathway Certificate provides students the basic knowledge and skills needed to work with an information system. Students who complete this program will have a strong foundation in computer hardware, software, and networks. The curriculum allows students to acquire hands-on experience working with information system components in a lab setting as well as study information system concepts in a classroom setting.

This certificate is beneficial for students who are new to information system technology and are looking for an entry point for acquiring computer support technology training. Those who are currently in a non-technology career may find this credential optimal for cross training into information system technology and, thereby, gain a competitive advantage when applying for positions in a wide variety careers, including those with small businesses.

PROGRAM LEARNING OUTCOMES

Upon successful completion of the certificate, students will be able to:

• Apply the common network protocols, standards, and the fundamentals of IP addressing.

- Demonstrate how to connect network hardware and configure network software in a server system.
- Demonstrate how to configure a wireless network.
- Demonstrate workplace safety and hardware handling procedures.
- Identify, test, and install PC hardware components.
- Demonstrate the procedures for installing, configuring, and backing up software.
- Demonstrate the ability to communicate with nontechnical end users and provide a high level of customer service.

2B. DESCRIBE HOW AND TO WHAT DEGREE THE PROGRAM DESCRIPTION REFLECTS THE PROGRAM'S OVERALL GOALS. IF IT DOES NOT, REVISE PROGRAM DESCRIPTION.

The CET program is designed for students that wish to attend OIT and get a four-year degree in the CSET program. The program at KCC allows students that do not have an extended computer science background to bridge that knowledge gap before starting their studies at OIT. At the same time, all students in the CET program take their technical core classes using the same text books, taking the same exams, and studying the same course material as their OIT peers.

2C. COMMUNITY LABOR MARKET NEED ANALYSIS AND PROJECTION

OCCUPATION PROFILES REPORT

COMPUTER HARDWARE ENGINEERS (172061)

EAST CASCADES (CROOK, DESCHUTES, GILLIAM, HOOD RIVER, JEFFERSON, KLAMATH, LAKE, SHERMAN, WASCO, WHEELER)

Description

Research, design, develop, or test computer or computer-related equipment for commercial, industrial, military, or scientific use. May supervise the manufacturing and installation of computer or computer-related equipment and components. Excludes "Software Developers, Applications" (15-1132) and "Software Developers, Systems Software (15-1133).

Projections								
Area	2019 Employment	2029 Employment	Annual Change Openings	Annual Replacement Openings	Total Annual Openings			
Oregon	1,383	1,551	17	106	123			
East Cascades	9	11	0	1	1			

Data Sources and Limitations

Wage Range 2020							
Area	Median Hourly	Avg Annual	Middle Range				
Oregon	\$55.64	\$117,083	\$43.52 - \$65.81				

Data Sources and Limitations

Current Job Openings

There are 107 current job listings for this occupation.

There are 107 current job listings for this occupation.

Industries of Employment							
Total All Industries	1,383						
Wholesale Trade	152						
Professional, Scientific, and Technical Services	434						
Professional, Scientific, and Technical Services	434						
Computer Systems Design and Related Services	236						
Scientific Research and Development Services	179						
Occupations with Similar Skills							
Electrical Engineers							
Electronics Engineers, Except Computer							



2019–2029 Employment Projection

19.5% Growth

Entry Level Educational Requirements:

Certificate

All data was gathered from the State of Oregon Employment Department and Bureau of Labor Statistics

Job Openings Listed with the Oregon Employment Department for Computer Network Support Specialists

There are 13 current job listings for this occupation.

Job Title	Date Posted	Location	Wage Offered
Telecom Technician	04/10/2021	Salem	
Computer Network Specialist I - Information Services (R909)	04/09/2021	Bay Area	DOE

Job Title	Date Posted	Location	Wage Offered
Dental Technology Integration Technician - Portland, OR	04/08/2021	Salem	DOE
PC Support Technician at Confederated Tribes of Siletz, Oregon	04/07/2021	Siletz	\$21.92/hr
Telecom Technician	04/03/2021	Salem	DOE
Security Technician	03/29/2021	Portland	
Member Support Specialist Team Lead	03/11/2021	Bend	DOE
Internship Talent Network	03/06/2021	Portland	DOE
Telephone Specialist-Comp Network Spec III-Information Services	02/18/2021	Bay Area	DOE
<u>(R696)</u>			
IT Assistant	02/17/2021	Ashland	\$30,000/yr to
			\$35,000/yr DOE
IT Field Technician	12/15/2020	Medford	
Network Implementation Technician (Entry-Level)	10/28/2020	Portland	
Network Technician	10/24/2020	Portland	

Software Developers, Applications (151132)

Oregon (All Counties)

Description

Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers.

Job Openings Listed with the Oregon Employment Department

for Software Developers, Applications

There are 1,348 current job listings for this occupation

Area Employment Projections

for Software Developers, Applications

Area	2019 Employment	2029 Employment	% Change	Annual Change Openings	Annual Replacement Openings	Total Annual Openings
Oregon	16,467	21,106	28.2%	464	1,323	1,787
Central Oregon	437	602	37.8%	16	37	53
Eastern Oregon	43	52	20.9%	1	3	4
Rogue Valley	351	442	25.9%	9	28	37

Wage Range 2020

for Software Developers and Software Quality Assurance Analysts and Testers **

Area	10th Percentile	25th Percentile	50th Percentile (median)	75th Percentile	90th Percentile	Average Hourly	Average Annual
Oregon	\$30.35	\$39.72	\$50.25	\$62.67	\$75.45	\$51.21	\$106,500
Central Oregon	\$18.61	\$30.51	\$42.53	\$55.85	\$63.20	\$42.31	\$87,997
East Cascades	\$19.24	\$31.95	\$44.58	\$57.20	\$65.89	\$44.36	\$92,281
Eastern Oregon	\$14.07	\$16.24	\$20.03	\$37.25	\$42.75	\$27.25	\$56,691
Eastern Six	\$27.83	\$33.33	\$38.64	\$41.13	\$61.29	\$39.82	\$82,813
Rogue Valley	\$24.72	\$30.59	\$38.48	\$49.26	\$60.00	\$40.65	\$84,550

Network and Computer Systems Administrators (151142)

Oregon (All Counties)

Description

Install, configure, and support an organization's local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Monitor network to ensure network availability to all system users and may perform necessary maintenance to support network availability. May monitor and test Web site performance to ensure Web sites operate correctly and without interruption. May assist in network modeling, analysis, planning, and coordination between network and data communications hardware and software. May supervise computer user support specialists and computer network support specialists. May administer network security measures. Excludes "Information Security Analysts" (15-1122), "Computer User Support Specialists" (15-1151), and "Computer Network Support Specialists" (15-1152).

Job Openings Listed with the Oregon Employment Department

for Network and Computer Systems Administrators

There are 271 current job listings for this occupation.

Area Employment Projections

for Network and Computer Systems Administrators

Area	2019 Employment	2029 Employment	% Change	Annual Change Openings	Annual Replacement Openings	Total Annual Openings
Oregon	4,050	4,286	5.8%	24	291	315
East Cascades	288	319	10.8%	3	21	24
Eastern Oregon	75	76	1.3%	0	5	5
Rogue Valley	240	247	2.9%	1	17	18

Wage Range 2020

for Network and Computer Systems Administrators

Area	10th Percentile	25th Percentile	50th Percentile (median)	75th Percentile	90th Percentile	Average Hourly	Average Annual
Oregon	\$27.34	\$33.47	\$41.31	\$49.16	\$58.00	\$41.92	\$87,201
Central Oregon	\$27.39	\$33.15	\$37.33	\$42.24	\$49.79	\$37.67	\$78,362
East Cascades	\$27.32	\$33.03	\$37.25	\$42.01	\$49.57	\$37.54	\$78,084
Eastern Oregon	\$19.24	\$26.69	\$32.29	\$39.47	\$49.97	\$33.42	\$69,514
Eastern Six	\$14.77	\$25.64	\$29.33	\$34.07	\$39.79	\$28.66	\$59 <i>,</i> 606
Rogue Valley	\$25.36	\$28.39	\$33.58	\$42.35	\$50.11	\$40.31	\$83,844

Computer Programmers (151131)

Oregon (All Counties)

Description

Create, modify, and test the code, forms, and script that allow computer applications to run. Work from specifications drawn up by software developers or other individuals. May assist software developers by analyzing user needs and designing software solutions. May develop and write computer programs to store, locate, and retrieve specific documents, data, and information.

Job Openings Listed with the Oregon Employment Department

for Computer Programmers

There are 34 current job listings for this occupation.

Area Employment Projections

for Computer Programmers

Area	2019 Employment	2029 Employment	% Change	Annual Change Openings	Annual Replacement Openings	Total Annual Openings
Oregon	2,776	2,605	-6.2%	-17	189	172
Central Oregon	60	61	1.7%	0	4	4
East Cascades	108	108	0.0%	0	8	8
Eastern Oregon	49	55	12.2%	1	4	5
Rogue Valley	69	62	-10.1%	-1	5	4

Wage Range 2020

for Computer Programmers

Area	10th Percentile	25th Percentile	50th Percentile (median)	75th Percentile	90th Percentile	Average Hourly	Average Annual
Oregon	\$22.51	\$30.62	\$39.36	\$48.06	\$57.27	\$39.66	\$82 <i>,</i> 495
Central Oregon							
East Cascades	\$17.51	\$19.73	\$27.91	\$35.10	\$50.03	\$31.47	\$65 <i>,</i> 456
Eastern Oregon	\$17.98	\$30.46	\$41.09	\$64.78	\$78.54	\$44.92	\$93 <i>,</i> 430
Rogue Valley	\$25.10	\$33.43	\$41.00	\$49.12	\$57.63	\$40.75	\$84,754

2C.I. HAS THE DEMAND FOR GRADUATES CHANGED IN THE PAST FIVE YEARS? IF SO HOW AND TO WHAT DEGREE?

 \boxtimes Yes

□No

The demand for our KCC CET students is fully realized after they earn their four-year CSET degree at OIT. Students that wish to start work immediately after completing their AAS degree are encouraged to enroll in the Cybersecurity and Networking (CSN) program at KCC.

2C.II. WHAT IS THE EXPECTED MARKET DEMAND FOR THE FUTURE? HOW MIGHT THE LABOR MARKET NEED PROJECTION AFFECT THE PROGRAM? HOW MIGHT THE PROGRAM ADJUST TO THESE PROJECTIONS? The demand of KCC CET graduates relates to the demand for OIT CSET graduates. There is a massive demand for four-year computer science engineers nationwide.

2D. DESCRIBE THE SPECIFIC CURRICULAR, INSTRUCTIONAL, OR OTHER CHANGES MADE IN THE PREVIOUS FIVE YEARS.

The most significant change was to create a separate CSN program for students that wanted to start working after completing a two-year degree. This has allowed the CET program to focus on better transferability with OIT CSET. We have taken steps this year by offering CIS 136 to complete the entire first year of C++ programming. The curriculum design now allows students more options to take physics and math classes. As KCC adds more 200 level math and physics classes, the CET program will be able to leverage these courses into a two-plus-two with OIT CSET.

3. RESOURCES

3A. DESCRIBE FACULTY COMPOSITION, QUALIFICATIONS, AND PROFESSIONAL DEVELOPMENT.

3A.I. WHAT PERCENT OF FACULTY ARE FULL-TIME? PART-TIME?

Instructor Contact List by CMA

Taught a course in CET between selected dates

FIRST NAME	LAST NAME	EMAIL ADDRESS	
William	Brandsness	brandsness@klamathcc.edu	
Troy	Lanning	lanning@klamathcc.edu	
Douglas	Chamberlin	douglas.chamberlin@faculty.klamathcc.edu	
Michelle	Fuquay	michelle.fuquay@faculty.klamathcc.edu	
Michelle	Horne	horne@klamathcc.edu	

3A.II. DESCRIBE FACULTY DEGREE ATTAINMENT. WHAT ARE THE MINIMUM DEGREE QUALIFICATIONS? WHAT PERCENT OF FACULTY EXCEED MINIMUM DEGREE QUALIFICATIONS?

ID	Instructor Name	Taught DC	Taught RG	Sub Group	Original Hire Date	School	Degree	Major
5521 03	Brandsness, William	N	Y	F9MO	9/27/2010	Boston University	Master of Science	Computer Information System

5604	Lanning, Troy	?	?	F9MO	10/30/2017	Arizona State	Master of	Engineering Science
64						University	Science	

The minimum qualifications to teach the technical core for the Computer Engineering Technology AAS (CET) is either a master's degree or industry experience with a bachelor's in a related field.

Both of the full-time faculty meet both of the minimum degree qualifications. Michelle Fuquay completed her Masters' in 2020 and left KCC in pursuit of a position related to her Master's. Doug Chamberlin is a full-time employee of Jeld-Wen working with databases and has 30 years of industry experience combined with his Bachelor in Engineering from OIT.

3A.III. LIST THE SPECIFIC PROFESSIONAL DEVELOPMENT PROGRAM FACULTY ATTENDED INCLUDING BOTH ON-SITE AND OFF-SITE TRAININGS; HOW DID THE PROFESSIONAL DEVELOPMENT IMPACT INSTRUCTION, DESIGN, AND DELIVERY?

Our instructors have taken Cisco Academy Instructor's training as a qualification to teach Cisco Academy courses. An instructor cannot teach a Cisco Academy course without passing this instructional training, which adds consistency and competency to the level of instruction and course design.

3A.IV. ARE FACULTY COMPOSITION, QUALIFICATIONS, AND PROFESSIONAL DEVELOPMENT MEETING INSTRUCTIONAL NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

 \boxtimes Yes

□No

□Somewhat

3B. DESCRIBE THE SPECIFIC FACILITIES, EQUIPMENT, AND MATERIALS USED BY THE PROGRAM.

The Associate of Applied Science computer engineering program is equipped with state of the art facilities and equipment. Most of the funds for the facility and equipment came from the EDA grant for the Work Skills Technology Center.



KCC CET LAB

The lab for KCC's Computer Engineering Program is a state-of-the-art computer lab that has a raised floor which allows access to network cabling below that also allow the users of this room to apply custom configurations/connections to Cisco network infrastructure within the lab itself. This lab is also outfitted with its own IDF, i.e. Network Room, that also allows students and instructors to configure, test and implement networks that are independent of the College's campus network. The network equipment in this room are Cisco branded switches and routers which are key for Cisco Academy certifications and training.

There are 2 computers for each of the 20 student workstations. One of these computers is connected to the campus network and can be used to access campus resources for assignments, homework, email, etc. The 2nd computer is not connected to the campus network but is connected to the CET Lab's internal network that allows complete network deployment from the design phase to implementation while keeping these networks and their devices isolated from the campus network. This configuration further allows the students to perform the tasks required for Cisco Academy in a real-world implementation using Cisco training equipment.

The cabinetry surrounding the lab is used for various phases of PC and printer diagnosis and repair.

The instructor lectern is configured with multi-camera Zoom, Microsoft Teams, and other video conferencing platform capabilities. This allows the instructor to broadcast their lectures, to record lectures independently from Zoom, and to store them locally or they can be recorded in Zoom at the same time. This system also provides livestream capabilities to YouTube or other streaming services. There is also Bring Your Own Device hardware that allows users to connect a laptop or other personal computing device to the classroom audio and video (AV) system. The Lectern is controlled with a 5.25" touch interface panel that is used for turning the system on, changing sources, adjusting/muting room volume, starting, stopping, or pausing lecture recording. The lectern is also equipped with an HD document camera, Blu-Ray player, and ShareLink which allows sharing of content from personal devices to the room AV system wirelessly.

The primary and default source of the lectern is the computer which is replaced ever 2 years and is currently an i7 based computer that is equipped with 16GB of RAM and its internet connection is configured to take priority over other network traffic so, during peak times, the instructor computers are given priority to ensure uninterrupted network access.

The video display system is centered around a 75" SMART Technologies Interactive touch display that allows full markup of presented content using either the SMART pens on the display or your finger. The video monitor at the Lectern is a WACOM 2245 22" Interactive Pen display that also allows full markup of presented material using the interactive pen.

The audio system is driven by a 75-watt amplifier and two 2-way ceiling mounted speakers and is controlled via the lectern touch panel for volume and muting.



POSSIBLE UPGRADE WITH DEPARTMENT OF LABOR GRANT

The following network topology is an overview of the Designated Operating Environment for NETLAB+ VE when configured behind a firewall DMZ (demilitarized zone).



Klamath Community College Instructional Program Review:

- NETLAB+ is a remote access solution that allows academic institutions to deliver a hands-on IT training experience with a wide variety of curriculum content options.
- The training environment that NETLAB+ provides enables learners to schedule and complete lab exercises for information technology courses.
- NETLAB+ is a versatile solution for facilitating IT training in a variety of disciplines, including networking, virtualization, storage, and cybersecurity.
- Our existing lab equipment, such as routers and switches and firewalls will be accessed by users through a web browser.

The benefits would be:

1) Offer Networking and Cybersecurity lab classes either online or hybrid.

This will allow us to reach the following new audiences:

- High School Students
- Remote Learning Students (In district and out of district)
- Existing IT Professionals

2) Students in the CET/CSN program would maintain the network and provide student support for NETLAB+ for work experience

3B.I. ARE FACILITIES MEETING INSTRUCTIONAL NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

⊠Yes □No

□Somewhat

3B.II. IS EQUIPMENT MEETING INSTRUCTIONAL NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

□Yes

□No

⊠Somewhat

95% of the time this is a yes, but sometimes we get a late notification from OIT as to changes they are making to a course and we have to scramble a bit to get the new equipment in. This can affect the smoothness of the courses in which that equipment was needed. Overall though we have been able to order any equipment we have deemed we need and receive it in a timely manner for the planned use.

3B.III. ARE INSTRUCTIONAL MATERIALS MEETING PROGRAM NEEDS? IF NOT, DESCRIBE ANY PLANS THAT WILL ADDRESS THIS.

□Yes

□No

\boxtimes Somewhat

In the technology field, our content changes very frequently. We meet with OIT each term to make sure we have the latest content which they are teaching. We also include new technology standards and new topics from our advisory committee, so this requires adjusting our instructional materials.

3C. DESCRIBE THE INSTRUCTIONAL SUPPORT SERVICES THE PROGRAM USES.

3C.I. REVIEW LRC HOLDINGS FOR RELEVANCY AND CURRENCY TO PROGRAM.

As a member of the Sage Library System, the KCC library provides students and faculty access to the holdings more than 70 libraries in 15 counties of eastern and central Oregon. The library is also a member of the Orbis Cascade Alliance courier system, which provides students access to the holdings of more than 200 libraries in 3 states.

Databases

- 1. Academic Search Premier academic journals, magazines and trade publications
- 2. Computer Source current trends and information, full text for nearly 300 publications
- 3. MasterFile Premier nearly 1700 full text periodicals & 164,400 primary source documents
- 4. Academic One File scholarly journals and magazines
- 5. Films on Demand over 45,000 titles and over 300,000 video segments
- 6. Credo Reference Center full text articles from over 1000 titles
- 7. CQ Researcher full text articles on a variety of topics in current and international affairs
- 8. OneFile Computer Science journals, magazines and more about computer, technology and electronics

Physical Holdings: Books, Periodicals, and DVDs

- 1. C++ Learn by Doing Todd Breedlove
- 2. The Essentials of Computer Organization and Architecture Linda Null
- 3. The Pragmatic Programmer Andrew Hunt and David Thomas
- 4. Introduction to Logic Circuits and Logic Design with Verilog Brock J. LaMeres
- 5. Fundamentals of Digital Logic with Verilog Design Stephen D. Brown
- 6. Code: The Hidden Language of Computer Hardware and Software Charles Petzold
- 7. Pattern on the Stone: The Simple Ideas that Make Computers Work W. Daniel Hillis
- 8. Hacking: The Art of Exploitation Jon Erickson
- 9. The Hacker Playbook: Practical Guide to Penetration Testing Peter Kim
- 10. The Art of Deception: Controlling the Human Element of Security Kevin D. Mitnick and William L. Simon
- 11. Hands-On Microsoft Windows Server 2016 Michael J. Palmer
- 12. Principles of Information Security 5th ed. Michael E. Whitman

3C.II. REVIEW PROGRAM STUDENT USE OF TUTORING AND E-TUTORING.

Computer Engineering Technology student's use of the Tutoring Center

	WINTER	SPRING	SUMMER	FALL
2018		CGS =11 SPE 111= 31	WRI 121= 13 WRI 122= 18	CGS= 4 CIS 116= 30

		WRI 121= 19 WRI 122= 28 WRI 227= 13 Arts & Letters and Social Sciences = 2	WRI 227= 2 MTH 111= 25 Arts & Letters and Social Sciences= 20	SPE 111= 17 WRI 121= 29 MTH 111= 130 MTH 112= 2 MTH 251= 42 Arts & Letters and Social Sciences= 25
2019	CGS= 9 WRI 121=70 WRI 122= 46 WRI 227= 16 SPE 111= 18 MTH 111= 104 MTH 112= 17 MTH 251= 10 MTH 251= 10 MTH 252= 8 Arts & Letters and Social Sciences= 40	CGS= 24 WRI 121= 20 WRI 122= 30 WRI 227= 12 SPE 111= 118 MTH 111= 139 MTH 251= 2 Arts & Letters and Social Sciences=35	CGS= 12 WRI 121= 18 WRI 122= 24 WRI 227= 0 SPE 111= 9 MTH 111= 97 Arts & Letters and Social Sciences= 1	CGS= 8 CIS= 47 WRI 121= 37 WRI 122= 9 WRI 227= 34 MTH 111= 160 MTH 112= 60 MTH 251= 58 Arts & Letters and Social Sciences= 17
2020	WRI 121= 74 WRI 122= 19 MTH 111= 85	WRI 121=3 WRI 122= 2 WRI 227= 2	No Tutoring	CGS= 3 WRI 121= 27 WRI 122= 24 SPE 111- 9 MTH 111= 2 MTH 112= 1
2021	WRI 121= 37 WRI 122= 54 WRI 227= 10 SPE 111= 12 MTH 111= 38 MTH 112= 1 Arts & Letters and Social Sciences= 16			

These tutoring hours reflect the general education tutoring which our students have used. We also have had several tutors which work with students on the technical core exclusively. These students are typically students which have already taken and have a firm grasp of the course (received an A or a B for the courses they are tutoring). Pete and Troy select specific students based on their performance, ability to communicate clearly and their ability to work with others.

3C.III. REVIEW PROGRAM STUDENT USE OF TESTING SERVICES.

Course Test Taken to date (April 9, 2021)

Year	Tests given in Testing Center
2019	333
*2020	201
*2021 (to date)	38

TOTAL	572
*Covid	

3C.IV. REVIEW OTHER INSTRUCTIONAL SUPPORT SERVICES (STUDENT CLUBS, ADVISING, TRIO, VETERANS SERVICES, ETC.) IF APPLICABLE.

The Technology Club has been a great asset to the degree. Through the Tech Club we have been able to get students involved in VEX Robotics and work with high school students. This helped create a pathway for high schoolers to continue to KCC and introduced them to some of their classmates ahead of time. We were also able to attract other students to the program through the Tech Club. Unfortunately, COVID-19 has put a damper on this club and we are investigating what direction we would like to pursue once we are able to meet face to face again.

The Counselling Services, TRIO, and Veterans Services have also provided support to our degree. Occasionally we have students who need to speak with a professional counselor and having these resources available and free for our students has been a great help. TRIO has helped provide a few of our students with additional tutoring resources. Veterans Services has helped recruit students to the degree. Usually once the student has been introduced Pete or Troy will advise the student, but Veterans Services helps them get registered.

3D. DESCRIBE TO WHAT DEGREE THE PROGRAM USES THE COLLEGE'S LEARNING MANAGEMENT SYSTEM (CANVAS) FOR ALL METHODS OF DELIVERY (FACE-TO-FACE, ONLINE, SYNCHRONOUS, HYBRID).

The Computer Engineering Technology AAS (CET) uses Canvas as a tool for all of our methods of delivery (face to face & synchronous/hybrid [due to COVID]). We use Canvas as a tool to facilitate our rigorous coursework. This provides students reminders of upcoming assignments and allows us to organize each course.

4. EFFECTIVENESS

4A. STUDENT LEARNING OUTCOMES ASSESSMENT

CLOs				
Course Code	Term Year	Instructor		
<u>CI5 120 01</u>	SP2018	Brandsness, William 552103		
<u>CIS 120 01</u>	SP2019	Lanning, Troy 560464		

4A.I. COURSE LEARNING OUTCOMES (CLO)

Klamath Community College Instructional Program Review:

<u>CIS 146 01</u>	SP2019	Fuquay, Michelle 512259
CIS 151.01	FA2020	Brandsness, William 552103
CIS 162.01	FA2020	Lanning, Troy 560464
CIS 126	WI2021	Lanning, Troy 560464
CIS 142	SP2021	Lanning, Troy 560464
CIS 275	SP2021	Chamberlin, Douglas 513875

4A.I.1 DESCRIBE EVIDENCE OF STUDENT PROFICIENCY IN CLOS. IF THERE IS NO EVIDENCE, DESCRIBE PLANS TO ADDRESS THIS.

For the Computer Engineering Technology AAS (CET) we typically use either a lab specific to the CLO or a specific section of a test to judge student proficiency. We look for the students to demonstrate their proficiency and most of the time we are able to hit our projected numbers. Sometimes however, we have a group of students which was not ready for rigors of the coursework and we will miss our projected numbers.

4A.I.2 DESCRIBE THE SPECIFIC PROCESS FOR ADVISORY COMMITTEES FOR REVIEWING COURSE CONTENT AND OUTCOMES GUIDES (CCOGS). IF THERE IS NO PROCESS, DESCRIBE PLANS TO ADDRESS THIS.

We meet every term with the advisory committee. At this meeting, we discuss high level changes to the courses and the degree. These topics are discussed at length with the committee with Pete and Troy providing their logic and reasoning for the changes. We then answer any questions the committee members have and once everyone is satisfied that they understand the changes and need for them we vote. Pete and Troy also receive feedback from our committee on topics which the committee members would like to be included in courses. When we are able to incorporate this feedback into a course we do so.

4A.I.3 WHICH COURSES HAD LEARNING OUTCOMES REVISED/UPDATED AND WHY?

Most of the CIS technical core have had their outcomes revised and updated. This was partially to reflect a change in procedure on CLO's when David started his position. The other changes were to maintain consistency with OIT's learning outcomes to ensure transferability.

4A.I.4 IDENTIFY AND GIVE EXAMPLES OF CHANGES MADE IN INSTRUCTION THAT OCCURRED AS THE RESULT OF CLO ASSESSMENT. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

One example of a change which happened as a result of CLO assessment is the addition of the term project to CIS 126: C++ Programming 2. This project ties in all of the student's skills from both terms of C++ and requires extensive work on the students' part. Furthermore, this project helps prepare the students for the rigors of OIT.

Largely the CET degree cannot wait for a CLO assessment to tell us we need to change part of the course. The technology field changes too fast for us to wait to find out this information.

PLOs					
Course Code Term Year Instructor					
<u>CIS 146 01</u>	WI2020	Chamberlin, Douglas 513875			
CIS 145L.01	FA2020	Chamberlin, Douglas 513875			
CIS 146	WI2021	Chamberlin, Douglas 513875			
CIS 152	WI2021	Brandsness, William 552103			
CIS 280	SP2021	Horne			

4A.II.1 DESCRIBE EVIDENCE OF STUDENT PROFICIENCY IN PLOS. IF THERE IS NO EVIDENCE, DESCRIBE PLANS TO ADDRESS THIS.

To date we have completed assessment on one PLO. We will have two additional PLO assessments completed Spring 2021. The completed PLO assessment was done on a Winter 2021 class that is normally taught face-to-face. However, due to precautions for student safety during the Covid-19 pandemic, the course was taught online. The results of the assessment indicated that there were a higher number of students that did not complete the assessment. The number correlates to the same number of students that did not complete other assignments for the course. The conclusion that could be reached is that some students do not perform well in an online class that has a high degree of kinetic work.

4A.II.2 IDENTIFY AND GIVE EXAMPLES OF CHANGES MADE IN INSTRUCTION THAT OCCURRED AS THE RESULT OF PLO ASSESSMENT. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

We believe that it would be best to take a slow approach toward making changes to the instruction due to the unpredictable nature of the Covid-19 pandemic. However, if we do have to go online in the future, the students will be able to use NETLAB+ to access the campus lab from remote locations.

4B. STUDENT SUCCESS

4B.I. DESCRIBE ENROLLMENT TRENDS AND PLANS TO ADDRESS THEM.

5 Year Headcount Comparison

	Academic Year	Term Year	Headcount
Đ	AY 2016-17	Total	108
Ð	AY 2017-18	Total	108
Ð	AY 2018-19	Total	117
Đ	AY 2019-20	Total	70
Đ	AY 2020-21	Total	58
	Total		461





Enrollment is down currently due to COVID-19. We have not been able to get into the high schools to recruit new students to the program. The degree also looks like it had a steep decline in enrollment in

2019, but this is misleading because the students changed majors to the new degree being offered (Cyber Security & Networking).

To help improve enrollment, Pete and Troy are working with the county and city schools to offer summer programs which can create a pathway for students to come to KCC. In Summer 2021, we are working with Henley High School to offer about 20 hours of computer programming for their VEX robotics students. Also, during Summer 2021, we are working with Ponderosa Middle School to start a VEX Robotics camp at Ponderosa. The goal with this camp is to transition into an afterschool program and continue all year long, transitioning up into Klamath Union High School as well.

Pete and Troy are also planning on talking with high school classes in the Fall.



4B.II. DESCRIBE DEGREE AWARDED TRENDS AND PLANS TO ADDRESS THEM.

4B.III. REVIEW TRANSFERABILITY OF PROGRAM.

4B.III.1 DESCRIBE TRANSFERABILITY FROM HIGH SCHOOL TO KCC TO OUS.

In the past we have offered College Now courses which would transfer into the Computer Engineering Technology AAS (CET). In 2018-2019 Pete and Michelle Fuquay taught a course at Klamath Union high school. This course was the same one offered for the College Now course and also counted towards the CET degree. Unfortunately, due to COVID-19 we have not been able to offer any of the College Now courses, but we are optimistic that we will be able to within a year. We are also adding NetLab+ as a solution to offer CET technical core courses at a high school.

Over the last 5 years the CET degree has increased its transferability significantly. In 2019-2020 Pete and Troy added additional options for students to the CET degree. These options provided additional credits which could transfer to OIT. In 2020-2021 Pete and Troy worked to restructure the CET degree to further increase transferability. In the 2021-2022 catalog a CET student continuing to OIT in one of the three CSET bachelor degrees could transfer approximately 80 credits of their 92 into the CSET degree. Students will now be able to complete their entire first year of CSET at KCC as well as finish part of their general education requirements for their second and third years.

4B.III.2 HAS THIS CHANGED OVER THE LAST FIVE YEARS? IF SO, WHY? WHAT ARE THE IMPACTS ON STUDENTS AND THE PROGRAM?

Yes, this has changed quite a bit over the last year alone. The separation of the Cyber Security & Networking AAS (CSN) from the Computer Engineering Technology AAS (CET) has allowed the CET degree to transition into a degree focused on transferability to OIT and other 4-year programs.

The impact on the students transferring to OIT include more credits accepted (can get up to about 80 credits transferring into the CSET degrees depending on the courses taken at KCC) and being better prepared for the coursework requirements at OIT. Students are receiving a better financial deal than previously as more of their credits transfer to OIT.

The impact on the program has been significant. With our CSN students previously included in the CET degree we were split between the two dichotomies of transferring to continue education at OIT and going straight into the workforce. The split of the degrees allows the CET to focus on transferability to OIT and other 4-year programs.

4C. STUDENT ENGAGEMENT AND SATISFACTION

4C.I. COURSE EVALUATIONS DATA AND ANALYSIS

4C.I.1 DESCRIBE CHANGES MADE IN INSTRUCTIONAL METHODS BASED ON STUDENT COURSE EVALUATION DATA. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

Please see Appendix 8A for the course evaluation data.

Due to COVID-19, we have had to make a number of changes to our technical core. We were forced to take our courses asynchronous and hybrid. This did not go as smoothly as we would have liked and we have received a number of comments from students stating as much. We are evaluating how to bring this content to students in a manner which supports this technology, but not all courses will work under this model. A large portion of our students thrive in an environment with direct contact and supervision as they work on their labs.

4C.I.2 DESCRIBE CHANGES MADE TO THE COURSE BASED ON STUDENT COURSE EVALUATION DATA.

Due to the nature of the Computer Engineering Technology AAS (CET) we must revise and update our courses regularly. We constantly have new industry standards, new topics from OIT, and new topics from our advisory committee which we must work into the coursework. In the case of the topics from OIT, we are provided with the resources which they are using to cover the topics (we meet with OIT every term to make sure we have the updated content and books).

Furthermore, each time we offer a course we do some self-reflection on how the course went. We often find that we need to make small changes such as when certain topics are introduced, reword certain technical pieces or update content with new standards. Many of the same conclusions are echoed in the student's responses on course evaluations.

4C.II JOB PLACEMENT DATA AND ANALYSIS (IF AVAILABLE)

RESULTS FROM PRIOR NSF SUPPORT (KCC) NSF Award #1601075; \$199,989; July 1, 2016 to June 30, 2020; ATE: Rural Internship Program (RIP), W. Brandsness (PI), J. Stoutamore (Co-PI). The project was a Rural Internship Program (RIP) designed to enhance the job readiness of students in the Computer Engineering Technology (CET) program through innovative placement strategies. Faculty members collaborated with students and employers to facilitate virtual internships to connect students in remote locations – where many courses are delivered via synchronous classrooms – with local businesses and industry employers. A presentation titled, "Establishing the Link to STEM Employers in Rural Environments" was made at the 2019 ATE Principal Investigators Conference in Washington, D.C. on October 25, 2019, that disseminated the RIP Project's intern placement strategies. No publications have been produced under this award. Intellectual Merit: Virtual internships connected KCC students in remote locations via the internet, enabling "real world" experiential learning through virtual application. Broader Impact: The Rural Internship Program encompasses a potential to benefit society by providing a duplicatable model for rural colleges with similar economic and labor conditions. Students and businesses served by these colleges benefit from a flexible approach to internship development. Of the 26 students tracked in peer-to-peer and face-to-face models, 15 students were hired after completing their internship. KCC has not had a previous NSF Robert Noyce Teacher Scholarships and Stipends Program grant.

5. BUDGET

The computer engineering technology program has reaped the benefits of receiving multiple grants to expand equipment, technology, and programming. They have received an NFS grant, were part of the EDA work skills technology grant, and have recently received funds to support the programming and infrastructure with a Department of Labor grant.

Fees/Tuitions	SU2019	FA2019	WI2020	SP2020
Tuition	2092	45580	57882	51773
Facility Fee	144	3096	4176	3681
Technology Fee	128	2752	3712	3272
Course Fee	0	3600	6225	1425
Distance Fee	352	880	1562	0
Student Govt Fee	40	860	1160	1022.5
Lakeview Fee	0	77	0	0
Other Tuition				
Fees	0	0	0	0
Enrollment	8	176	217	198
FTE	0.51764	11.646904	14.105691	13.264532
Cost In-Progress	3172.235808	47009.36417	66766.08426	62857.7249

5A. PROVIDE FIVE-YEAR COST MARGIN DATA AND ANALYS	SIS.
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Margin	-	-	-	-
In-Progress	1080.235808	1429.364166	8884.084264	11084.7249
Reimbursable FTE	0.51764	11.646904	13.976281	13.005712

Budget Presentation: <u>https://info.klamathcc.edu/AM/Budget%20PowerPoint%20Files/2021-</u>22%20Budget%20PPTs/Computer_Engineering_Budget_2021_2022.pptx

5B. SUMMARIZE PREVIOUS ANNUAL PROGRAM VIABILITY STUDY RESULTS AND EXPLAIN HOW CHANGES IMPACTED STUDENT LEARNING OUTCOME PROFICIENCY. IF THIS HAS NOT OCCURRED, DESCRIBE PLANS TO ADDRESS THIS.

Have not had a program viability study.

5C. EXPLAIN ANY BUDGETARY CHALLENGES AND ANY PLANS TO ADDRESS THEM.

Have not had any budgetary challenges.

6. CONCLUSION

6A. DESCRIBE PROGRAM STRENGTHS.

The strengths of the program lie in our ability to help students prepare to transfer to OIT. The Computer Engineering Technology AAS (CET) students can spend two years here, get their AAS and transfer most of their credits up to OIT. We meet with OIT every term to ensure we have the latest materials, resources and topics so that our graduates can hit the ground running in CSET at OIT.

6B. DESCRIBE PROGRAM WEAKNESSES.

The program has a large STEM-focused general education core. While this is great for the student's ability to transfer to OIT or another school, it poses an issue due to the lack of offerings of the second-year math and science courses. Currently we have included Math 251 Differential Calculus, Math 252 Integral Calculus, Math 254 Vector Calculus, Physics 211 Physics 1 with Calculus, and Physics 212 Physics 2 with Calculus in the degree. These are all required to complete any of the CSET degrees at OIT, but most of these courses are not offered regularly at KCC because of enrollment.

6C. DESCRIBE SUPPORT NEEDED.

Currently we need more degrees requiring the STEM math and science core so that those courses can be offered more consistently to our students.

6D. CREATE NEW GOALS AND LINK THEM TO THE STRATEGIC PLAN.

We do not have plans to create new goals. Our current goals have not been met or exceeded.

Goal 1 (Prosperity): Improve student success in workforce employability through certifications and resume/portfolio development opportunities

 Measurable Target: Set a goal of five students earning a CompTIA A+ and/or a CCENT prior to Fall 18 • Update: We believe that we will accomplish this goal by Fall of 21. We currently have two students that have passed the CompTIA A+ in Spring 21 and we are arranging for these students to mentor approximately ten students that are preparing for the exam.

Goal 2 (Access): Improve student access to education opportunities in a variety of locations

- The Computer Engineering Technology and Computer Support Technician programs will seek to improve both the quantity and range of student populations enrolling at KCC. There will be a strong emphasis on developing partnerships with the local high school districts to promote College Now or undertake Dual enrollment classes.
- Update: Progress on local high school partnerships has been suspended due to the covid-19 pandemic. Starting Summer 21, we will be in contact with high school students again with two summer camps in robotics and computer coding. We will look to expand that contact in the local high schools in the coming school year by sponsoring and supporting VEX robotics. We believe that in two years, our work in robotics will provide the numbers needed to support dual credit courses in some of our local high schools. Our NETLAB+ will provide access for our high schools to our campus facility lab equipment through remote technology.
- Furthermore, NETLAB+ will allow us to serve local working IS/IT professionals that have expressed interest in our program in order to earn third-party certification, but cannot attend classes on campus during business hours.

Goal 3 (Excellence): Increase accessible pathways towards 4-year degrees

- Measurable Target: Increase in the number of students that are enrolling in four-year schools and are successful in obtaining a four-year degree
- Update: We have just completed a degree requirement overhaul by adding CIS 136 C++ Programming III to the program and expanding our elective Science/Math/Computer Science course options. We will remain in a holding pattern for a couple of years to allow these changes to take effect before we can determine where we need to make additional changes.

Goal 4 (Community): Increase internship opportunities

- Measurable Target: Add an additional three internship opportunities per year over the next three years
- Update: We are rebuilding our internships with local businesses after being locked out of work sites for the past year due to the Covid-19 pandemic.

8. APPENDICES

8A. APPENDIX - STUDENT COURSE EVALUATION



	I was self-motivated to learn the course material.	I was well-prepared for each class.	I asked the instructor for help / guidance when I needed it.	I invested enough effort to fulfill course requirements.	I participated actively and contributed thoroughly in class.	I attended class.	I completed the class reading assignments.	I completed the homework for this class.	technology to complete the required work for this class.
Fall 2016	4.00	4.39	4.61	4.11	3.83	4.06	4.06	4.00	0
Fall 2017	4.64	4.45	4.27	4.55	4.36	4.55	4.36	4.55	0
Fall 2018	4.58	4.47	4.59	4.59	4.32	4.49	4.23	4.68	0
Fall 2019	4.62	4.40	4.56	4.70	4.43	4.57	4.21	4.60	4.84
Fall 2020	4.67	4.42	4.76	4.66	4.60	4.70	4.44	4.73	4.78

■ Fall 2016 ■ Fall 2017 ■ Fall 2018 ■ Fall 2019 ■ Fall 2020



Klamath Community College Instructional Program Review:

Fall 2016

Fall 2017

Fall 2018

Fall 2019

Fall 2020

4.56

4.91

4.81

4.79

4.82

4.78

4.91

4.56

4.58

4.78

4.65

4.73

4.78

4.71

4.72

4.78

4.73

4.71

4.70

4.76



4.78

5.00

4.91

4.85

4.85

■ Fall 2016 ■ Fall 2017 ■ Fall 2018 ■ Fall 2019 ■ Fall 2020

4.56

4.55

4.56

4.68

4.70

4.78

5.00

4.89

4.90

4.88

4.78

5.00

4.92

4.85

4.90

4.78

4.82

4.78

4.74

4.81

0

0

0

4.86

4.80

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INSTRUCTIONAL PROGRAM REVIEW RUBRIC						
	Highly Developed Developed Emerging		Initial			
1—Accomplishments in Achieving Goals	Exhibits ongoing and systematic evidence of goal achievement.	Exhibits evidence of goal achievement.	Exhibits some evidence that some goals have been achieved.	Minimal evidence that progress has been made toward achieving goals		
2—Labor Market Projection Thoroughly explains projected market demand and potential effects on program; presents highly developed plan to address projection. Explains projected market demand and discusses several possible actions to address projection.		Minimally explains projected market demand and lists one or two actions to address projection.	Presents labor market demand without analysis/explanation and fails to list possible actions to address projection.			
3—Resources						
Professional Development	Exhibits ongoing and systematic support of professional development opportunities.	Exhibits support of regular professional development opportunities.	Evidence of intermittent professional development opportunities.	Minimal evidence of professional development opportunities.		
Faculty Meeting Instructional NeedsEmploys a sufficient number of highly qualified faculty to meet instructional needs.Employs an adequat number of qualified to meet instructional needs.		Employs an adequate number of qualified faculty to meet instructional needs.	Has a plan to employ an adequate number of qualified faculty to meet instructional needs.	Faculty numbers and/or qualifications are insufficient to meet instructional needs.		
Facilities and Equipment	Facilities and resources meet current and future needs.	Facilities and resources meet current needs.	Evidence of a plan to have facilities and resources meet current and future needs.	Minimal evidence that facilities and resources meet current and future needs.		
4—Effectiveness						
Student Learning Outcomes Assessment	Exhibits ongoing and systematic SLO assessment to adjust instruction.	Exhibits student learning outcomes assessment and uses results to change instruction.	Has a plan to engage in ongoing and systematic SLO assessment, including using results to change instruction.	Minimal evidence of SLO assessment.		

Student Success	Thoroughly analyzes trends in enrollment, degrees awarded, time-to- completion rates, and formulates comprehensive plans to address them.	Describes trends in enrollment, degrees awarded, time-to- completion rates, and formulates plans to address them.	Describes trends in enrollment, degrees awarded, time-to- completion rates, and makes an attempt to plan to address them.	Minimal description of trends and/or fails to formulate plan to address them.
5—Budget	Financial resources meet current needs and are projected to meet future needs.	Financial resources meet current needs.	Evidence of a plan to acquire financial resources to meet current needs.	Minimal evidence that financial resources meet current needs.
6—Strengths and Weaknesses	Strengths and weaknesses are described accurately and thoroughly.	Most strengths and weaknesses are described accurately and thoroughly.	Some strengths and weaknesses are described accurately and thoroughly.	Minimal evidence that strengths and weaknesses are described accurately and thoroughly.
7—New Goals and Plan	Multiyear planning process with evidence of use of assessment data in planning.	Multiyear planning process with some assessment data.	Short-term planning process recently implemented.	Minimal evidence of planning process.
8—Overall Evaluation	Evidence of ongoing systematic use of planning in selection of programs and services.	Exhibits evidence that planning guides program and services selection that supports the college.	There is evidence that planning intermittently informs some selection of services to support the college.	Minimal evidence that plans inform selection the of services to support the college.
	Highly Developed	Developed	Emerging	Initial