

# Substantive Change Application Form

## New Baccalaureate Degree Program

**Directions:** This application should be submitted *at least* 30 days prior to the anticipated start date of the change. Applications must be complete and the required fees received in order to be scheduled for review.

Email completed application to [substantivechange@accjc.org](mailto:substantivechange@accjc.org).

Fees must be submitted to ACCJC, P.O. Box 147, Novato, CA 94948

**Date of Inquiry: May 1, 2023**

**Anticipated Start Date: August 19, 2024**

**Institution Name: Cerro Coso Community College**

**Address: 3000 College Heights Blvd.**

**City: Ridgecrest**

**State: CA**

**Zip: 93555**

**ALO Name: Corey Marvin**  
**cmarvin@cerrocoso.edu**

**Telephone: 760-384-6201**

**Email:**

**Title of Application and Description of Proposal:**

**Proposal to Add a Baccalaureate Degree in Cyber Security Technology**

Cerro Coso is seeking approval for the addition of a baccalaureate degree in Cyber Security Technology 50% or more in distance education mode.

## Introduction:

### **Concise description of the proposed program:**

The Cyber Security Technology Bachelor of Science Degree (120 units total, 70 units in the major) prepares students for careers in cyber security defense and operations. Duties include monitor organization's networks for security breaches and investigate when one occurs, checking for vulnerabilities in computer and network systems, using and maintaining software, such as firewalls and data encryption programs, to protect sensitive information, researching the latest information technology (IT) security trends, prepare reports that document general metrics, attempted attacks, and security breaches, develop security standards and best practices for their organization, recommend security enhancements to management or senior IT staff, and help computer users when they need to install or learn about new security products and procedures.

### **Program Learning Outcomes**

1. Utilize and maintain software, such as firewalls and data encryption programs, to protect sensitive information.
2. Research the latest information technology (IT) security trends and develop security standards and best practices for an organization recommending security enhancements to management/senior IT staff.
3. Apply logging and analysis tools to monitor organization's networks for security breaches and investigate when one occurs documenting evidence and preparing technical reports that document general metrics, attempted attacks, and security breaches.
4. Describe critical architectural components of logging and monitoring systems, forensic techniques, and penetration tools to monitor vulnerabilities in computer and network systems.
5. Apply collaborative processes, policies, standards, and procedures including interaction with groups and leaders within and outside the organization including training users.

### **Associate-degree required courses:**

- IT C101: Introduction to Computer Information Systems (3 units)
- IT C142: Information & Communication Tech Essentials (4 units)
- IT C143: Computer Network Fundamentals (3 units)
- IT C146: Introduction to Information Systems Security (3 units)
- IT C248: Systems and Network Administration (3 units)
- IT C251: Introduction to Programming Concepts & Methodologies (3 units)
- IT C255: Introduction to Cyber Security: Ethical Hacking (3 units)
- IT C257: Computer Forensics Fundamentals (3 units)
- IT C259: Introduction to System Analysis and Design (3 units)
- IT C260X: Information Technology Professional (3 units)
  - Total Lower division: 31 units

### **Lower-division general education courses:**

- Option B: CSU General Education Breadth (minimum 40 units)

### **Baccalaureate-degree required courses:**

- IT C320: System Logs and Event Management (3 units)
- IT C330: Network Security (3 units)
- IT C350: Windows Forensics (3 units)

- IT C400: Cyber Incident Response (3 units)
- IT C420: Operational Security Architecture – Security class (3 units)
- IT C430: Threat Intelligence (3 units)
- IT C450: Systems and Network Auditing (3 units)
- IT C460: Enterprise Security Architecture (3 units)
- IT C470: Advanced Penetration Testing (3 units)
- IT C480 Cloud Security (3 units)
  - Total Upper Division: 30 units
- Lower Division Classes
  - IT C280: Introduction to Cloud Computing (3 units)
  - IT C290: Linux Administration I (3 units)
  - IT C292: Linux Administration II (3 units)

***Upper-division general education courses:***

- ENGL C301: Technical Writing for Professionals (4 units)
- PARA C300: Ethics & Cyber Law (3 units)
- PSYC C300: Industrial and Organizational Psychology (3 units)

**TOTAL UNITS: 120**

**TOTAL General Education UNITS: 50**

**TOTAL Upper Division UNITS: 40**

**Rationale for the proposed program:**

[Cerro Coso Community College](#) serves five counties over 18,000 square miles (about twice the area of New Jersey) from Tehachapi to Lee Vining to Death Valley and Kern River Valley. Our expansive service area is primarily rural and remote with no direct service, even by means of an outreach center, by the California State University system. We serve one of the largest naval research facilities, the Naval Air Warfare Center at China Lake, a hub of advanced technologies at Mojave Spaceport, and the center for NASA at Edwards Air Force Base. Additionally, we serve mining and manufacturing, renewable energy, and other traditional businesses (banking, education, retail, and recreational). All these employers require cyber security professionals to secure networks for national defense, emerging technologies, and traditional business organizations.

Cyber security professionals are in critical demand to protect individual, business, and international security. The Bureau of Labor Statistics projects that information security jobs will grow much faster than other occupations from 2021-2031 at about 35 percent. It is listed as the eighth fastest occupation in the United States. A bachelor's degree is becoming increasingly required for these occupations. [\[Doc 1\]](#)

At a recent advisory committee meeting for the college's Information Technology program, employers showed overwhelming support for a proposed baccalaureate program in cyber security technology and voted in favor of pursuing the degree. In addition, the employers suggested having the degree added to their employers' human resources registry, to provide educational credit so that potential information technology hires could enter in with more marketable skills and therefore at a higher classification and higher pay rate within their organization. The projected entry amount for someone who completes this program is \$80,000 to start. [\[Doc 2\]](#)

These employers report struggling to fill not only entry-level cyber security positions but also higher-level jobs in the field. As a result, entry-level civil servant employees with foundational skills (those with a Security+ certification, security clearance, and little experience) are leaving for contractor employers because of the increased rate they are paying (up to \$20,000 higher). This outflow is destabilizing the workforce in the service area. Not enough trained cybersecurity professionals are leading to too many openings and to an extremely competitive environment to capture employees from other organizations.

Students in Cerro Coso Community College’s service area have few options. The closest California State Universities are Bakersfield and San Bernardino—112 and 108 miles, respectively, from the college’s main campus in Ridgecrest. This represents at best a two-hour drive one way, which is a hardship for students. Moreover, neither partner offers a dedicated baccalaureate degree in cyber security that is focused at the applied technology level that Cerro Coso is proposing: California State University Bakersfield offers a degree in Computer Science with a concentration in information security, and California State University San Bernardino offers a certificate, but not a degree.

It is the intention of the college to offer this program in distance education mode—at least to start with. While four of the introductory classes have an in-person option and a cyber-security lab is maintained at the main campus in Ridgecrest (more on that in the physical resources section below), the program will best serve students in the college’s rural communities if offered remotely. Not only do the program’s skills and outcomes lend themselves to online delivery by their very nature, but also the applied technical aspects of the course materials, simulations, and virtual environments used in the laboratory of almost every class in the program are just as effective remotely as they are in-person. Offering the program in a largely remote asynchronous mode makes the program more accessible to students who live in our more rural communities and to those who may already be working in the field. In addition, it makes it more accessible to students from tribal nations and other specialized populations that do not want to, or cannot, relocate for education. The college has already received ACCJC approval to offer its AS program in distance education format. [\[Doc 3, doc 4\]](#)

**Evidence of sufficient demand for proposed program:**

Data from the Bureau of Labor Statistics provides an overview of the cyber security (information security) profession and the increasing need for a bachelor’s degree. A recent Lightcast job posting analytics report shows a significant difference in the current and future educational requirements. Educational requirements for jobs in Cyber Security/Information Security requiring a bachelor’s degree are evident within 1,540 unique postings, or 56 percent, of the total postings. In comparison, there are only 378 job postings requiring an associate degree, or 14 percent of total postings. [\[Doc 5\]](#)

The “Above Middle-Skill Occupational” level (bachelor’s level) is projected to grow locally in our area by 15 percent, according to labor market report compiled by the Central Mother Lode Center of Excellence. As noted above, the Bureau of Labor Statistics projects that information security jobs will grow much faster than other occupations from 2021-2031 at about 35 percent. It is listed as the eighth fastest occupation in the United States. Wages are higher than other occupations as well. The median annual wage for these information technology workers was \$102,600 in May 2021, whereas the median wages of other occupations was \$45,760. According to Cyber Seek, a website collaboration between Lightcast, CompTIA, and the National Initiative for Cybersecurity Education that provides detailed data about supply and demand in the cybersecurity job market, California

currently has more than 80,000 openings with over 115,000 trained employees currently working in the field. [\[Doc 6, doc 7\]](#)

Cerro Coso Institutional Research Office developed a student survey to assess student interest in a bachelor's program in cyber security technology. The survey was sent to former graduates, former students enrolled in the major classes, and current students. Of the 920 surveys sent out, 106 students responded. Sixty-seven of these, or 63.2%, are current students; 39, or 36.8%, are former students. Substantial interest was shown for the college offering a bachelor's program, with 91 students (88%) either interested or very interested in enrolling in the program. [\[Doc 8\]](#)

Finally, there is evidence of student demand from the growth and success of Cerro Coso Community College's own AS degree in Cyber Security Technology since it was first offered in Fall of 2017. Together with its companion program, Information Technology, associate degrees awarded have seen over 300% growth in the last five years:

	2017-18	2018-19	2019-20	2020-21	2021-22
Cyber Security Tech AS	5	5	17	16	23
Information Tech AS	11	19	13	23	28

Those numbers are high for a small school like Cerro Coso Community College: In 2021-22, Cyber Security Tech and Information Tech were the fourth and fifth highest-awarded associate degrees at the college. If the three general education/liberal arts degrees are set aside whose flexibility are enormously popular with students, Cyber and Information Tech are the college's top two discipline-specific associate degrees. Anecdotally, program faculty say the only reason the numbers are not higher is that students are being recruited out of lower-level classes to go immediately to work. [\[Doc 9\]](#)

**Standard I: Mission, Academic Quality and Institutional Effectiveness, and Integrity**

<b>Describe how the proposed program is consistent with college's mission and goals.</b>
Offering a baccalaureate program fits in directly with the <a href="#">mission and guiding principles</a> of Cerro Coso Community College. The college's mission statement declares that it provides degree pathways that support a student's attainment of educational goals for the purpose of developing ethical and effective citizenry throughout our vast rural and online communities. <a href="#">[Doc 10]</a>
The college's vision is that Cerro Coso Community College will be the first choice in higher education and workforce training for the Eastern Sierra region.
And the college's values state expressly that the college provides students with clear and defined degree pathways to ensure timely completion; that it commits to acknowledging and anticipating the ever-changing workforce and transfer needs of its students; and that it embraces its unique communities and is dedicated to the economic and social development of its service area by preparing students to give back to their communities through marketable job skills and transfer preparation.

The proposed baccalaureate in Cyber Security Technology fulfills these guiding principles by providing an affordable degree program that upgrades the employment skills of students to meet specific industry needs in the high-technology and aerospace corridor of the college's service area.

Moreover, the program helps Cerro Coso address its near- and mid-term goals as expressed in the college's [2021-2024 Strategic Plan](#), particularly maximizing student success and access (goal 1), narrowing student equity gaps (goal 2), and strengthening organizational effectiveness through strengthened community connections (goal 3 and 3.1). [\[Doc 11\]](#)

**Describe the planning process that led to the proposed baccalaureate degree.**

Intentional planning for a proposed baccalaureate degree in cyber security technology began in Spring 2022 when the college began a series of high-level meetings with military and civilian leadership of China Lake Naval Air Weapons Station, the Mojave Air and Space Port, and Edwards Air Force Base. The result of these meetings was a 2022-23 Aerospace and Defense Industry Workplan document that identified as a top-three priority the development of an application for a bachelor's degree program universal to the aerospace and defense industry needs. [\[Doc 12\]](#)

The curriculum process began in Spring 2023 with the convening of discipline experts in cyber security from governmental/military and corporate settings to design the program. Most of the team has been teaching in Cerro Coso Community College's Cyber Security Technology associate degree program as adjunct instructors while simultaneously working in the field, remaining current in the skills and knowledge required to stay on top of the ever-developing subject matter, and bringing an applied understanding of the field to teaching and learning.

The development team met over several weeks, determining the content and the sequencing and then writing the curriculum. Drafts for each course were developed and reviewed by the team. Upon final review, the Information Technology and Cyber Security Advisory Committee met in early March to review the proposed courses and program providing additional changes/insight to the course contents, catalog descriptions, and program learning outcomes. Faculty then updated the courses and program documents, and they were put into our curriculum system. [\[Doc 2\]](#)

Following the same well-defined faculty-led process as for lower-division curriculum, the college curriculum committee reviewed the course outlines of record and the program proposal for a first read. Courses were reviewed over four meetings from February 24 to April 7, 2023; the program was presented for a first read on April 7. Changes were discussed with the curriculum presenters at these meetings, modifications made, and courses and the program resubmitted for second reads and final review and recommendation to the Kern Community College Board of Trustees. The Cyber Security Technology Bachelor of Science degree was approved for a second read on April 21, 2023. [\[Doc 13\]](#)

During this time, the program was shared as an information item for discussion and feedback at both the Academic Senate on March 2, 2023 and College Council on April 20, 2023. [\[Doc 14, doc 15\]](#)

At the time of the submitting of this substantive change proposal, the next step is for the courses and program to be reviewed by the college chief instructional officer (vice president of instruction) and by the college president. This is so that educational administrators and senior management responsible for operationalizing the programs are kept in the loop.

Upon this review and recommendation, the courses and program will be agendized for the next available Board meeting, June 1. In preparation for that, the college will be making a presentation about the program to the Board of Trustees at its May 11 meeting. [\[Doc 16\]](#)

**Describe how the baccalaureate degree program will be evaluated and fit into the existing college planning process.**

The baccalaureate degree in cyber security technology will be evaluated yearly through the college’s annual integrated planning process (more on that below) and also comprehensively once every five years through the college’s program review process.

Every instructional program at Cerro Coso Community College is on a 5-year schedule for a comprehensive program review. The process is guided by a template that prompts departments to address relevance, appropriateness, currency, outcomes assessment, and improvement plans. Within these five sections are a variety of subsections, such as connection to the college mission, gaps in outcomes assessment, status of resources that might be requested through subsequent annual integrated planning, program strengths, and strategies for improvement.

Systematic ongoing evaluation of data is a required component of the program review process, including student demand, performance, and achievement data. This data is disaggregated for departments by age, gender, ethnicity, and a variety of other filterable demographic attributes (socioeconomic status, DSPS status, foster youth, veteran status, etc.). Disaggregation is also available in formats that make sense to a program’s particular population of students served, such as—pertinent to this proposed baccalaureate degree—online vs. onground students.

The most recent program review for the information technology and cyber security programs was completed in Spring 2022. [\[Doc 17\]](#)

In addition, the proposed degree will be subject to the college’s comprehensive evaluation and planning effort. As indicated in another section, these plans work together to provide a complete picture of the short- and long-range needs for educational programs and services. The broadest look out is that provided by the college’s **educational master plan**, which is produced once every five years. This plan’s purpose is to identify long-range program needs and provide a context for college decision-making regarding capital expenditures as well as to establish a vision for more near-term institutional goal setting. The college is currently undergoing an educational master plan cycle, with an expected completion date of the end of the spring 2023 semester. In the context set by the master plan, the college develops a **strategic plan** once every three years that establishes more near-term institutional goals. These goals are set through a review and analysis of the college’s performance on institution-set standards and a number of student learning, achievement, equity, and operational metrics. As mentioned in section immediately above, the last Strategic Plan was completed in spring 2022. Lastly, twice a year, the college generates a **Target and Tactics** document that is meant to digest the most recent enrollment numbers and make adjustments to short- and mid-term targets particularly with the Student-Centered Funding Formula in mind. As the title word “tactics” indicates, the document also identifies specific initiatives and strategies being implemented

to improve institutional performance. The last Targets and Tactics document was completed in December 2022 and shows planning for a bachelor's in cyber security technology as a high priority (page 3). [\[Doc 18\]](#)

When it comes to resource allocation, an **annual planning cycle** takes place every year with individual college instructional departments and operational units completing a review of performance metrics, identifying gaps for improvement, developing initiatives, and submitting budget requests. Functionally, this on-the-spot annual planning nested within the other cycles of planning gives the college the means and resources to simultaneously plan ahead for program development and yet be nimble enough to make short-term adjustments as needed. In terms of a program's budget, the annual integrated planning ensures that resource allocation is tied to planning and is reviewed and carried out every year.



## Standard II: Student Learning Programs and Support Services

**Explain the program requirements (include program sheet for the college catalog and anticipated time to completion).**

- **Must provide evidence Baccalaureate Degree has 120 credits**  
*(if degree is more than 120 credits, provide justification for additional credits)*
- **Must provide evidence degree has 36 units of General Education**

### **Associate-degree required courses (total 31 units):**

- IT C101: Introduction to Computer Information Systems (3 units)
- IT C142: Information & Communication Tech Essentials (4 units)
- IT C143: Computer Network Fundamentals (3 units)
- IT C146: Introduction to Information Systems Security (3 units)
- IT C248: Systems and Network Administration (3 units)
- IT C251: Introduction to Programming Concepts & Methodologies (3 units)
- IT C255: Introduction to Cyber Security: Ethical Hacking (3 units)
- IT C257: Computer Forensics Fundamentals (3 units)
- IT C259: Introduction to System Analysis and Design (3 units)
- IT C260X: Information Technology Professional (3 units)

### **Lower-division general education courses (minimum 40 units):**

- Option B: CSU General Education Breadth (minimum 40 units)

### **Baccalaureate-degree required courses (total 39 units):**

- IT C320: System Logs and Event Management (3 units)
- IT C330: Network Security (3 units)
- IT C350: Windows Forensics (3 units)
- IT C400: Cyber Incident Response (3 units)
- IT C420: Operational Security Architecture – Security class (3 units)
- IT C430: Threat Intelligence (3 units)
- IT C450: Systems and Network Auditing (3 units)
- IT C460: Enterprise Security Architecture (3 units)
- IT C470: Advanced Penetration Testing (3 units)
- IT C480 Cloud Security (3 units)
- Lower Division Classes
  - IT C280: Introduction to Cloud Computing (3 units)
  - IT C290: Linux Administration I (3 units)
  - IT C292: Linux Administration II (3 units)

### **Upper-division general education courses (total 10 units):**

- ENGL C301: Technical Writing for Professionals (4 units)
- PARA C300: Ethics & Cyber Law (3 units)
- PSYC C300: Industrial and Organizational Psychology (3 units)

**TOTAL UNITS: 120**

**TOTAL GENERAL EDUCATION UNITS: 50**

**Proposed Sample Pathway (all courses available online)**

*Freshman Year*

Fall Semester - 18 Units				Spring Semester – 19 Units			
Course	Units	CSU GE	UD GE	Course	Units	CSU GE	UD GE
IT C101	3			IT C143	3		
IT C142	4			IT C146	3		
ENGL C101	4	A2		IT C251	3		
ART C101	3	C1		MATH C121/C131	4	B4	
PHSC C125	4	B1/B3		SPCH C101	3	A1	
				Humanities class	3	C2	
Total Units	18			Total Units	19		

*Sophomore Year*

Fall Semester - 15 Units				Spring Semester – 18 Units			
Course	Units	CSU GE	UD GE	Course	Units	CSU GE	UD GE
IT C248	3			IT C259	3		
IT C255	3			IT C260X	3		
IT C257	3			PSYC C101	3	D	
PHIL C131	3	A3		HIST C131/C132	3	D	
BIOL C101	3	B2		ANTH C141/SOCI C210	3	F	
COLL C101	3	E		Arts or Humanities class	3	C1/C2	
Total Units	18			Total Units	18		

*Junior Year*

Fall Semester - 13 Units				Spring Semester – 12 Units			
Course	Units	CSU GE	UD GE	Course	Units	CSU GE	UD GE
IT C290	3			IT C292	3		
IT C320	3			IT C350	3		
IT C330	3			IT C400	3		
ENGL C301	4		UD GE	PARA C300	3		UD GE
Total Units	13			Total Units	12		

*Senior Year*

Fall Semester - 12 Units				Spring Semester – 15 Units			
Course	Units	CSU GE	UD GE	Course	Units	CSU GE	UD GE
IT C280	3			IT C430	3		
IT C420	3			IT C460	3		
IT C450	3			IT C480	3		
IT C470	3			PSYC C300	3		UD GE

Total Units	12			Total Units	12		
-------------	----	--	--	-------------	----	--	--

**Provide evidence that program learning outcomes are the appropriate level for Baccalaureate Degree.**

**Program Learning Outcomes**

1. Utilize and maintain software, such as firewalls and data encryption programs, to protect sensitive information.
2. Research the latest information technology (IT) security trends and develop security standards and best practices for an organization recommending security enhancements to management/senior IT staff.
3. Apply logging and analysis tools to monitor organization’s networks for security breaches and investigate when one occurs documenting evidence and preparing technical reports that document general metrics, attempted attacks, and security breaches.
4. Describe critical architectural components of logging and monitoring systems, forensic techniques, and penetration tools to monitor vulnerabilities in computer and network systems.
5. Apply collaborative processes, policies, standards, and procedures including interaction with groups and leaders within and outside the organization including training users.

Cerro Coso Community College’s associate-level cyber security coursework was developed according to the state proposed model presented at the ICT/WASTC conference in 2017. The courses were all aligned with industry certifications and with information technology C-IDs with the intent of articulation and transfer. The courses that we selected for our programs aligned with the class list for CSU San Bernardino’s certificate in cyber security. Courses were accepted for C-ID and the program approved by the Chancellor’s Office in July 2016. [\[Doc 19\]](#)

The proposed baccalaureate in cyber security technology continues to be a rigorous and relevant program based on industry-standard guidelines and certifications, which include the National Institute of Science and Technology (NIST) framework, the Risk Management Framework (RMF) and the Workforce Framework for Cybersecurity (NICE) and Computerized Maintenance Management System (CMMS). These are the common frameworks utilized across the Department of Defense (DoD), which also have been adapted for use by private sector industry. Once the courses and the proposed program were developed, the Advisory Committee, DoD experts, and private industry experts attended an industry professionals desktop review meeting to ensure that the material covered in the program was of the appropriate baccalaureate level and met the needs of industry. Following the accepted frameworks, both the industry guidelines and certification requirements allow for transfer opportunities for other programs around the country. [\[Doc 2\]](#)

The following table summarizes the content and prerequisites of the 300- and 400-level baccalaureate courses:

Course	Course Title	Course Description	Prerequisites	Units
IT C320	System Logs and Event Management	This course develops familiarity with security information and event management (SIEM) tools, processes and techniques and their role in securing business systems. Focus is on deploying log and event management tools along with understanding the sources for proper cybersecurity analysis. Students develop a deeper understanding of the data collected with a real-world emphasis on extraction of actionable event intelligence.	IT C101 IT C146 IT C248	3
IT C330	Network Security	This course prepares the student to pass the Microsoft AZ-800: Administering Windows Server Hybrid Core Infrastructure certifications. This course also provides the knowledge required to secure networks and the systems that run over the network, focusing on access and system hardening. This course also covers security in the Cloud as well as working with Microsoft Azure and Active Directory.		3
IT C350	Windows Forensics	This is an in-depth course in computer forensics for the Windows family of operating systems. Students will learn to triage a running Windows computer for evidence of malicious behavior, analyze the FAT and NTFS filesystems, and identify and analyze a variety of forensic artifacts. Emphasis will be placed on evidence types and locations related to incident response including Windows event logs and artifacts of program execution.	IT C255 IT C257	3
IT C400	Cyber Incident Response	This course places an emphasis on multiple aspects of Cyber Security and Incident Response. Topics covered will include foundational areas of risk management, detection and response, disaster recovery and reinforce key concepts of cyber security governance and include areas to apply the appropriate knowledge and skillset as required by an incident handler. This course will include up-to-date information from the National Institute of Science and Technology, as well as international standards from the International Organization of Standardization.	IT C320 IT C330	3
IT C420	Operational Security Architecture – Security class	In this course, emphasis is placed on advanced technical skills and knowledge to implement, monitor, and secure technology infrastructure. Topics include security operations and administration; access controls; risk identification, monitoring, and analysis; incident response and recovery; cryptography; network and communications security; and systems and application security. This course is aligned with the (ISC)2 Systems Security Certified Practitioner (SSCP) certification		3
IT C430	Threat Intelligence	This course will cover basic principles of cyber threat intelligence such as the intelligence lifecycle, requirements, collection and sources, and types of intelligence. Students will develop an understanding of tactical, operational, and strategic threat intelligence. Cyber threat intelligence will be explored within the context of threat modeling, the cyber kill chain, and the MITRE ATT&CK Framework. Emphasis is placed on	IT C400	3

		intelligence terminology, concepts, and applying threat intelligence to incident response, security operations, and preventative controls. Topics include planning and requirements development; threat actors; threat modeling; analysis of incident data; and acting on threat Intelligence to improve cybersecurity.		
IT C450	Systems and Network Auditing	This course develops familiarity with system and network auditing tools, processes, and techniques to develop and implement an audit analytics strategy. Focus is on applying risk analysis techniques to be able to conduct technical audits of information systems. Students develop a deeper understanding of data analytics and continuous monitoring of networks and information systems.	IT C101 IT C146 IT C248	
IT C460	Enterprise Security Architecture	This course will focus on the Enterprise Security Architecture used in military and government organizations. The emphasis is placed on identifying and managing enterprise information technology (IT) risk and implementing and maintaining information security controls. Topics include the Risk Management Framework (RMF), enterprise security architecture and operations; integration of enterprise security; and research, development, and collaboration methodologies.	IT C330	3
IT C470	Advanced Penetration Testing	The training provided will prepare the student to pass the CompTIA PenTest+ certification, as well as have the knowledge and skills to plan and scope a penetration testing engagement, including vulnerability scanning, while understanding the legal and compliance requirements. The student will be able to analyze the information and write a written report, effectively communicating the results of the engagement.		3
IT C480	Cloud Security	This course is designed to help students gain an intermediate knowledge of cybersecurity principles and services for cloud computing through a guided, hands-on approach. Topics covered include cloud security design, implementation, architecture, operations, controls, and compliance with regulatory frameworks. This course includes demonstrations, instructional guides, and real-life scenarios.	IT C280	3
ENGL C301	Technical Writing for Professionals	English 301 is an upper-division general education course and is limited to students enrolled in the BS IT program. This course is designed to introduce students to the study of technical writing and written communication within professional discourse communities. Specially, the course focuses on the practice and study of selected types of cyber discourse employed in corporate, military, or government workplace situations and helps prepare students for the different kinds of technical writing, such as audience-driven or context-sensitive texts. To that end, students will examine rhetorical issues related to documents found and used in professional contexts; particularly how differing rhetorical situations alter purpose, audience, writer, and text. Additionally, through the rhetorical process, students will discover, examine, and respond to various formats with detail,	ENGL C101	4

		precision, and clarity to produce technical and business-related documents. Finally, throughout the course, students will engage in the writing process, including invention activities, drafting, and revising, peer evaluation, group discussions, editing, and project collaboration. English 301 meets the upper-division writing requirement for approved majors.		
PARA C300:	Ethics in Cyber Law	Emphasis is placed on ethical theory and professional ethics in cybersecurity. Topics include relativism, utilitarianism, and deontological theories; methods and tools for analysis in ethical arguments; legal bases for the right to privacy and freedom of expression; and various legislation and regulations that impact the Internet and cyber technology.		3
PSYC C300	Industrial and Organizational Psychology	The application of psychological principles and theories to the workplace: This includes an introduction to the methods, practices, research, and theories necessary to the scientific study of the attitudes and behaviors of employees and employers; interpersonal relationships in the workplace; the structure of organizations and organizational policies; the complex processes of motivation and leadership; individual and organizational performance; and the match between people and jobs. This is an upper-division general education course.	PSYC C101	3

**Describe the Student Services (counseling/advising, etc.), Learning Support Services (tutoring, etc.), Library Services, and other activities that will support baccalaureate students. Be sure to highlight how the services are tailored specifically to baccalaureate students.**

Student services are supplied by full-service offices operating both in person and online. For [counseling and advising services](#), the college employs 8 full-time counseling faculty, a number that includes--just approved for hire this year--a dedicated counselor for Career and Technical Education. It is expected that this position will be the point of contact for all inquiries, advising, and student education planning services for the proposed baccalaureate program. The college also has full-service offices dedicated to [admission and records](#) and to [financial aid](#). Because it is part of the Kern Community College District, one member of which, Bakersfield College, has already pioneered a baccalaureate program, Cerro Coso Community College has an already designed, tested, and functioning baccalaureate registration and reporting system ready to go. In order to support DSPS students, the college employs a full-time alternative media specialist who staffs the college's [High Tech Center](#) (HTC). All students who are accepted into the DSPS program are eligible to use the HTC to receive individualized training and support in the use of assistive technology and equipment to achieve success in their classes.

These student services—as well as robust supports for [basic needs and physical and mental health](#)—are available in both in-person and virtual format to serve students both at the physical campuses and also online. As one of the original providers of online education in the California community college system—Cerro Coso Community College's first substantive change proposal for a fully online program was submitted to its accrediting agency in 1998 (fittingly for this application, in Computer Information Systems)--all support services from registration to counseling to basic needs have been

built-out and improved in distance education format over the years as evidenced by their website pages:

Tutoring support in the [Learning Assistance Center](#) led by a full-time faculty learning assistance center coordinator, who works with a dedicated classified staff member to provide scheduled, drop-in, and embedded tutoring services to students not only at the college's physical campuses but also robustly online—this semester with 17 peer tutors and 6 faculty members providing support online.

Cerro Coso's [Library](#) is able to provide extensive online services tailored specifically to baccalaureate students. *EBSCOhost* provides full-text academic and peer-reviewed journals and is available to students 24/7 as an online resource and accessible to all students that are enrolled in both distance and on campus classes. *Academic Search Complete* contains indexing and abstracts for more than 8,500 journals, with full text for more than 4,600 of those titles, including over 10,000 popular and scholarly articles on cyber security and over 100,000 on information technology. *Business Source Elite* provides full-text coverage of top business, management, and economics journals and periodicals. *NexisUni* contains more than 4 billion searchable documents from 36,000 global business and legal sources, including newspapers, newswires, transcripts, magazines, trade journals, blogs, forums and more. *Nexis Dossier* supports industry and company research. The *Military & Government Collection* is a database of full-text journals and periodicals pertaining to all branches of the military and government. It is designed to offer current news to military members, analysts, policy makers, students, and researchers.

For the upper-division general education classes in composition, law, and psychology, students have access to over 35 databases. *Opposing Viewpoints Resource Center* draws on the acclaimed social issues series published by Greenhaven Press, as well as core reference content from other Gale and Macmillan Reference USA sources to provide a complete one-stop source for information on social and ethical issues in cyber security and information technology. Viewpoint articles, topic overviews, statistics, primary documents, links to websites, and full-text magazine and newspaper articles are resources that adequately provide students with research material necessary for study within this degree. The library is currently working with the department to explore additional databases to support the upper-division courses, such as *Computers & Applied Sciences Complete*, ProQuest's *Computer Science Database*, ACM's Digital Library, and Gale OneFile's *Computer Science* database, among others.

The library collection has been curated with additional eBooks to support this degree. Over 17,000 books, articles, open-source journals, videos, conference proceedings, reports, and government documents are currently accessible on the topic of cybersecurity and over 2.5 million items are available for information technology. Because the library maintains an up-to-date collection to support our current Cybersecurity Technology AS and Information Technology AS degrees, the library already has a robust collection of learning resources available digitally around-the-clock to enrolled students. The library is currently curating additional eBook resources to support the new upper-division courses for the degree.

Students would also have access to government resources via a curated Library Guide, such as:

- *U.S. Department of State - Cyber Issues* - a collection of policy issues from the U.S. Government and the Office for the Coordinator of Cyber Issues (S/CCI).

- *National Institute of Standards and Technology - Computer Security Resource Center* - the CRSC page from NIST - contains government publications, projects, programs, and news relating to cybersecurity.
- *FBI Cyber Threat Page* - The page for the current FBI resources and work on cyber threats, including information on how to protect individual homes, understanding the current risk, and information about FBI cybersecurity partnerships.
- *FBI International Crime Complaint Center* - IC3 is the home page for reporting internet crime, as well as a hub for consumer and industry cybersecurity alerts.
- *U.S. Cybersecurity & Infrastructure Security Agency* - Current cyber threats in the U.S. are documented here, including recently discovered vulnerabilities, analysis reports on cyber threats, and alerts about current exploits.

In addition to resources, the library department has historically provided extensive research support to students in the IT and cyber security programs by providing in-person library orientations for on-ground courses and embedded librarians who provide in-depth and individualized research support in online courses. Library faculty also offer virtual drop-in Zoom research support, 24/7 chat support, and meet with students both in person and virtually by appointment to support lower- and upper-division research needs.



**Standard III: Resources**

<b>Please describe the staffing plan to support the proposed program.</b>																																																												
<b>Faculty:</b>																																																												
<p>Cerro Coso Community College maintains a qualified group of faculty members to teach a full range of baccalaureate courses, both in the major and general education. The Information Technology department employs seven full- and part-time faculty who possess not only the required higher education degrees but also industry certifications and specialized training. One additional full-term person on the tenure track was just recently hired in April 2023 (to begin 23-24 academic year) to bring the number to eight. The college employs full-time faculty with expertise in the upper-level general education classes that have been written to support the program. At the lower-division, as a fully accredited two-year-school that already graduates over 100 students each year in information technology-related certificates and associate degrees, Cerro Coso Community College has a demonstrated ability to sufficiently provide lower-division education, both in the major and in general education.</p> <p>As the program gets underway, the college intends to hire an additional full-time faculty member as well as ensure that enough part-time faculty resources are available to cover the additional 1.533 load that the program requires every fall semester at the baccalaureate level. Of that total, a load of 1.267-- or slightly less than two part-time instructors--are required to fully staff the remaining offerings in the major classes (the remaining 0.267 is a general education class).</p> <p>The following chart shows the faculty load for the major classes when the program has reached maturity with all four years offered. With its seven full- and part-time instructors, the department currently employs enough faculty resources to teach the program but, as mentioned, will be looking to hire an additional full-time instructor prior to implementation of the baccalaureate classes proper in year 3 (Fall 2024). <a href="#">[Doc 20]</a></p>																																																												
<p><b>FACULTY LOAD</b></p> <p><b>FALL CLASSES</b></p> <table border="1"> <thead> <tr> <th>Year 1</th> <th>Year 2</th> <th>Year 3</th> <th>Year 4</th> <th></th> </tr> </thead> <tbody> <tr> <td>0.333</td> <td>0.333</td> <td>0.333</td> <td>0.333</td> <td></td> </tr> <tr> <td>0.400</td> <td>0.267</td> <td>0.333</td> <td>0.333</td> <td></td> </tr> <tr> <td></td> <td>0.333</td> <td>0.333</td> <td>0.333</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>0.267</td> <td></td> </tr> <tr> <td><b>0.733</b></td> <td><b>0.933</b></td> <td><b>1.000</b></td> <td><b>1.267</b></td> <td><b>3.933</b></td> </tr> </tbody> </table> <p><b>SPRING CLASSES</b></p> <table border="1"> <thead> <tr> <th>Year 1</th> <th>Year 2</th> <th>Year 3</th> <th>Year 4</th> <th></th> </tr> </thead> <tbody> <tr> <td>0.333</td> <td>0.267</td> <td>0.333</td> <td>0.200</td> <td></td> </tr> <tr> <td>0.333</td> <td>0.333</td> <td>0.333</td> <td>0.200</td> <td></td> </tr> <tr> <td>0.333</td> <td></td> <td>0.333</td> <td>0.333</td> <td></td> </tr> <tr> <td><b>1.000</b></td> <td><b>0.600</b></td> <td><b>1.000</b></td> <td><b>0.733</b></td> <td><b>3.333</b></td> </tr> </tbody> </table>						Year 1	Year 2	Year 3	Year 4		0.333	0.333	0.333	0.333		0.400	0.267	0.333	0.333			0.333	0.333	0.333					0.267		<b>0.733</b>	<b>0.933</b>	<b>1.000</b>	<b>1.267</b>	<b>3.933</b>	Year 1	Year 2	Year 3	Year 4		0.333	0.267	0.333	0.200		0.333	0.333	0.333	0.200		0.333		0.333	0.333		<b>1.000</b>	<b>0.600</b>	<b>1.000</b>	<b>0.733</b>	<b>3.333</b>
Year 1	Year 2	Year 3	Year 4																																																									
0.333	0.333	0.333	0.333																																																									
0.400	0.267	0.333	0.333																																																									
	0.333	0.333	0.333																																																									
			0.267																																																									
<b>0.733</b>	<b>0.933</b>	<b>1.000</b>	<b>1.267</b>	<b>3.933</b>																																																								
Year 1	Year 2	Year 3	Year 4																																																									
0.333	0.267	0.333	0.200																																																									
0.333	0.333	0.333	0.200																																																									
0.333		0.333	0.333																																																									
<b>1.000</b>	<b>0.600</b>	<b>1.000</b>	<b>0.733</b>	<b>3.333</b>																																																								
<b>Staff:</b>																																																												

The college maintains sufficient support staff. As a full-service community college, Cerro Coso Community College employs 75 classified staff members and 24 managers across three divisions of instruction, student services, and administrative services, each headed by a college vice president.

Sufficient support staff for student services, learning support services, and library services are outlined above. It should be added that, since the program will be offered in distance education format, that online students at Cerro Coso Community College are further supported by a highly innovative distance learning office. Staffed by a full-time director and a web programmer who have each been with the college for more than 10 years, [CC Online](#) has as its mission to create innovative and cost-effective solutions to overcome challenges in online learning, in part by constantly assessing the effectiveness of distance education programs and improving their quality and productivity. This has led to viewing online classes less as Canvas shells and more as entire educational ecosystems for students and faculty. Scripts have been revised to embed college student services icons directly into the Canvas interface; email icons have been added to the global navigation to facilitate students not having to leave the interface for important and timely information from financial aid, tech support, wait list notifications, etc.; and an entire pop-up management system was designed with faculty involvement so faculty can determine what notifications go out through pop-ups and how often.

**Administration:**

The dean of career technical education and the vice president of instruction are the responsible administrators overseeing the programs in this report. These positions provide the leadership and supervision necessary to ensure that CTE courses and programs—whatever the level—adhere to all relevant planning and assessment processes of the college and that all appropriate stakeholders are involved. The director of distance education is also a direct report to the vice president of instruction, keeping channels of communication direct and open. The division does not anticipate any complications to this structure caused by the proposed program.

**Provide faculty qualifications**

It's a little unclear if this prompt is for the qualifications of particular faculty instructors who are slated to teach in the program or if the idea is to list specific faculty qualifications unique to the program. We will address the first and hope that in doing so we might address the second if we guessed wrong.

**Faculty Member 1** holds two master's degrees (Computer Science and Information Assurance and Security) and has over twenty years of experience in information technology and cyber security in a variety of industries including both K12 and higher education. Currently he works for a cyber security technology company that provides cloud workload and endpoint security, threat intelligence, and cyberattack response services. He holds many industry certifications including GIAC Security Operations Manager (GSOM), CompTIA Pentest+, CrowdStrike Certified, Falco Administrator (CCFA), GIAC Security Leadership (GSLC), Magnet Certified Forensic Examiner (MCFE), EnCase Certified Examiner (EnCE), and Certified Information Systems Security Professional (CISSP).

- M.S., Computer Science, Capitol Technology University
- M.S., Information Assurance & Security, Capella University
- B.S., Information Technology, Capella University

**Faculty Member 2** holds a master's degree in information technology and has eighteen years of experience in the information technology and cyber security areas in multiple industries including education, banking, healthcare, and government. He is currently a Supervisory IT Specialist, NM-04 Cybersecurity Branch Head for the Naval Air Warfare Center at China Lake. He has been a member of the IT/Cyber adjunct faculty since 2008. He holds the following industry certifications: Certified Information Systems Security Professional (CISSP), Certification Amazon Web Services (AWS), Certified Cloud Practitioner (CLF), Ocularis 5 Certification, Xirrus Certified Wireless Technician, Microsoft Certified Professional, and Global Information Assurance Certification (GIAC) Security Essentials (GSEC) Certification.

- M.S. Information Technology
- B.S. Information Technology with an emphasis on Network Administration
- A.A. General Education

**Faculty Member 3** holds a Doctor of Business Administration, specialization in Business Quantitative Methods, a master's degree in business. He has been teaching in the information technology and cyber security program for over 25 years. He was one of the leaders in the development of the Cerro Coso Community College CC-Online program starting in the 1990s and is recognized as a leader in online education.

- PhD: Doctor of Business Administration, specialization in Business Quantitative Methods
- M.S. Business Administration
- B.S. Business Administration: Information Systems, Statistics

**Faculty Member 4** holds a Master of Business Administration with a concentration in Information Systems and a bachelor's degree in Bachelor of Arts in Economics. Hired in Spring 2023, he will join the full-time Cerro Coso faculty in August. He is a business and information technology professional offering over twenty years' combined experience in software leadership, testing, business analysis, technical writing, corporate training, and academic instruction in both public and private sectors. He has extensive software testing experience with enterprise customer care, financial, and billing systems and associated technologies including application lifecycle, configuration, and database management systems. He has been actively engaged with information technology personnel in ensuring cyber security awareness and compliance for colleagues on team computer assets at the Naval Air Warfare Center at China Lake. Proficient in multiple operating systems, including Windows, macOS, and UNIX variants. He is familiar with a variety of software development disciplines (system analysis and design, development, project management), methodologies (waterfall, Agile), languages (HTML, C++), and tools (version control, virtual machines, emulators). Skilled in Microsoft Office core applications, as well as Visio, Project, and SharePoint. Affinity and passion for information technology as a long-time computer user and early adopter. He has teaching classes in business, information technology, and economics at university and community college levels across a variety of modalities. Corporate instructor, delivering in-person software training to multi-disciplinary teams of telecommunications and defense professionals.

- Master of Business Administration with concentration in Management Information Systems, California Polytechnic State University
- Bachelor of Arts in Economics, University of California; Irvine, California.

**Faculty Member 5** holds a bachelor's degree in computer science and has over 25 years of supporting the Department of the Navy Information Technology (IT) strategy, development, and deployment of IT systems, cybersecurity, and networks. He holds the following industry

certifications: Technical Project Management (UCLA), IBM Rational Tools, CompTIA Security+, Solaris UNIX and LINUX, Oracle Database Administration, Microsoft Workstations and Server, and General Dynamics Taclane Encryption.

- B.S. Computer Science, Chapman University

**Faculty Member 6** is in the final stages of completing her bachelor's degree in Homeland Security and Cyber Security, has over 18 years of progressive experience starting as a network technician, and currently is the Branch Head for Cyber Platforms at the Naval Air Warfare Center at China Lake. Additionally, she served two years in Afghanistan supporting United States Operation Enduring Freedom performing Intelligence surveillance and reconnaissance cyber security. She holds the following industry certifications: ISACA- Command Information Security Manager (CISM), CompTIA Security+ CE, Systems Acquisition Management, Cisco Certified Network Associate (CCNA), Cisco Certified Network Associate Security (CCNA Security), VMware 5.1, Fully Qualified Navy Validator - 2010 National Initiative for Cybersecurity Careers & Studies (NICCS), and Fully Qualified Navy Certifier.

- Licensed Vocational Nursing A.S., Grand Rapids Community College
- Information Technology B.S. GW (Pending)

**Faculty Member 7** holds a master's degree in educational technology and a bachelor's degree in history with a minor in political science. She has worked at the college full-time since 2001 and worked as an adjunct for eight years prior to being hired full-time. She teaches Computer Information Systems, the baseline classes in the information technology/cyber security curriculum. Prior to working at the college, she worked for 17 years at the Naval Air Warfare Center at China Lake. She also worked in other industries including manufacturing and research and development. She was the lead in this application for faculty coordinating course and program development.

- M.S Educational Technology, Pepperdine University
- B.A History, minor in Political Science, University of California, Davis

**Faculty Member 8** holds a Bachelor of Science degree in Information technology and has over 23 years of experience from basic IT support to system specialist in networking in the educational setting. He holds the following certifications: CompTIA A+, CompTIA Network+, CompTIA Security+, CompTIA Cloud+ Essentials, and Microsoft Technology Associates (MTA).

- B.S., Information Technology, Bellevue University
- A.S., Computer Information Systems, Cerro Coso Community College
- A.S., Web Design, Cerro Coso Community College
- A.S., Cyber Security Technology, Cerro Coso Community College

<b>Explain the impact on the following resources:</b>
<b>Physical Resources</b>
The college has sufficient physical facilities. Because the program is to be offered in online mode, facilities requirements are minimal. All lectures, discussions, and laboratory learning simulations are designed to be conducted through distance education. Nevertheless, Cerro Coso Community College maintains a state-of-the-art computer technology laboratory at its Ridgecrest Indian Wells Valley campus that supports the college's programs in information technology and cyber security. These programs share the first four classes in the sequence (IT C101, C142, C143, and C146), and the classes are offered in this physical space once a year for students in the local area who prefer in-person instruction for foundational skills. But the space also doubles as a hands-on laboratory for learning support for online students who come to campus.
<b>Technology</b>
<p>The college has sufficient technology equipment. A cyber security laboratory at the Ridgecrest main campus opened in the Fall 2022 and includes Windows and Apple workstations, laptops, iPads/Surface Pros, server racks, and network and technician tool kits. The work benches are on all wheels in order for instruction to be customized to the needs and topics that are being taught during specific weeks. The standard hardware will use software applications to assist with simulations or use virtual environment using VMware. The VMware virtual environment can be created on current workstations, thus saving space and money for every student. Every student has access to and or has a desktop workstation or laptop with the appropriate operating system and the ability to access applications, such as Microsoft Word, PowerPoint and Excel. They have the ability to access, and/or download VMware and create a virtual environment. During this class, they use a browser to access the internet, in order to research topics and access other CCCC (Cerro Coso Community College) websites and student sites.</p> <p>Keeping the equipment current is important to be able to teach students using state-of-the-art techniques to secure networks in the ever-changing cyber security landscape. Hackers are continually evolving their approach and so we must continue to evolve ahead of the hackers. We use all three operating systems including Windows, Apple OS and Linux in our instruction. Updated software and software tools and simulators are also a need of the program. We leverage our partnerships with Microsoft, CompTIA, VMware, Red Hat and Cisco to provide our students with free use of current and past operating systems, applications, and tools for instruction. If the college is successful in obtaining a baccalaureate program, it will need to purchase some additional hard drives to use for simulations and virtualizations.</p>
<b>Equipment</b>
Because the program's anticipated equipment is almost exclusively in the technology arena, see above. As for any other equipment needs (lab furniture, etc.), the department has the opportunity through the integrated planning process to annually submit equipment and supply requests and have them considered for resource allocation.
<b>Explain the impact on financial resources. Provide a budget showing evidence the institution has the capacity to start and maintain the proposed program.</b>

As the program will be offered initially online, the college does not anticipate any significant financial impact beyond the initial outlay of expenditures for academic salaries and benefits (starting in 22-23), which it expects to receive back as revenue in succeeding years. As mentioned above, the associate-degree-level personnel have already been hired as a result of the growth the program has seen in the last several years. Aside from the academic salaries, a small amount of funds will be used for supplies, equipment, and software licenses.

A projected budget has been prepared for the program's first six years (four after the start of the baccalaureate courses proper). [[Doc 20](#)]

<b>Cost Estimates</b>	<b>2022-23</b>	<b>2023-24</b>	<b>2024-25</b>	<b>2025-26</b>	<b>2026-27</b>	<b>2027-28</b>
<i>Associate Degree (current estimated expenses)</i>						
1000s Academic Salaries (1 full-time @ 1.000; part-time/overload @ 0.667)	\$85,168	\$108,897	\$111,079	\$113,316	\$115,609	\$117,489
3000s Employee Benefits	\$37,984	\$43,228	\$43,704	\$44,193	\$44,694	\$45,188
4000s Supplies & Materials	\$7,500	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
5000s Services/Operating Expenses	\$14,500	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000
6000s Equipment	\$500	\$500	\$500	\$10,000	\$500	\$500
<b>Total Estimated Cost for Associate</b>	<b>\$145,652.20</b>	<b>\$161,625.40</b>	<b>\$164,283.84</b>	<b>\$176,509.83</b>	<b>\$169,803.75</b>	<b>\$172,177.95</b>
<i>Bachelor's Degree (estimated additional expenses)</i>						
1000s Academic Salaries (1 additional full-time; additional part-time/overload @ 1.333)	*	*	\$92,488	\$130,497	\$132,679	\$134,916
3000s Employee Benefits	*	*	\$39,604	\$48,006	\$48,482	\$48,971
4000s Supplies & Materials	*	*	\$3,000	\$3,000	\$3,000	\$3,000
5000s Services/Operating Expenses	*	*	\$6,000	\$6,000	\$6,000	\$6,000
6000s Equipment	*	*	\$500	\$500	\$500	\$500
<b>Total Estimated Cost for Bachelor</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$141,592</b>	<b>\$188,003</b>	<b>\$190,661</b>	<b>\$193,387</b>
<b>Estimated Net Cost for Full Program (Associate + Bachelor)</b>	<b>\$145,652</b>	<b>\$161,625</b>	<b>\$305,876</b>	<b>\$364,513</b>	<b>\$360,465</b>	<b>\$365,565</b>
<b>Revenue Estimates</b>						
<b>2022-23</b>	<b>2023-24</b>	<b>2024-25</b>	<b>2025-26</b>	<b>2026-27</b>	<b>2027-28</b>	
<i>Associate Enrollment**</i>						
20	38	42	46	50	54	
Base Credit* (\$4,840 per FTES)	*	\$86,290	\$155,986	\$172,248	\$188,511	\$204,773
Supplemental Allocation* (\$1,145/student eligible)	*	\$13,740	\$26,106	\$28,854	\$31,602	\$34,350
CTE +9.0 units* (\$645 per student)	*	\$12,900	\$24,510	\$27,090	\$29,670	\$32,250
Associate Degree* (\$1,935 per completer)	*	*	\$24,768	\$27,864	\$29,412	\$32,508
<i>Bachelor Enrollment**</i>						
		20	40	44	48	
Additional \$84/unit	*	*	\$31,920	\$66,864	\$73,584	\$80,304
Base Credit* (\$4,840 per FTES)	*	*	*	\$122,797	\$233,647	\$256,879

Supplemental Allocation* (\$1,145 per student eligible)	*	*	*	\$13,740	\$27,480	\$30,228
CTE +9.0 units* (\$645 per student)	*	*	*	\$12,900	\$25,800	\$28,380
Baccalaureate Degree* (\$2,580 per completer)	*	*	*	*	\$31,347	\$34,830
<i>Additional Funding</i>						
Categorical Funding (Strong Workforce, Perkins, Other)	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000
<b>Estimated Revenue/Funding Potential</b>	<b>\$40,000</b>	<b>\$152,930</b>	<b>\$303,290</b>	<b>\$512,358</b>	<b>\$711,054</b>	<b>\$774,503</b>
<b>Estimated Net Revenue (Revenue minus Costs) for Full Program (Associate + Bachelor)</b>	<b>(\$105,652)</b>	<b>(\$8,695)</b>	<b>(\$2,585)</b>	<b>\$147,845</b>	<b>\$350,588</b>	<b>\$408,937</b>

\* SCFF allocations applied in the subsequent year; dollar amounts based on 2022-23 Advance Rates; supplemental allocation assumes 60% of students eligible per college average

\*\* Enrollment projections assume 80% retention per year at associate-level, 90% retention per year at baccalaureate level

## Standard IV: Leadership and Governance

### **Describe the leadership and governance structure that will ensure academic quality and institutional effectiveness are sustained and maintained.**

The college is headed by a president who plans, oversees, and evaluates an administrative structure organized and staffed to reflect the college's rural and distributed nature. The president delegates authority to administrators and others consistent with their responsibilities, particularly to the organization's three vice presidents—instruction, student services, and administrative services—and to members of the president's cabinet in the area of human resources, information technology, and marketing/public relations.

Cerro Coso Community College's [2019-2021 Participatory Governance Model Handbook](#) specifies the manner in which students, faculty, staff, confidential management, and administrators work together through appropriate committees and other work groups to make recommendations for decision-making. As demonstrated in the college's last institutional self-evaluation process, administrators and faculty have a clearly defined role in institutional governance and exercise a substantial voice in institutional policies, planning, and budget that relate to their areas of responsibility and expertise. Faculty and educational administrators have responsibility for recommendations about curriculum and student learning programs and services. Processes for decision-making the results of decision-making are broadly communicated. And the college's governance and decision-making policies, procedures, and processes are regularly evaluated to assure their integrity and effectiveness. In fact, at the time of the submission of this substantive change proposal, the Participatory Governance Model Handbook is undergoing a comprehensive review, gap analysis, and updating with an expected completion date of Fall 2023.

Directly pertinent to this proposed baccalaureate degree--specifically to the maintaining of an environment that ensures academic quality and institutional effectiveness--are the participatory governance committees of the Technology Resource Team and Institutional Effectiveness, as well as the constituency of the academic senate. TRT's purpose is to recommend technology practices, procedures, standards in planning the areas of instruction and information with the goal of advancing technology in the areas perceived as beneficial by college departments, faculty, staff, and students. The charge of IEC is to provide oversight to the college processes that develop and maintain sustainable continuous quality improvement in the areas of planning, outcomes assessment, program review, and accreditation--and to do so in part by fostering the collaboration of faculty, staff, and administration around institutional effectiveness initiatives. The academic senate makes official recommendations regarding academic and professional matters related to educational programming. At the Kern Community College District, the relationship is one of relying primarily upon the recommendation of the academic senate. All the committees and constituent groups in the Participatory Governance Model Handbook are all active and report regularly at each College Council meeting.

### **Describe the internal approval process.**



The first hurdle of the college's internal review process is approval by the curriculum committee. At this level, the baccalaureate program is afforded the same treatment as all other programs. Curriculum at Cerro Coso Community College complies with the Kern Community College District Board Policy BP 4020, which states that the "programs and curricula of the District shall be of high quality, relevant to community and student needs, and evaluated regularly to ensure quality and currency" by means of established procedures designed to ensure

- appropriate involvement of the faculty and Academic Senate in all processes;
- regular review and justification of programs and course descriptions;
- opportunities for training for persons involved in aspects of curriculum development;
- consideration of job market and other related information for career and technical education programs.

While in the process of being reviewed by the curriculum committee, the program is presented as an information item to the academic senate. Less formalized, if a program is unusual, significantly different from a previous program, or managed to generate some campus interest, it might additionally be presented at College Council.

As noted in the planning section above, the Cyber Security Technology Bachelor of Science degree was approved by the curriculum committee on April 20 (evidence shows agenda, minutes not available yet), presented to the academic senate on March 2, and reviewed at College Council on April 20. [[Doc 14](#), [doc 15](#), [doc 13](#)]

After passing through the curriculum committee, all curriculum proposals, including new programs, are reviewed by the vice president of instruction and by the college president. This is according to KCCD Administrative Procedure 4020, which states: "Final recommendations for program additions and modifications from the College Curriculum Committee shall be recommended to the College Chief Instructional Officer who shall make a recommendation to the College President. The College President shall then submit a recommendation to the Chancellor for approval by the Board of Trustees."

The curriculum recommendation is then agendaized for an upcoming Board of Trustees meeting (usually the next), when it is voted upon.

#### **Describe the external approval process (state/federal approvals, etc.).**

In California, new programs in a workforce area are submitted to a regional consortium (Central Valley/Mother Lode Region for Cerro Coso Community College) for review and endorsement before being forwarded to the California Community College Chancellor's Office for submission and charting (provided it is approved by the local governing board in the meantime). For baccalaureate degrees, the region's role is to vote on the proposed program and then provide a letter of approval/support to go along with the formal application. The college received this letter of support on March 27, 2023. [[Doc 21](#)]

At this time in California, proposed baccalaureate degrees are submitted to the system office, where they undergo a competitive application process. Under current law, up to 15 bachelor's degrees are approved twice a year during an August and January application window.

In addition to many of the same considerations as ACCJC's, the Chancellor's Office application requires the following to be addressed/provided:

- Evidence of consultation with regional employers
- Statement of Zero-cost textbook and open educational resource availability
- Evidence of consultation with the CSU and UC systems
- Non-duplication analysis (by law, community college baccalaureate degrees must not duplicate baccalaureate programs in either of the other two systems)
- Description of articulation and program transfer

The application is reviewed, scored with a rubric, and then either approved or not approved by the Board of Governors. If approved, the college notifies ACCJC, and ACCJC in turn notifies the Department of Education so that students are eligible for federal financial aid.

## Evidence

**Please include documentation that will help the Committee understand the process by which the change was developed, such as former and proposed mission and/or objectives, summary of discussions and approvals with campus constituents, (Board of Trustees, Academic Senate, students, community members), strategic plans, financial plans, copies of Board minutes, as appropriate, copies of draft legal documents regarding the new location, copies of draft legal documents dealing with matters of facilities and other institutional property, as appropriate. Please include documentation of all state and/or federal approvals, as appropriate.**

[Doc 1 - Information Security Analysts Occupational Outlook Handbook – US BLS – Similar Jobs Table](#)

[Doc 2 - March 1 Industry Professional Review Minutes](#)

[Doc 3 - Cyber Security Substantive Change Proposal, January 2017](#)

[Doc 4 - Cerro Coso 2017 02 27 SubChgLtr New Programs & New Location](#)

[Doc 5 - Lightcast Job Posting Analytics - 6 Occupations in 3 California Counties](#)

[Doc 6 - Center of Excellence Labor Market Report, March 2023](#)

[Doc 7 - Cyberseek Cybersecurity Supply and Demand Heat Map](#)

[Doc 8 – Cyber Security Interest Survey, March-April 2023](#)

[Doc 9 – Cerro Coso Cyber Security Enrollment and Completion Data Disaggregated](#)

[Doc 10 - Mission and Guiding Principles](#)

[Doc 11 - Strategic Plan 2021-2024](#)

[Doc 12 - 2022-2023 CCCC Aerospace and Defense Industry Workplan](#)

[Doc 13 - Curriculum Committee Agendas, Feb 24, Mar 10, Mar 24, Apr 7, Apr 21](#)

[Doc 14 – Academic Senate Minutes 03 02 2023](#)

[Doc 15 – College Council Draft Minutes, April 20, 2023](#)

[Doc 16 – Board Presentation \(final\)](#)

[Doc 17 – IT-Cyber Program Review FINAL version March 16 2022](#)

[Doc 18 - Enrollment, Student Success with Equity Targets Tactics 12.13.2022](#)

[Doc 19 - CCCCCO Approval Notification.pdf](#)

[Doc 20 - Proposed Budget for Cyber Security Technology BS \(draft for board presentation 20230511\)](#)

[Doc 21 - Cybersecurity CC CRC Support](#)