

# Application: Moorpark College

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Excellence and Equity in Community College STEM Award



## Section 1: Program Application Instructions

**Completed** - Dec 5 2019

You may submit applications for up to two (2) programs for consideration for the Excellence and Equity in Community College STEM Award.

If you are not the main point of contact for a program, you will need to invite the program contacts as “Collaborators” to work on their respective applications.

Eligible programs must meet the following criteria:

- **Credential Types:** Programs must confer associate’s degrees (AA, AS, or AAS), or certificates that are Title IV eligible (generally 16 or more credit hours).
- **Scope:** Programs may include one or more credential(s), but should be geared toward a single career field (i.e., submitting the entire category of A.S. degrees is too broad, but an A.S. in advanced manufacturing is allowed) and have applicability to more than one employer (i.e., single-employer certifications are too narrow to be considered a standalone program).
- **Scale:** Serves a cohort of at least 20 students each year.
  - **Note:** You will be asked to provide disaggregated enrollment and outcome data for students by race/ethnicity, gender and Pell grant recipients, so please consider viability of reporting these data for the programs you select.
- **Industry Focus Areas:** Prepares students to directly enter a career in one of the following occupational areas:
  - Advanced manufacturing
  - Energy
  - Healthcare
  - Information technology

Notes to applicant:

1. To complete this application, it may be helpful to include a program lead (e.g., program head, program chair), someone who advises students, and an appropriate person from institutional research.
2. While each institution may submit up to two (2) program applications, these applications should come from different industry focus areas.

## Section 1: Program Registration

## INVITE APPLICATION COLLABORATORS

If you would like to invite a collaborator to help fill out this application for this program, please click on "Back to application" at the top left of this page. On the left, you will see an "Add" button next to "Collaborators."

### Institution Name:

Moorpark College

### Program Name:

Computer Network Systems Engineering

### CIP Code (2, 4, or 6 digit):

110901

### Industry Focus Area:

Information technology

*Note to applicant: While each institution may submit up to two (2) program applications, these applications should come from different industry focus areas.*

*If your program has run this award before, please note that you must select a different program to submit this cycle.*

### Program Contact Name:

Edmond Garcia

### Program Contact E-mail:

EGarcia@vcccd.edu



## Section 2: Program Narrative - Overview

Completed - Dec 5 2019

Please complete this application by no later than **11:59 PM EST on Thursday, December 5, 2019**. If you have any questions about this application, please contact Kaitlyn You at [Kaitlyn.You@aspeninstitute.org](mailto:Kaitlyn.You@aspeninstitute.org).

If you would like to invite a collaborator to help fill out this application for this program, please click on "Back to

application" at the top right of this page. On the left, you will see an "Add" button next to "Collaborators."

## Section 2: Program Narrative - Overview

### Program Narrative

# Overview

Note to applicant: Please adhere to word count limits. Text boxes will not permit excess characters.

1. Provide a brief description of your program, including the jobs/occupations for which this program prepares students you serve.

Maximum word count: 150

The Moorpark College Computer Network Systems Engineering (CNSE) Program trains students about specific technologies necessary to function effectively as a multi-platform network systems administrator/analyst. CNSE provides field-experienced instructors, hands-on training, simulations and online courses related to computer and network systems including hardware and software. Successful program completion qualifies individuals for beginning positions in networking administration, including cybersecurity and cloud-based employment.

The CNSE Program is a Cisco Academy, VMware Academy, Microsoft Academy, Palo Alto Academy, Redhat Academy, and an Amazon Web Services Academy. The program offers simulation technology using TestOut.com, a live remote equipment bank, 24/7 Lab using Practice-Labs.com, and a Safari O'Reilly online technical library subscription for all students. Most CNSE courses prepare students to pass industry certifications (e.g., CyberSecurity Administration). To keep pace with this growing and quickly changing industry, the Moorpark College CNSE program continually updates, revises, and develops its CNSE courses.

2. Describe the characteristics of the labor market in the college's region (e.g., number of existing and projected new jobs, recent economic shifts, major industries and employers, etc.). This will help to contextualize reviewers' understanding of the employment and earnings outcomes you provide.

Maximum word count: 200

The highest paid jobs in Ventura County, by median earnings, are Computer/ Mathematical Occupations, Computer, Engineering/Science Occupations, and Architecture/Engineering Occupations (Ventura County - Economic Vitality Strategic Plan 2019). The top five in-demand and emerging knowledge-required occupations for Ventura County include Network Engineer and CyberSecurity. Between 04/2016 and 02/2018, 840 unduplicated Ventura County jobs posted yielded only 340 hires within 14 IT/CIS/CS occupations, including 87 postings/37 hires for Network/Computer Systems Administrators, 58 postings/seven (7) hires for Information Security Analysts; 33 postings/27 hires for Computer/Information Systems Managers; 9 postings/7 hires for Computer Network Architects; four(4) postings/15 hires for Computer Network Support Specialists. The top four most frequently listed qualifications in the 840 job postings included in order: Certified Information Systems Security Professional, Certified Information Security Manager, CompTIA Security+ Certification, and Cisco Certified Network Associate. There are hiring gaps in the top 14 occupations for IT/CIS/CS fields now and projected through 2025. In Ventura County, the top 14 occupations with high 5-year growth include computer network support specialist (\$33.73/hr. Associates Degree entry level); Network and Computer Information Specialist Managers (\$58.19/hr.); Computer Network architects (\$57.68/hr.), computer network support specialists (\$37.08/hr.), network/computer systems administrators (\$39.64/hr.), and computer/information systems managers (\$64.42/hr.) [https://www.vcccd.edu/sites/default/files/files/departments/economic-development/j\\_it\\_cis\\_cs\\_labor\\_market\\_profile.pdf](https://www.vcccd.edu/sites/default/files/files/departments/economic-development/j_it_cis_cs_labor_market_profile.pdf).

3. Describe the demographic characteristics of the college's service area. How closely does the program's enrollment reflect the demographic composition of the service area? Of the institution? Be as specific as possible and reference available data (e.g., consider age, race/ethnicity, gender, income, etc.).

Maximum word count: 200

Moorpark College serves a diverse student population: Race/Ethnicity: white (46.6% - 8,465 students), Hispanic (35.9% - 6,519 students), Asian (8.3% - 1,515), African American (2.0% - 376), American Indian/Alaska Native (<1% - 43), Pacific Islander (<1% - 34), two or more ethnicities (5.3% - 970), ethnicity unreported (1.4% - 252).

[https://www.moorparkcollege.edu/sites/default/files/files/departments/administrative/student-learning/appendix\\_b-environmental\\_scan.pdf](https://www.moorparkcollege.edu/sites/default/files/files/departments/administrative/student-learning/appendix_b-environmental_scan.pdf)

According to EMSI Analyst, in 2017, residents in the college's service area include 63% white, 24% Hispanic, 9% Asian, and 1% African American, which indicates that the college draws a higher percentage of Hispanic and African American students than the general population of the feeder communities served. Moorpark College is pleased to report that 17.8% of students are first-generation college students. In 2018, 1,344 jobs were available for information security analysts, computer network support specialists, computer network architects and computer systems analysts, but by 2023, there is predicted to be 1,481 jobs, a 10.2% increase, even higher increase than the South Central Coast Region (7.9%) and the state (9.6%).

[https://www.moorparkcollege.edu/sites/default/files/files/departments/administrative/institutional-research/reports/2018\\_institutional\\_effectiveness\\_report\\_final\\_aug222018.pdf](https://www.moorparkcollege.edu/sites/default/files/files/departments/administrative/institutional-research/reports/2018_institutional_effectiveness_report_final_aug222018.pdf)

The CNSE program attracts males from underrepresented populations, particularly Hispanics, many with challenging backgrounds that posed numerous perceived barriers to completing a college degree and/or being qualified for a well-paying job.

Student Success Scorecard: <https://scorecard.cccco.edu/scorecardrates.aspx?CollegelD=681#home>

4. Describe any specific goals or targets the program has established for equity in access and success and the primary strategies in place to achieve those goals, including:

- Are there specific groups of students (students of color, gender groups, veterans, part-time students, etc.) that your program explicitly targets for increasing equity in access and success?
- What strategies has the program used to identify, conduct outreach to, and support those student populations?

- Describe the scale of these practices (e.g., # of students reached/supported by outreach or support strategies).
- Describe how the program measures the effectiveness of outreach and support strategies.

Maximum word count: 500

Target Equity Populations: Although all students are welcome in the CNSE program, the program was designed for students who may not have the academic background or aptitude to excel as a Computer Science major, but have technical and mechanical aptitude for system networking. The program is developing goals to reach specific student groups. Underrepresented groups that excel in the program include Hispanic males, veterans, economically disadvantaged and students with disabilities.

The overarching CNSE program goals are to:

1. Remove barriers to student success.
2. Provide continuous quality improvement within instruction strategies.
3. Engage students in learning every week.
4. Communicate frequently with students.
5. Challenge students by equipping them to set short-term goals, which leads them to long-term goals that exceed their initial expectation of their own accomplishments.

Outreach Strategies: When invited to speak about the program, Edmond Garcia, full-time CNSE faculty member, never says no. In fall 2019, he and his student Lab Tech spoke to the local Rotary Club and to a group of 100 high school students with disabilities (and their parents). He speaks annually to the new cohorts of students served through EOPS (economically disadvantaged students), Veteran Center Resources, and Access (students with disabilities) to inform them about CNSE. He frequently presents at Moorpark College Career Weeks, including a Middle School and High School Career Week.

Because the program provides scaffolded/stacked coursework and certifications, CNSE is especially helpful for equipping at-risk students who do not initially visualize themselves as earning a degree or achieving professional-level employment. After a student earns one certification, he or she may then pursue a second certification, then an Associate's Degree and eventually a bachelor's degree. Through an internship, they learn how valuable their skills are, which builds their confidence to pursue more education and employment. Accomplishing each step is possible due to built-in intensive support in the classroom, in the CNSE lab and through online support tools (e.g., access to computer stacks, practice tools to review at home, extensive review and practice tests for each certification, individual monitoring of missing assignments or low performance).

Scale of Students Reached: Since its inception, CNSE serves approximately 341 students annually. The demographics of CNSE students in 218-2019 include: 85% male, 15 % female, 37 % Hispanic, 40 % Caucasian, 14 % Asian, 3 % African American, and 6 % two or more races, 7% veteran, 2% EOPS, 7%

Access qualified.

The program uses a variety of efforts to reach disproportionately impacted students. Those efforts include outreach to area high schools and middle schools. The program has hosted the Mayor's Cup, part of a statewide cyber competition. The effort drew students from local high school and middle schools and included a team organized by an area Boys & Girls Club.

5. Describe if/how the broader institution's equity goals and strategies inform or support program strategies, and/or how effective program-level strategies are leveraged to advance broader institutional practices and goals.

Maximum word count: 300

With a “students first” philosophy, Moorpark College is committed to the ongoing and continuous improvement of student learning outcomes. The college is dedicated to decreasing the equity gap for underrepresented populations by at least 40% by 2023-2024 and fully closing the achievement gaps by 2026-2027. Interventions to meet this goal include outreach expansion to underrepresented groups by developing culturally-sensitive relevant marketing literature, creating a student ambassador outreach team to recruit in target communities to encourage college enrollment and targeting onboarding for underrepresented groups at the local schools. Three campus initiatives have produced positive outcomes for underrepresented groups.

Guided Pathways to Success (GPS): Moorpark College noted a high rate of Hispanic, low-income, and/or first-generation students who applied to Moorpark and had been admitted to the college, but who did not attend in the fall after high school graduation. Therefore, in 2019 target Hispanic and first-generation students attended a summer orientation learn college success strategies. Students received preferential course enrollment (e.g., zero or low-cost textbook sections) and guidance throughout the school year to increase their engagement and persistence rates.

Career Transfer Center: The college has a strong, strategic focus on work-based learning that is executed through the campus Career Transfer Center. The center establishes links with area businesses and helps with the placement of interns throughout the community.

The CNSE program incorporates the efforts of both the GPS program and the Career Transfer Center. Lead faculty member Ed Garcia holds extended laboratory hours designed to give students a place to work on their skills. The lab hours also allow Garcia to counsel students about academic and career options and to connect them with outside resources. The program also consistently places interns into positions that frequently end with job offers.

6. Explain the rationale behind your credential offerings and program design. In your response, consider:

- How did you determine which credentials/courses to offer?



- How does the program address the barriers to access and success that students may face (e.g., where and when instruction is delivered, length of program, etc.)?
- To what extent does the program prescribe how students should move through specific course sequences? Are these structured or "guided" pathways in the program that are clearly communicated to students?
- Are there any opportunities for students to earn credentials as they progress towards a degree (i.e., "stackable" credentials)? If so, do those credentials have stand-alone market value?

Maximum word count: 400

Rationale for credentials/courses offered:

The CNSE program goal is to provide a relevant program that attracts new students to pursue training and a career in the field and attracts past students to return for additional certifications to increase their upward mobility at work. The CNSE track offers courses and certifications to prepare students to work as Network Analysts and Network Architects.

The Cyber Investigations and Computer Forensics Certificate, launched in fall 2018 in response to high industry demand, provides the certifications and skill set needed to obtain an entry-level job in cybersecurity (e.g., Computer Forensics, IT essentials, security, legal aspects of cyber investigations and evidence, internship). The program/college petitioned the state for formal approval of the program.

Addressing barriers to access and success :

Employed Students with Scheduling Conflicts: Many students in the CNSE program juggle college commitments and work, so 100% online and hybrid courses are offered in addition to traditional classes.

Economically Disadvantaged Students: For low-income students, the cost of certification tests can be daunting, ranging from \$200 to \$1,000. To help offset the cost and to motivate students to be fully prepared before testing, the CNSE department offers reimbursement for qualified students for the cost of certification tests after they pass. Currently, the faculty is funding the reimbursements through student services offices (e.g., EOPS, Veterans Resource Center). Recently the Regional Deputy Sector Navigator located a funding source for exam vouchers for certification test.

Course Sequencing/Guided Pathways:

In 2020, Moorpark College will launch its new Guided Pathways - educationally coherent program maps (e.g., specific course sequences) aligned with educational next steps and workforce expectations (<https://www.caguidedpathways.org/>). CNSE students may earn one certification, a Proficiency Award (e.g., Microsoft, Help Desk) or an AS degree in either CNSE and CyberSecurity. AS Degree students must complete identified Block 1 courses to establish subject foundations before taking Block 2 courses for field proficiency. CNSE AS Degree students also select Block 3 elective courses after Block 2 completion. The format (e.g., online), level of difficulty (basic to very difficult), and certification opportunity of each

class are provided. (<https://www.moorparkcollege.edu/departments/academic/computer-network-systems-engineering/cnse-as-degree-requirements>).

Opportunities to earn credentials:

With no prior IT experience, students can receive up to six stackable Technology Certifications (e.g., Networking,), up to five stackable CyberSecurity Certificates (e.g., penetration testing focus, CyberSecurity Administration, Cloud focus). Students earn certifications as they progress toward an AS degree in Computer Network Systems Engineering or CyberSecurity. Each certificate has stand-alone market value.



## Section 2: Program Narrative - Outreach and Onboarding

Completed - Dec 5 2019

## Section 2: Program Narrative - Outreach and Onboarding

Program Narrative

# Outreach and Onboarding

7. Describe the specific elements of program outreach that promote diverse student access and enrollment for this program, including any specific messages and/or communication strategies used.

Maximum word count: 250

The full-time faculty member, Edmond Garcia, and the student Lab Tech are Hispanic and rose from challenging backgrounds, which creates a climate of giving back and lifting up the next generation of rising Hispanic leaders in the field. Their passion and optimism are contagious and encouraging to underrepresented populations. Ed Garcia and the Lab Tech speak at schools, college support services (EOPS, ACCESS) and Career Week to motivate underrepresented population members to pursue a college education and well-paying career.

Their specific messages include the following:

- CNSE directly prepares students for well-paying jobs where the demand outpaces available workforce in Ventura County ([https://www.vcccd.edu/sites/default/files/files/departments/economic-development/j\\_it\\_cis\\_cs\\_labor\\_market\\_profile.pdf](https://www.vcccd.edu/sites/default/files/files/departments/economic-development/j_it_cis_cs_labor_market_profile.pdf)).
- Local employers are eager to provide internships, including paid internships, which often lead to jobs.
- Ventura County labor market data provided in Section 2 Question 2 and the following information:
  - o The top four most important IT skills for 2019, determined by highest-paying job roles, highest-paying certificates, most challenging hiring areas due to skill gaps, and top tech investment areas include: cloud computing, cybersecurity, networking and wireless connectivity (<https://www.globalknowledge.com/us-en/resources/resource-library/articles/the-10-most-important-it-skills-for-2019/>).
  - o Worldwide public cloud revenue is forecasted to grow 17% in 2020, because next-generation solutions are almost always cloud-enhanced. <https://www.gartner.com/en/newsroom/press-releases/2019-11-13-gartner-forecasts-worldwide-public-cloud-revenue-to-grow-17-percent-in-2020>
  - o Certifications and/or an Associates Degree yield excellent jobs.

8. Describe how the program or the institution provides guidance for students to select a program of study, as well as any specific efforts to ensure that underrepresented populations are given information that helps them enroll in programs that lead to strong labor market outcomes. Reference specific information or data shared with students to guide program selection.

Maximum word count: 300

Moorpark College has a high rate of completion and transfer; achieved through multiple advising efforts (e.g., drop-in counseling). Students are encouraged to make advising appointments for in-depth advisement (e.g., class scheduling, major information, education/transfer planning, career counseling). College staff/faculty understand that students face diverse needs, including educational and financial challenges. Advising is critical to address barriers to success.

Lead faculty member Ed Garcia understands that his job is to challenge students to reach for the next level up. He tracks information technology jobs, cyber security jobs and cloud computing jobs in the region. The program works with local industry members to ensure that training remains current in the dynamic field. Garcia adjusts courses to align with the changes in job requirements and adds new industry-desired certificates to the program. Garcia has organized the program with an emphasis on open access laboratory hours. The lab becomes a gathering place for students working on projects and seeking career advice. When students are informally discussing career options, Garcia will interject and add additional and needed college-related perspective and information. Garcia also works with the college's counseling department to ensure that its staff has information on the program's curriculum pathways and certificate tracks.



## Section 2: Program Narrative - Teaching and Learning

Completed - Dec 5 2019

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### Program Narrative

# Teaching and Learning

9. Describe how your program ensures that all students are learning, and that the curriculum is aligned to the needs of employers. In your response, please consider:

- How your program ensures work-based learning (e.g., internships and apprenticeships, student

access to equipment in class, etc.).

- How your program teaches and assesses acquisition of “professional skills” (e.g., written and verbal communication, teamwork, time management, professional conduct, etc.).
- How your program works to ensure that learning opportunities are equitably delivered to all students, including any underrepresented student groups noted in this application.

*Maximum word count: 300*

The CNSE program is very intentional about raising up students who may have educational skill gaps and learning challenges. Course material is reinforced through repetition through multiple modes to accommodate visual/kinesthetic learners (e.g., handouts, demonstrations, simulations, hands-on application, group projects, review materials). The CNSE Lab is open 9:30am-8:00pm. The student Lab Tech helps struggling students.

Support Strategies for Coursework/Certification Success:

- The CNSE Lab provides an authentic equipment rack hosted on the Internet, so practice labs are available for most CNSE courses. Students work in groups to complete lengthy projects.
- Product Portfolio Practice Labs subscription is funded by the Regional Deputy Sector Navigator, so that students can practice at home.
- Cisco Packet Tracer 7.x online is an authentic Cisco network simulation tool available from a web browser, enabling students to review for certification tests.
- TestOut is practice test product for certifications.
- IT courses with video demonstrations and simulations for every course.

Work-Based Learning:

Internships are a key component of CNSE programs (40 students per semester) and highly structured, including faculty site visits to launch and complete each intern experience.

Professional Skills:

1. Grading rubric measures five categories, including professional English.
2. Built in leadership skills through assignment of a different lead for group projects weekly.
3. Students are not permitted to communicate on Canvas or other formats using text abbreviations.
4. Professionalism is modeled by instructors and peer leaders.

Equitable Learning Opportunities:

The CNSE program equips students to enter the workforce through certifications and/or an AS degree. Students are strongly encouraged to transfer to a four-year institution. Students from underrepresented groups receive encouragement/individualized assistance to be transfer-ready and apply to universities

with programs aligned with the practical nature of the CNSE program, so that the student will continue to build employable skills and earn certifications to increase their employability.

10. Explain how your program addresses program readiness barriers (e.g., developmental math reform, reading comprehension, etc.), including strategies to ensure preparedness among underrepresented student populations.

*Maximum word count: 300*

Many CNSE students are first generation college students and lack some essential self-management skills needed for college success. CNSE faculty uses Canvas, an online assignment tracking/grading tool, to flag missed assignments and low grades. Grading is completed weekly, so that students can be alerted immediately if an assignment was missed. This builds awareness of how to manage course syllabi and time management with on-line assignments.

In addition to extensive supports listed in questions 6 and 9, CNSE students are supported by college support service:

- Moorpark focuses advising efforts on equity counseling and support to assist disproportionately impacted students to develop their educational/transfer plan through supplemental support/advisement throughout the year.
- Moorpark College will continue to expand tutorial services through the Teaching and Learning Center and increase drop-in and appointment tutoring in equity-related programs such as the Veterans Resource Center, Athletics, ACCESS (DSPS), EOPS, and foster youth. The college will provide additional counseling and support to connect disproportionately impacted groups (DIGs) to student success coaches for follow-up services, offer mental health awareness counseling, enlarge the campus-wide textbook lending program, and continue to develop a body of faculty who are committed to the development of culturally-responsive course content, teaching, and academic counseling methods.
- The college offers online tutoring to better serve working students and others who cannot access on-campus services easily.
- The College tutorial services include online tutoring, academic support workshops, year-round bridge workshops and course embedded tutoring for math and English, and the STARFISH early alert system by connecting counselors with at-risk students.
- Guided Pathways to Success (GPS) provides Hispanic, low-income, and/or first-generation students with a summer orientation, preferential course enrollment (e.g., zero or low-cost textbook sections), intensive advisement, a Student Success Coach peer advisement through monthly small-group meetings and one-to-one meetings.

11. Describe how your program supports instructor quality, including efforts to hire, professionally develop, and retain faculty and staff. Describe if and how such efforts promote instructor diversity.

*Maximum word count: 300*

CNSE instruction quality is exceptional due to professionally experienced subject experts, simulations, and a hands-on lab.

CNSE Faculty:

Full-Time Faculty: Edmond Garcia has taught at Moorpark College for 18 years and built the CNSE program. He attended community college, graduated with a B.S. in IT from CSU, Los Angeles and an M.A. in Information Science from American University. He provided IT services, including cybersecurity, at California Edison for 20 years. Because of challenges he overcame through education, he chose to give back and accepted the full-time CNSE position.

Three Adjunct Instructors: The Adjunct instructors are subject matter expert working in their field. They have taught for an average of seven years. One is a Manager for ValueClick and a weekly IT consultant for StarNet Data. Wayne Snyder runs his own IT business. Michael Wiley is a nationally recognized cybersecurity expert. After graduating from Moorpark College, he earned a degree at Stanford University and now works for a nationally-based company.

Pending Faculty: A second full-time faculty member hire is approved for fall 2020 to launch a pilot High School Pathways Program for cyber literacy. A fourth adjunct, who was a CNSE student and currently works at Western NRG, will also be hired.

Hiring Process: HR forwards qualified applicants to a paper pool for a hiring team (e.g., Dean, two CNSE faculty members), who select five candidates to give a teaching demonstration. Based on committee rubric scores and discussion, the best candidate is selected.

Professional Development: Moorpark faculty are required to participate in equity professional development training for student equity. CNSE faculty enhance their own skills through industry courses and certifications (e.g., Cloud, Cisco CNA) to keep pace with industry trends.

Faculty Retention: CNSE assesses faculty members through observation, program review procedures, curricula review, Student Learning Outcomes Assessment, and student evaluations.



## Section 2: Program Narrative - Advising and Supports

Completed - Dec 5 2019

## Section 2: Program Narrative - Advising and Supports

### Program Narrative

#### **Advising and Supports**

12. Explain how your program supports students as they explore, define, and pursue their career and employment goals. In your response, consider:

- Advising of students (program-specific and/or institutional practice). If available, note the percentage of students in the program who actually receive these services.
- Academic or non-academic supports aimed specifically at promoting equitable outcomes for students from groups historically underrepresented in STEM occupations and industries.
- Job placement assistance offered through your program and/or throughout the college.
- *For all of the above, please note how you ensure that students leverage these services (e.g., are they mandatory, integrated into courses, advertised, etc.).*

Maximum word count: 400

Advising: All CNSE students receive advising and access to the CNSE lab, industry presentations, and internships. The goals of the Cyber Investigations and Computer Forensics Certificate reflect the importance of both technical and professional skills:

1. Understand and apply standard, industrially accepted and legally recognized, foundational investigative techniques in computer networks, operating systems, file systems, hardware and mobile devices to cyber investigations.
2. Access and critically evaluate relevant technical and legal information and relate this information to emerging industry trends.
3. Communicate and effectively present the results of computer, network and/or data forensic analysis verbally and in writing.
4. Learn to effectively present the results of cyber investigations to technical and lay audiences.

The department structures certification test preparation very strategically to maximize the likelihood that a student will pass on their first attempt:

1. Meet with faculty to discuss readiness for the certification exam.
2. Review all course material.
3. Use TestOut, an online training courseware for IT certifications, or another more appropriate test bank until the student tests at 90% or higher.
4. Take a certified vendor practice test. If the student passes at 95% or higher, then the student is ready



to test.

Institutional Student Supports: The college Career Transfer Center provides guidance/information to students in program selection through career education, exposing more than 1,200 students to career education opportunities in 2018-2019 by facilitating more than 50 internship orientations, serving more than 200 students through resume-building workshops or one-to-one consultations, and informed 687 students about the Here to Career app, and provided more than 500 prospective students with career exploration relevant to their interests/goals. The annual Moorpark College Career Week includes industry panel discussions, recruitment fairs, career and internship expo, middle school career days (233 students), and high school career education days (246 students).

Success Story: The student Lab Technician, an at-risk student with no support, took a CNSE class and liked it. He saw that others, who had a similarly rough starts, are now successful, and so he continues to work hard to build a productive future for himself. To make ends meet, he uses the Moorpark College Food Pantry, his free Metrorail pass and other support services offered by the college. He is a dedicated Lab Tech, who is paid to work 20 hours a week, but chooses to be in the lab and available to other students 40 hours a week.

13. Describe what supports your program or the broader institution offer to help students be successful and reduce barriers to success (including ensuring program affordability, transportation, etc.), including how you assess and respond to unique needs of underrepresented student populations. Note the scale of these supports in terms of numbers of students impacted.

*Maximum word count: 300*

**Program:** Program affordability centers on the cost of certification tests. The CNSE program supports economically disadvantaged students by giving them access to materials, such as Safari O'Reilly Technical Library, which the Moorpark College Library pays for (\$12,000 for a 2-year subscription). Although requested by CNSE, the whole campus has access to the service. Through Safari, a student has up-to-date online access to books, videos and other support materials by STEM topic. For example, a former student came to CNSE homeless, sleeping on the floor in friends' apartments. After earning a CNSE certification, he got a job at a company in Santa Barbara and was recently promoted to a supervisor position.

**Institution:** In the area of retention, the college will also provide equity counseling and support, mental health awareness counseling, zero cost or reduced cost textbooks, and professional development tied to the continued development of a body of faculty who are committed to the development of culturally-responsive course content, teaching, and academic counseling methods. In the area of completion, the college provides enhanced tutoring services and equity counseling and support. To provide enhanced tutoring services, the Writing and Math Center provides academic support workshops, year-round bridge workshops, course-embedded tutoring for English and math classes; and tutorial trainings. To provide equity counseling and support, the college utilizes the early alert system by having counselors available to work with referred struggling and/or at-risk students. In the area of earned certificate/degree, the college provides equity counseling and support; will soon provide mapping and scheduling counseling for DI student groups; and refers low-income students to financial support (e.g., financial aid center, emergency micro-grants, scholarships, basic needs resources, etc.). In the area of transfer, the college provides equity counseling and support and has developed academic programs that effectively lead to student transfer to a four-year college/university.



## Section 2: Program Narrative - Partnerships

Completed - Dec 5 2019

## Section 2: Program Narrative - Partnerships

# Partnerships

14. Identify the most significant employer(s) of graduates from your program.

*Maximum word count: 100*

Western NRG consistently recruits interns, then hires them. The company also sends current employees to CNSE for retraining to stay current in the industry (e.g., cloud). One student, who served as an intern at the company, rose into management at the company. <https://www.westernnrg.com/>

Amgen, an American multinational biopharmaceutical company, is one of the top Ventura County employers and a company that has used graduates. In 2019, Amgen was named among the top 100 companies in Forbes Magazine. <https://www.amgen.com/about/>

Other businesses include: Akamai Technologies, Aerovironment Incorporated, Anthem Blue Cross, Bank of America, Community Memorial Health System, Dignity Health, and UPS Incorporated.

15. Describe your approach to engaging and partnering with employers, particularly those listed above. In your response, please consider:

- How employers contribute to program and course design, delivery, and evaluation
- Methods of gathering and implementing feedback from employers
- Significant forms of employer support (i.e., equipment donations, shared facilities, scholarships, instructors, etc.)
- The mechanisms and structures for sustaining the employer-college relationship at the program and institutional level (e.g., advisory board structure, participation and meeting frequency, etc.)

Maximum word count: 500

The CNSE program provides a strong, highly structured internship program, so the primary role of employment partners is educational internships.

Internship Partners: Typically, 40 Moorpark College CNSE students receive internships each semester in Ventura County through the following partners:

Western NRG, located within the college's service area in Camarillo, CA, is a team of SonicWall Internet Security Experts who provide configuration assistance. Over the past eight years they recruited several interns each semester and have hired 12 Moorpark College students to date. One is now a manager.

Western NRG screens interns for excellent technical skills and their soft skills (e.g., team player, great attitude, professional communication), because part of their job description is customer service.

Applicants are run through a lab scenario. According to Western NRG, Moorpark College CNSE students stand out in this screening process.

Amgen, an American multinational biopharmaceutical company, was launched and is headquartered in Thousand Oaks, CA within the college's service area. Amgen was named among the top 100 companies in the Forbes Magazine 2019 America's best Employers for Diversity list for the second year in a row - ranked #61 out of the 250 employers in the ranking. In 2019, Amgen was named one of Fortune Magazine's World's Most Admired Companies list and named #5 on Fast Company's list of the 10 most Innovative Companies in Biotech for 2019. <https://www.amgen.com/about/>

Small Businesses: Because 80% of IT work is within small businesses, location small businesses are also eager to use CNSE interns, including Akamai Technologies (Santa Monica), where two CNSE graduates now work.

The U.S. Naval Facilities Engineering Command (NAVFAC) Engineering & Expeditionary Warfare Center (EXWC) in Port Hueneme, CA invited the Moorpark College CNSE students to the center for a tour and to hear about internship, which often offer pay and/or scholarship opportunities. On 12/06/2019, 40 students from Moorpark College, 15 from Oxnard College, and five faculty will attend. The US Navy hires more than 4,000 private contractors, including cybersecurity, IT, statisticians, researchers and gamers. The invitation was extended after Dr. Ramon Flores, the STEM Outreach Coordinator at the Naval Surface Warfare Center, spoke to several Moorpark College classes in fall 2019. He expressed that he was particularly impressed by the turnout in CNSE class and the level of student interaction and enthusiasm. CNSE faculty hope to make field trip an annual event, resulting in increased partnerships with the base, including employment with exceptional salaries and full benefits.

Employer Support and Employer-College Relationship:

Business/corporate partners serve as formal and informal advisors monitoring the labor market trends, which helps CNSE faculty to revise the program according to industry shifts, and serve as guest speakers in classes. As intern supervisors, corporate partners' feedback about intern technical/knowledge preparedness and professional performance helps shape the program. Partners also provide tours to help students visualize real life applications of their studies. Partners also provide donations (financial and equipment) and attend meetings to provide insight into changes in the industry.

16. Describe your approach to engaging and partnering with external groups in your region (i.e., K-12, community-based organizations, and workforce organizations) to support equitable student success in and beyond the program. In your response, please consider how these engagements are utilized throughout the student life cycle, including for student outreach, career advising and support, and job placement.

Maximum word count: 500

#### K-12 Partners:

Starting fall 2020, the CNSE Department will partner with a local high school in its service area to roll out the pilot for the High School Pathways Program to offer a cyber literacy pathway in high schools. Once the pilot is implemented and evaluated, additional programs will be launched with additional high schools.

Moorpark College was named as one of 12 regional sites to host the California Mayors Cyber Cup, (CMCC) a statewide cybersecurity contest for middle and high school students. Simultaneous regional competitions around the state created one virtual statewide event on 02/23/2019 from 8 a.m. to 3:30 p.m. Statewide, the CMCC attracted more than 200 teams and 1,200 students in an effort to bring cybersecurity awareness to communities and to fuel the workforce pipeline in cybersecurity.

#### Workforce Organizations:

The full-time CNSE faculty member, Ed Garcia, participates in numerous professional meetings to connect with potential internship/employment partners and to glean labor market information for program adjustment (e.g., cybersecurity program, cloud certification). Workforce meetings include:

- Belonging to the Ventura County IT Guild, a quarterly gathering of the county's IT workforce, facilitated by the Workforce Education Coalition. Industry representatives present their needs, curriculum, and advise for program development. <https://www.workforceec.org/wec-blog>
- Regional monthly meetings with the Regional Deputy Sector Navigator who oversees seven community colleges in the South Central Coast Regional Consortium. The meetings keep the department aware of new opportunities.
- Monthly Career Technology Education (CTE) meetings, which keeps participants apprised of campus, county and regional efforts related to career technology education.
- Other vendor meetings inform the department about shifts in the industry. For example, the department faculty are getting updated training in Cisco's new CC & A. Ed Garcia is currently taking Amazon Cloud training and will take a certification exam.
- AWS Cloud Workforce event - weekly on-line seminars and monthly meetings through the Los Angeles Community College Consortium. Ed Garcia can attend these meetings on-line. He learned that of the 100 students surveyed who took the AWS Cloud certification exam, 30% of those who passed already had a bachelor's degree, which means that they recognized the need to add cloud certification to their skill set and resume.

Center of Excellence: The college works with the regional Center of Excellence, a state-sponsored provider of labor market information. Job sector profiles researched and distributed by the Center are presented at regional workshops for industry, deans, and faculty. The college also obtains labor market data and student performance data from a state data collection service based in Santa Rosa.

The universities with the highest number of CNSE transfers are: Western Governors University, which offers an online IT management degree; California State University, Northridge Information Technology (including information Security), National University and California State University, Channel Islands. Because obtaining an appropriate transfer within Ventura County for CNSE students is a challenge, Edmond Garcia also works with local universities to align a coursework track at the four-year schools to with the CNSE focus. CSUCI offers a theory-based program, but not a practical cybersecurity track.



## Section 2: Program Narrative - Conclusion

Completed - Dec 5 2019

## Section 2: Program Narrative - Conclusion

### Program Narrative

# Conclusion

17. If there is anything else you would like to add about your program that has not been captured, please include this information in the space below.

Maximum word count: 150

Students have expressed their appreciation for the program.

Edward M. wrote on November 19, 2019: Thank you everyone for all the support! I am extremely blessed to have someone like Edmond Garcia as an amazing professor, a great mentor, and most importantly a friend. I will continue to keep pursuing my dreams as a skilled network engineer. Western NRG is an amazing company with a professional staff and a great work environment. I am excited to be a part of the team and excited to start my journey with them. Moorpark College creates opportunity for all students and the staff is amazing.

Melissa completed the CNSE program in 2012 and is now a Project Manager at Microsoft in Azure (cloud services). Although she earned a B.S. from UC Irvine, she had few employment options. After earning all of the available certifications, she says the CNSE program changed her life.



## Section 3: Program Data - Enrollment and Graduation

Completed - Dec 4 2019

## Section 3: Program Data - Enrollment and Graduation

### Enrollment and Graduation

# Enrollment and Graduation

Keep in mind that each program must enroll at least 20 students per cohort.

Please reference this [document](#) for data definitions.

1. List the 1-3 most significant credentials (defined as those with the highest enrollment or at the highest educational level) offered in your program, including your highest-level credential. Describe if credentials are designed to be “stackable” (i.e., building on one another in a sequence) or terminal in the “Notes” column. *Please be aware that each credential must still fit the eligibility criteria noted above.*

	Credential Type	Credits Required	Notes (If N/A, type "none")	Enrollment (all three must add up to at least 20)
1	Associate in Science	29.5 + GE	none	29
2	Advanced Network Specialist Certificate	32.0	Under reported in our system as most certificate seekers just mark that they're pursuing the Associate Degree	1
3	Technical Support Specialist Certificate	17.0	Under reported in our system as most certificate seekers just mark that they're pursuing the Associate Degree	0
Total				30.0

2. How many students are enrolled in this program (across all of the credentials listed in #1)? What are their retention and graduation rates?

*Note on CTE program-level cohort data:* We recognize that it may be challenging to define cohorts at the program-level and to calculate program-level retention and graduation rates. One option is to define cohorts based on enrollments in entry/foundational courses specific to the program of study (i.e., not general education courses) within a given academic year. However, other strategies may also be used. Please describe in the notes section following the data template how you defined the cohorts and any limitations/considerations for your approach.

### First-to-Second Year Retention

Cohort 1 Entering Term/Year: \_\_\_\_\_ (Please choose the most recent academic year for which data are available)

Spring 2018



First-Time Undergraduate Students

	Number in Program Cohort: All	Number in Program Cohort: URM	Number in Program Cohort: Pell	Number in Program Cohort: Female	Number Retained in Program of Study from First to Second Year: All	Number Retained in Program of Study from First to Second Year: URM	Number Retained in Program of Study from First to Second Year: Pell	Number Retained in Program of Study from First to Second Year: Female
All students	30	7	7	6	15	4	6	5
Optional part- time/full- time disaggre- gation (dependi ng on program enrollme nt)								
Full-time	9	4	4	4	4	2	4	3
Part-time	21	3	3	2	11	2	2	2

Cohort 2 Entering Term/Year: \_\_\_\_\_ (Please choose the second most recent academic year for which data are available)

Spring 2017

First-Time Undergraduate Students

	Number in Program Cohort: All	Number in Program Cohort: URM	Number in Program Cohort: Pell	Number in Program Cohort: Female	Number Retained in Program of Study from First to Second Year: All	Number Retained in Program of Study from First to Second Year: URM	Number Retained in Program of Study from First to Second Year: Pell	Number Retained in Program of Study from First to Second Year: Female
All students	34	12	12	4	16	5	8	0
Optional part-time/full-time disaggregation (depending on program enrollment)								
Full-time	17	4	9	1	6	3	3	0
Part-time	17	8	3	3	10	2	5	0

Three-Year Graduation Rates

Cohort 3 Entering Term/Year: \_\_\_\_\_ (Please choose the most recent academic year for which data are available)

Spring 2016

First-Time Undergraduate Students

	Number in Program Cohort: All	Number in Program Cohort: URM	Number in Program Cohort: Pell	Number in Program Cohort: Female	Number Received Certificate or Diploma in Program of Study Within Three Years: All	Number Received Certificate or Diploma in Program of Study Within Three Years: URM	Number Received Certificate or Diploma in Program of Study Within Three Years: Pell	Number Received Certificate or Diploma in Program of Study Within Three Years: Female
All students	25	8	4	1	3	3	1	1
Optional part-time/full-time disaggregation (depending on program enrollment)								
Full-time	11	5	3	1	2	2	1	1
Part-time	14	3	1	0	1	1	0	0

Cohort 4 Entering Term/Year: \_\_\_\_\_ (Please choose the second most recent academic year for which data are available)

Spring 2015

First-Time Undergraduate Students

	Number in Program Cohort: All	Number in Program Cohort: URM	Number in Program Cohort: Pell	Number in Program Cohort: Female	Number Received Certificat e, Diploma or Degree in Program of Study Within Three Years: All	Number Received Certificat e, Diploma or Degree in Program of Study Within Three Years: URM	Number Received Certificat e, Diploma or Degree in Program of Study Within Three Years: Pell	Number Received Certificat e, Diploma or Degree in Program of Study Within Three Years: Female
All students	19	4	5	1	0	0	0	0
Optional part- time/full- time disaggre gation (dependi ng on program enrollme nt)								
Full-time	3	0	3	0	0	0	0	0
Part-time	16	4	2	1	0	0	0	0

How were these values calculated? Describe any specific strategies used to define program-level cohorts and any limitations/considerations of your program-level outcome data.

Maximum word count: 100 words

Cohort is spring based on highest likelihood when CNSE majors take M01A which is first course for both the degree and certificate.

The graduation rate is 12% for the spring 2016 cohort in three years, but if they go an extra semester to 3.5 years it goes up to 24%.

Although not yet reflected in the graduation rates, the program has tripled (233%) the number of degrees and certificates awarded in the past five years while program FTES only increased by 20%. The ratio of credentials per 100 FTE has increased from 12.7 to 35.5 over five years.

<https://assets.aspeninstitute.org/content/uploads/files/content/docs/pubs/UsingComparativeInformationGuide.pdf>



## Section 3: Program Data - Employment and Earnings

Completed - Dec 4 2019

## Section 3: Program Data - Employment and Earnings

### Employment and Earnings

# Employment and Earnings

In the section below, you will be asked to provide data on graduates' earnings and employment for the credentials listed in #1. If data are sparse or unavailable for any of those credentials, provide what you do have, and explain any data limitations in the notes section.

Aspen recognizes that the available sources of employment and earnings data will vary considerably by state and institution. *For this reason, we do not require employment and earnings data from a specific source.* We instead ask that you provide any information you have on employment and earnings outcomes and cite your source(s). Major sources include:

- Unemployment insurance wage record matches
- Employer surveys (*Note: Must specify number of responses and total number of participating employers*)
- Survey of graduates (*Note: Must specify number of responses*)
- Other – please explain

3. Short Term Labor Market Outcomes: For the most recent cohort for which you have data available, please provide labor market employment and earnings for the first year available after students complete a credential from the institution. Please provide this information for all credentials listed in #1.

	Credential Completion Year	Total number of students that completed a credential in this program of study	Data Source (of employment and earnings data)	Notes (If N/A, type "none")
	0	0	0	none

Outcomes for the first available year after completing a credential in this program of study at the institution.

	Credential Type	Outcomes Data Collection Year	Employed (#)	Employed (%)	Notes (If N/A, type "none")
	0	0	0	0	none
	0	0	0	0	none
	0	0	0	0	none
Total				0.0	

4. Long-Term Labor Market Outcomes: Please provide labor market outcomes data for students that graduated approximately five years ago (2013-2014 academic year) with a credential from this program. If reliable employment and earnings data are not available for these students, please provide data for students who graduated more than one year but less than five years ago as available, and indicate the year for which data are gathered. Please provide this information for all credentials listed in #1.

	Credential Completion Year	Total Number of students that completed a credential in this program of study	Data Source (of employment and earnings data)	Notes (If N/A, type "none")
	2013/14 to 2015/16	36 (8 survey responses)	CTEOS survey by SRJC	Needed to merge three years of data to increase sample size due to low survey response rate

Outcomes for the first available year after completing a credential in this program of study at the institution.

	Credential Type	Outcomes Data Collection Year	Employed (#)	Employed (%)	Median Annual/Annualized Earnings
	CNSE Degree or Certificate	201620172018	8	100	59738
	none	0	0	0	0
	none	0	0	0	0
<b>Total</b>				100.0	

Outcomes ~5 years after leaving the institution.

	Credential Type	Outcomes Data Collection Year	Employed (#)	Employed (%)	Median Annual/Annualized Earnings
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
<b>Total</b>				0.0	



## Section 4: Award Information and Consent

Completed - Dec 5 2019

## Section 4: Award Information and Consent

### Award Funding

Winning programs will receive \$50,000 in funding. Of this award, \$25,000 can be allocated at program leader's discretion for further program development. The remaining \$25,000 must be awarded in scholarships ranging from \$3,500 to \$10,000 to students currently enrolled in the program, or to recent graduates of the program who are pursuing further education in the same or a closely related field (i.e.,



transfers to bachelor's degree programs).

Scholars will be selected by program leaders and should meet the following general criteria:

- Maintain a 3.0 GPA or above
- Have declared an intent to complete a credential within the program
- Displayed tenacity and a passion for their field of study
- Have a background that is typically underrepresented in your program or field
- Possess strong communication skills and a willingness to serve as an ambassador for the program and middle-skill STEM fields more generally

Scholars may use their scholarships toward any of the following:

- Tuition, books, and related course fees
- Required course materials, including technology necessary to complete coursework
- Training certification courses
- Certificate or licensing fees
- Repayment of student loans
- *Under no circumstances can funds be used for lobbying activity. Lobbying includes advocacy for a legislative solution to an issue if a specific legislative proposal is involved, even if no legislation has been introduced.*

Winning programs will be notified of their selection in February – early March 2020. Program contacts will be asked to select and submit information about at least three (3) potential scholars in late March 2020.

### **Award Logistics**

In addition to being recognized for excellent practice and outcomes, program leaders may have the opportunity to collaborate with the Aspen Institute and the Siemens Foundation on communication activities and research/tool development. Please acknowledge your team's willingness, if selected, to contribute in the following ways:

- Manage scholar selection and scholarship disbursement
- Coordinate with Aspen team for site visits for filming, interviews, and research purposes
- Provide brief explanation for how program funds (\$25,000) will be used
- Participate in best practice research interviews
- Act as an advocate for your program (e.g., provide interviews, speak on panels, etc.)

### **Responses Selected:**

By checking this box, our program team consents to participate in the items listed above.

