I. CATALOG INFORMATION

A. Discipline: <u>COMPUTER NETWORKING SYSTEMS ENGINEERING (CNSE)</u>

B. Subject Code and Number: <u>CNSE M87</u>

C. Course Title: <u>Cisco Secure Virtual Private Network (VPN)</u>

D. Credit Course units:

Units: <u>1.5</u>

Lecture Hours per week: <u>1</u>

Lab Hours per week : <u>1.5</u>

Variable Units : <u>No</u>

E. Student Learning Hours:

Lecture Hours:

Classroom hours: <u>17.5</u>

Laboratory/Activity Hours:

Laboratory/Activity Hours <u>26.25</u>

Total Combined Hours in a 17.5 week term: <u>43.75 - 0</u>

F. Non-Credit Course hours per week _____

G. May be taken a total of: ☒ 1 ☐ 2 ☐ 3 ☐ 4 time(s) for credit

H. Is the course co-designated (same as) another course: No ☒ Yes ☐
   If YES, designate course Subject Code & Number: _____

I. Course Description:

Basic knowledge to plan, administer, and maintain a virtual private network (VPN). This course covers virtual private network fundamentals, Cisco VPN family products, Cisco IOS (Internetwork operating system) VPNs, Cisco PIX (Private Internet Exchange) Firewall VPNs, Cisco VPN concentrator VPNs, and scaling Cisco VPN solutions. This course prepares students for Cisco CCIP/Security certification exam.

Field trips are not required for this course.

J. Entrance Skills

*Prerequisite: No ☐ Yes ☒ Course(s)
  <u>CNSE M15</u>

*Corequisite: No ☒ Yes ☐ Course(s)
  _____

Limitation on Enrollment: No ☒ Yes ☐
  _____

Recommended Preparation: No ☐ Yes ☒ Course(s)
  <u>CNSE M85</u>

Other: No ☒ Yes ☐

     K.   Other Catalog Information:

II.   COURSE OBJECTIVES

Upon successful completion of the course, a student will be able to:

		Methods of evaluation will be consistent with, but not limited by, the following types or examples.
1	Describe the three types of VPNs (Virtual Private Networks).	
2	Describe VPN capabilities of Cisco Routers running Cisco IOS software and of Cisco Secure PIX Firewall.	
3	Explain or demonstrate how to configure Cisco IOS IPSec (Internet Protocol Security) using preshared keys for authentication.	
4	Explain or demonstrate how to configure Cisco IOS IPSec (Internet Protocol Security) using CA (certificate authority).	
5	Explain some basic troubleshooting when configuring a Cisco IOS-based IPSec VPN.	
6	Explain or demonstrate how to configure Cisco Secure PIX Firewall using preshared key support for IPSec.	
7	Explain or demonstrate how to configure Cisco Secure PIX Firewall certificate authority support for IPSec.	
8	Troubleshoot common problems when configuring a PIX-based IPSec VPN.	
9	Explain or demonstrate how to configure the Cisco VPN 3000 concentrator for IPSec using preshared keys for authentication.	
10	Explain or demonstrate how to configure the Cisco VPN 3000 for remote access using digital certificates for authentication.	
11	Explain or demonstrate how to monitor and administer Cisco CPN 3000 remote access networks.	
12	Explain or demonstrate how to configure IPSec features on combination of Cisco routers, the PIX Firewall, the Cisco VPN concentrator, and the Cisco VPN Clients for site-to-site and access topologies.	

III.   COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
5.00%	VPNs and VPN Technologies	1
8.00%	Cisco VPN Family of Products	2
8.00%	Configuring Cisco IOS Routers for Preshared Keys Site-to-Site	3

9.00%	Configuring Cisco IOS Routers for CA Site-to-Site	4
9.00%	Troubleshooting Cisco IOS VPNs	5
9.00%	Configuring the Cisco PIX Firewall for Preshared Keys Site-to-Site	6
9.00%	Configuring the Cisco PIX Firewall for CA Site-to-Site	7
9.00%	Troubleshooting Cisco PIX Firewall VPNs	8
8.00%	Configuring the Cisco VPN 3000 for Remote Access Using Preshared Keys	9
9.00%	Configuring the Cisco VPN 3000 for Remote Access Using Digital Certificates	10
9.00%	Monitoring and Administration of Cisco VPN 3000 Remote Access Networks	11
8.00%	Scaling Cisco IPSec Virtual Private Networks	12

IV. TYPICAL ASSIGNMENTS

A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	1. Short answer class assignments. 2. Term paper of course-related topics.

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	1. Assigned readings from text and other sources. 2. Assigned writings (see above section). 3. Field observations of network administration. 4. Assigned simulation from text.

V. METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

☐ Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)

☒ Lecture/Discussion

☒ Laboratory/Activity

☒ Other (Specify)
   Online materials, assigned Internet research, and computer simulations.

☐ Optional Field Trips

☐ Required Field Trips

VI. METHODS OF EVALUATION
Methods of evaluation may include, but are not limited to:

☐ Essay Exam   ☒ Classroom   ☒ Skill Demonstration

| ☒ | Problem Solving Exam | ☒ | Discussion Reports/Papers/ Journals | ☐ | Participation |
| ☒ | Objective Exams | ☒ | Projects | ☒ | Other (specify) |

<u>Assess troubleshooting skills in a Lab environment</u>

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

VIII. STUDENT MATERIALS FEES

☒ No ☐ Yes

IX. PARALLEL COURSES

College	*Course Number*	*Course Title*	*Units*

X. MINIMUM QUALIFICATIONS

Courses Requiring a Masters Degree:
Associate Degree + 6 years networking experience + CCNA certification

XI. ARTICULATION INFORMATION

A. Title V Course Classification:

1. This course is designed to be taken either:

☐ Pass/No Pass only (no letter grade possible); or

☐ Letter grade (P/NP possible at student option)

2. Degree status:
Either ☒ Associate Degree Applicable; or ☐ Non-associate Degree Applicable

B. Moorpark College General Education:

1. Do you recommend this course for inclusion on the Associate Degree General Education list?
Yes: ☐ No: ☒ If YES, what section(s)?

☐ A1 - Natural Sciences - Biological Science

☐ A2 - Natural Sciences - Physical Science

☐ B1 - Social and Behavioral Sciences - American History/Institutions

☐ B2 - Social and Behavioral Sciences - Other Social Behavioral Science

☐ C1 - Humanities - Fine or Performing Arts

☐ C2 - Humanities - Other Humanities

☐ D1 - Language and Rationality - English Composition

☐ D2 - Language and Rationality - Communication and Analytical Thinking

☐ E1 - Health/Physical Education

☐ E2 - PE or Dance

☐ F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU?   Yes: ☒ No: ☐

2. If YES do you recommend this course for inclusion on the CSU General Education list?
   Yes: ☐ No: ☒ If YES, which area(s)?

   A1 ☐   A2 ☐   A3 ☐   B1 ☐   B2 ☐   B3 ☐   B4 ☐

   C1 ☐   C2 ☐   D1 ☐   D2 ☐   D3 ☐   D4 ☐   D5 ☐

   D6 ☐   D7 ☐   D8 ☐   D9 ☐   D10 ☐   E ☐

D.   University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC?   Yes: ☐ No: ☒

2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)?   Yes: ☐ No: ☒

   IGETC Area 1: English Communication

   ☐   English Composition
   ☐   Critical Thinking-English Composition
   ☐   Oral Communication

   IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

   ☐   Mathematical Concepts

   IGETC Area 3: Arts and Humanities

   ☐   Arts
   ☐   Humanities

   IGETC Area 4: Social and Behavioral Sciences

   ☐   Anthropology and Archaeology
   ☐   Economics
   ☐   Ethnic Studies
   ☐   Gender Studies
   ☐   Geography
   ☐   History
   ☐   Interdisciplinary, Social & Behavioral Sciences
   ☐   Political Science, Government & Legal Institutions
   ☐   Psychology
   ☐   Sociology & Criminology

   IGETC Area 5: Physical and Biological Sciences (mark all that apply)

   ☐   Physical Science Lab or Physical Science Lab only (none-

sequence)

☐ Physical Science Lecture only (non-sequence)

☐ Biological Science

☐ Physical Science Courses

☐ Physical Science Lab or Biological Science Lab Only (non-sequence)

☐ Biological Science Courses

☐ Biological Science Lab course

☐ First Science course in a Special sequence

☐ Second Science course in a Special Sequence

☐ Laboratory Activity

☐ Physical Sciences

IGETC Area 6: Language other than English

☐ Languages other than English (UC Requirement Only)

☐ U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

☐ U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

XII. REVIEW OF LIBRARY RESOURCES

A. What planned assignment(s) will require library resources and use?

No library resources have been specified for this course

B. Are the currently held library resources sufficient to support the course assignment?

YES: ☐ NO: ☒

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

CNSE M87: Not Applicable

XIV. WORKPLACE PREPARATION

CNSE M87: Not Applicable

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

CNSE M87: Not Applicable

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

CNSE M87: Not Applicable

XVII. STUDENT MATERIALS FEE ADDENDUM

CNSE M87: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

CNSE M87: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:

Discipline:

COMPUTER NETWORKING SYSTEMS ENGINEERING (CNSE)

Discipline Code and Number: CNSE M87

Course Revision Category: New Course

Course Proposed By:

Originating Faculty _____

Faculty Peer: _____

Curriculum Rep: _____

Department Chair: _____

Division Dean: _____

Approved By:

Curriculum Chair: _____

Executive Vice President: _____

Articulation Officer: _____

Librarian: _____

Implementation Term and Year: _____

Approval Dates:

Approved by Moorpark College Curriculum Committee: 08/27/2002

Approved by Board of Trustees (if applicable): _____

Approved by State (if applicable): _____