Cybersecurity A.S. Degree
Narrative

Program Goal and Objectives

The Computer Networking Systems Engineering: Cybersecurity - Associate in Science degree will provide students with theory and applied skills needed for entry-level career opportunities in cybersecurity. Courses cover a wide array of cybersecurity skills including beginning and advanced Linux administration, Windows Server administration, digital forensics, network penetration testing, programming and scripting, firewall security, and overall security policies and procedures. All courses help prepare students to pass a variety of cybersecurity certification exams sought by local employers.

The Program Learning Outcome are as follows:

- Build and maintain secure networks that includes varied systems such as a virtual system, windows system, Linux system, firewall, wireless devices, and a website on the cloud. The assessment is as follows: given a varied network topology and addressing scheme, students will configure and secure the network and provide appropriate logging and monitoring.
- Demonstrate proficiency to solve common networking security problems using products or strategies learned in the classroom to design and implement a workable solution. The assessment is as follows: given a security problem requiring troubleshooting use varied software tools to solve assigned problems.
- Demonstrate the ability to use technical resources to solve security related threats. The assessment is as follows: given a security related lab scenario students will use the Internet to mitigate the security vulnerability.

Catalog Description

The Cybersecurity program prepares students for careers as security analysts. Students who complete the program will be able to secure networks by performing penetration testing, security audits, digital forensics and investigations, develop security policies, and provide overall security guidance to organizations. Topics include network security, Windows and Linux security, intruder detection systems and firewalls, web security and protocols, virtualization and cloud security, and security policies and procedures.

The Program Learning Outcome are as follows:

- Build and maintain secure networks that includes varied systems such as a virtual system, windows system, Linux system, firewall, wireless devices, and a website on the cloud.
- Demonstrate proficiency to solve common networking security problems using products or strategies learned in the classroom to design and implement a workable solution.
- Demonstrate the ability to use technical resources to solve security related threats.

Cybersecurity A.S. Degree
Narrative

Program Requirements

In addition to General Education degree requirements, complete the following:

Associate in Science Degree: Cybersecurity

Requirements	Dept. Name / #	Name	Units	Sequence
Required Core: (Five courses)	CNSE M01	Networking Fundamentals	4	Yr. 1, Fall
	CNSE M30	MS Windows Administration	3	Yr. 1, Fall
	CNSE M55	Linux Networking and System Administration	3	Yr. 1, Fall
	CNSE M82	Introduction to Network Security	3	Yr. 1, Spring
	CNSE M13	Internetworking and TCP/IP	4	Yr. 1, Spring
Elective: (Select 5 courses)	CNSE M18	Cisco System Computer Networking 1 and 2	4	Yr. 2, Fall
	CNSE M100	Cybersecurity Analyst	3	Yr. 2, Fall
	CNSE M84	Certified Ethical Hacker	3	Yr. 2, Spring
	CNSE M170	CCSP Cloud Security	3	Yr. 2, Fall
	CNSE M67	VMware vSphere Fundamentals	3	Yr. 2, Fall
	CNSE M56	Linux Advanced Admin	3	Yr. 2, Spring
	CNSE M57	Scripting and Security Management	2	Yr. 2, Spring
	CNSE M83	Intro Computer Forensics	3	Yr. 2, Fall
	CNSE M86	Firewall Administration	3	Yr. 2, Spring
	CNSE M31	MS Windows Network Server	3	Yr. 2, Spring

Required Core Units:	17.0 Units
Elective Units:	14.0 – 16.0 Units
Total Major Requirements:	31.0 – 33.0 Units
MC GE:	27.5 Units
Double-Count:	0 Units
Electives:	0 – 1.5 Units
TOTAL DEGREE UNITS:	60.0 Units

Master Planning

The continued rise in cybercrime such as electronic fraud, espionage, ransomware, malware, and legal compliance continues to drive growth in the cybersecurity industry, which has grown over 35 times over the past 13 years. According to the Center of Excellence, growth in our Region is expected to surpass 13% percent per year through 2021 and in 2017 was worth more than $120 billion. California community colleges are responding with new cybersecurity degree offerings. Community colleges such as Coastline, Cerritos, Los Medanos, and Sacramento City College have all developed new cybersecurity programs to meet the growing need for trained cybersecurity professionals. California Universities including Northridge, San Bernardino, and Channel Islands are now also offering cyber security related degrees to meet this growing workforce demand. Moorpark College is well positioned to be the district leader in cybersecurity training. The cybersecurity A.S. degree offers cybersecurity courses in forensics,

penetration testing, firewall management, cisco security management, security scripting, and cloud security, and security administration. Courses, in the program, are modeled similar to existing community college cybersecurity A.S. degrees. Students from this program would have an opportunity qualify for entry-level cybersecurity employment. Moorpark College anticipates high enrollment combined with high success rates in completion and high employment success. The cybersecurity A.S. degree provides training in preparing students to pass cybersecurity certifications that will allow students to apply for cybersecurity employment in our region.

The attachments include:

1 - Spreadsheet of three Community Colleges CyberSecurity A.S. degrees used as a model for Moorpark College. 2 - Various Labor Market Information substantiating a 13% over a 5-year growth in employment demand. 3 - Regional study by Center Of Excellence supporting higher than average demand for CyberSecurity. 4 - State of California Govenors Office Business and Economic Development reviewing 15 funded projects with government, industry, community, and academic institutions addressing CyberSecurity in California. 5 - Advisory Committee Meeting minutes and roster.

Evidence of Need

This past year, various California Community Colleges including Coastline, Los Medanos, Sacramento City and Rio Hondo College have all started Cybersecurity programs. State Universities offering Cybersecurity programs include Northridge, Channel Islands, Cal Poly Pomona, and San Bernardino. About 80% or more of existing CNSE students enrolled in the general A.S. degree expressed interest in taking courses or completing the requirements for the Cybersecurity A.S. degree. Students wanting to also obtain the Cybersecurity A.S. degree would need to complete an additional 5 courses or 2 additional semesters of classes. Moorpark has developed the Cybersecurity A.S. degree after carefully reviewing various community college programs offering Cybersecurity. The program and course design is consistent with skills desired in the industry. For example, 11 out of 14 courses identified in Moorpark's Cybersecurity A.S. degree prepare students for industry certification meaning the Cybersecurity program aligns to meet employer requirements. Labor market demand is also very strong with employers from the local naval bases and traditional information technology organizations all in need of qualified cybersecurity professionals who can perform audits, and integrate security solutions for business organizations. A recent query in https://indeed.com for a "cybersecurity analyst" in Ventura County produced 90 results ranging from $65,000 to $110,000 annual salary. CNSE has held numerous advisory committee meetings both locally and regionally all in favor of Moorpark College developing a Cybersecurity A.S. degree primarily due to the capability of existing Moorpark CNSE faculty and the historical success and responsiveness of the CNSE program within the South Central Coast Regional Consortium.