I.   CATALOG INFORMATION

A.   Discipline: COMPUTER NETWORKING SYSTEMS ENGINEERING (CNSE)

B.   Subject Code and Number: CNSE M83

C.   Course Title: Intro Computer Forensics

D.   Credit Course units:

Units: 3

Lecture Hours per week: 2

Lab Hours per week : 3

Variable Units : No

E.   Student Learning Hours:

Lecture Hours:

Classroom hours: 35 - 35

Laboratory/Activity Hours:

Laboratory/Activity Hours 52.5 - 52.5

Total Combined Hours in a 17.5 week term: 87.5 - 87.5

F.   Non-Credit Course hours per week _____

G.   May be taken a total of: [X] 1 [ ] 2 [ ] 3 [ ] 4 time(s) for credit

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

I.   Course Description:

Provides a comprehensive overview of computer and network forensics tools and strategies including evidence collection and analysis. Demonstrates techniques used by forensics professionals to collect evidence including Intrusion Detection, Distributed Denial of Service Attacks, Buffer Overflow, and virus distribution attacks.

J.   Entrance Skills

*Prerequisite: No [X] Yes [ ] Course(s)

_____

*Corequisite: No [X] Yes [ ] Course(s)

_____

Limitation on Enrollment: No [X] Yes [ ]

_____

Recommended Preparation: No [ ] Yes [X] Course(s)
  CNSE M06 or CNSE M01

Other: No [X] 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 what computer and network forensics is about and what is an ethical hacker.	Quizzes, lab assessment, and classroom project work demonstrating competency in this area, including Midterms, and Final exam
2	describe reconnaissance: information gathering for the ethical hacker.	Quizzes, lab assessment, and classroom project work demonstrating competency in this area, including Midterms, and Final exam
3	explain the basics of operating systems and their networks.	Quizzes, lab assessment, and classroom project work demonstrating competency in this area, including Midterms, and Final exam
4	discuss various methods of attack and mitigation or protection.	Quizzes, lab assessment, and classroom project work demonstrating competency in this area, including Midterms, and Final exam
5	describe various attack detection and attack hiding techniques.	Quizzes, lab performance, and classroom project work demonstrating competency in this area, including Midterms, and Final exam
6	describe ways hostile codes are used to gain unauthorized access to computer network systems.	Quizzes, lab assessment, and classroom project work demonstrating competency in this area, including Midterms, and Final exam
		Quizzes, lab assessment,

7	discuss some of the electronic tools used to gather, save, and process evidence.	and classroom project work demonstrating competency in this area, including Midterms, and Final exam
8	discuss forensic issues relevant to Linux, Apple, and Microsoft environments.	Quizzes, lab assessment, and classroom project work demonstrating competency in this area, including Midterms, and Final exam
9	describe the hierarchy of network attackers' skills.	Quizzes, lab assessment, and classroom project work demonstrating competency in this area, including Midterms, and Final exam
10	discuss the levels of system compromise.	Quizzes, lab assessment, and classroom project work demonstrating competency in this area, including Midterms, and Final exam
11	describe some of the prominent computer crime laws such as the Computer Fraud and Abuse Act and the Electronic Communications Privacy Act.	Quizzes, lab assessment, and classroom project work demonstrating competency in this area, including Midterms, and Final exam

III.   COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
5.00%	Introduction to Computer System Forensics and Ethical Hacking	1, 11
8.00%	Footprinting and Reconnaissance	2, 5, 7
8.00%	Sniffing Networks and Enumeration	2, 3, 7
8.00%	System Hacking	2, 4, 6, 7, 10
6.00%	Malware Threats	2, 3, 4, 5, 8
5.00%	Social Engineering	1, 2, 3, 6, 10
9.00%	Ethical Hacking Toolkits	2, 4, 6, 7
8.00%	Denial of Service Attacks and Session Hijacking	3, 4, 5, 6, 7, 8
		3, 4, 6, 7,

7.00%	Hacking Techniques for Web Services	8
8.00%	Compromising Mobile Platforms	4, 5, 6, 7, 8, 9
8.00%	Intruder Detection Systems, Firewalls, and Honeypots	3, 4, 5, 6, 7, 10
7.00%	Introduction to the Criminal Justice System	1, 9, 11
6.00%	Cloud Computing and Online Storage	4, 5, 6, 7, 8, 9, 10
7.00%	Cryptography	4, 5, 6, 7
Lab (must total 100%)		
10.00%	System Footprinting and Reconnaissance Tools	2, 4, 5, 7
10.00%	Scanning and Enumeration Tools	2, 4, 5, 7
15.00%	Sniffing Tools	1, 2, 4, 5, 7, 10
20.00%	Attack Tool Kits	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
15.00%	Mobile Computing Security Tools	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
15.00%	Penetration Testing Tools	1, 2, 3, 4, 5, 6, 7, 8, 10, 11
15.00%	Security Protection Software	1, 2, 3, 4, 5, 6, 7, 8, 10, 11

IV.   TYPICAL ASSIGNMENTS
A.   Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	write a paper describing how hostile codes are used to gain unauthorized access to computer network systems.
2	create written documentation supporting a solution to a configuration scenario.
3	keep a lab journal that addresses problems, solutions, and configuration options.

B.   Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	research online security websites which explain mitigation and system patching or protection strategies.
2	research security websites to compare mitigation strategies recommended by security vendors.
3	research related topics to support classroom lab exercises.

C.   Critical thinking assignments

Critical thinking assignments are required. Possible assignments may include, but are not

	limited to:
1	discuss and compare security mitigation strategies that demonstrate problem solving and critical thinking skills.
2	discuss security mitigation strategies that include Windows, Apple, and Linux security solutions.

V. METHODS OF INSTRUCTION

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

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

[X] Lecture/Discussion

[X] Laboratory/Activity

[X] Other (Specify) Online materials
Security tool kits
Assigned Internet research

[ ] Optional Field Trips

[ ] Required Field Trips

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

[ ]	Essay Exam	[X]	Classroom Discussion	[X]	Skill Demonstration
[X]	Problem Solving Exam	[X]	Reports/Papers/ Journals	[X]	Participation
[X]	Objective Exams	[X]	Projects	[X]	Other (specify)

Compliance with Certified Ethical Hacker professional behaviors

Best practices in the profession

VII. REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

Walker, Matt. CEH Certified Ethical Hacker Bundle; All-in-One. 3rd ed.   McGraw-Hill, 2017.

Oriyano, Sean-Philip. CEH v9: Certified Ethical Hacker, Version9 Study Guide. 3rd ed. Sybex, 2016.

VIII. STUDENT MATERIALS FEES

[X] No [ ] Yes

IX. PARALLEL COURSES

College	Course Number	Course Title		Units
Prince Georges Community College	INT-1680	Ethical Hack/Netwk Defense I		3
Edmonds Community College	CIS 279	Managing Network Security		5

X.   MINIMUM QUALIFICATIONS

Courses in Disciplines in which Masters Degrees are not expected:
Associate Degree + 6 years networking experience + preferred CNA, MCSA, or Forensics 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?

The following assignments require library resources:
Possible research using the Library's print and online resources on securing networks and network devices.

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 M83: Not Applicable

XIV. WORKPLACE PREPARATION

Required for career technical courses only. A career technical course/program is one with the primary goal to prepare students for employment immediately upon course/program completion, and/or upgrading employment skills.

Detail how the course meets the Secretary of Labors Commission on the Achievement of Necessary Skills (SCANS) areas. (For a description of the competencies and skills with a listing of what students should be able to do, go to: http://www.ncrel.org/sdrs/areas/issues/methods/assment/as7scans.htm)

The course will address the SCANS competency areas:

1. Resources: the students will identify, organize, plan and allocate resources through course work and application of theory to practice.

2. Interpersonal: the students will work together as a team to build, evaluate projects, and solve technical problem scenarios.

3. Information: the students will acquire and use information through a variety of assignments, network technology tools, and computer software used in computer network systems.

4. Systems: the students will employ a variety of computer tools to complete projects or assess computer networking problems.

5. Technology: the students will use modern technology to acquire the skills needed

to prepare for a career; use various software tools to support instruction such as a forensics simulator.

The course also addresses the SCANS skills and personal qualities:

1. Basic Skills: the students will read, perform computer mathematic operations, listen and speak for weekly assignments and participate in classroom discussions.

2. Thinking Skills: the students will think creatively and make decisions in order to solve computer network problems and demonstrate reasonable problem solving skills.

3. Personal Qualities: the students will be required to display responsibility, self-management, integrity, and honesty throughout course work and classroom exercises.

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

1. Mode of Delivery

    [X] Online (course will be delivered 100% online)

    [X] Online with onsite examinations (100% of the instruction will occur online, but examinations and an orientation will be scheduled onsite)

    [X] Online/Hybrid (a percentage of instruction will be held online and the remaining percentage of instruction will be held onsite)
    [ ] Lab activities will be conducted onsite

    [ ] Televideo (Examinations and an orientation will be held onsite)

    [ ] Teleconference

    [X] Other Use of Netlabs as part of Regional Consortium.

2. Need/Justification

    Improve General Student Access and use Vendor approved curriculum that integrates Lab component online including a Lab scheduling system tracking student performance.

3. Describe how instructors teaching this course will ensure regular, effective contact with and among students.

    The instructor will be available online and will monitor the Distance Learning online course. The instructor will use the available tools in the course management system (CMS) for two-way student/instructor communication. Instructor will use the CMS tools in order to provide assessments such as assignments and quizzes.

4. Describe how instructors teaching this course will involve students in active learning.

    Lab discussion/forum and support links, and other online tools will be used so that students can practice their skills as it applies to the course material.

    Through the course management system (CMS), materials will be made available online for download. Assessments for measuring understanding and

student performance feedback will be made available through the CMS tools. Assignments, labs, and discussions will be available online.

5. Explain how instructors teaching this course will provide multiple methods of content representation.

All topics are available for research online and align with International Council of Electronic Commerce Consultants (EC-Council)curriculum including Labs, Videos and online discussion boards.

6. Describe how instructors teaching this course will evaluate student performance.

Tracking of assessments of student performance via Labs, Quizzes, Homework, and Exams.

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

CNSE M83: Not Applicable

XVII. STUDENT MATERIALS FEE ADDENDUM

CNSE M83: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

CNSE M83: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:
Discipline:
COMPUTER NETWORKING SYSTEMS ENGINEERING (CNSE)

Discipline Code and Number: CNSE M83

Course Revision Category: Substantial Course Revision

Course Proposed By:
Originating Faculty Edmond Garcia 10/09/2017

Faculty Peer: Edmond Garcia 10/09/2017

Curriculum Rep: _____

Department Chair: Navreet Sumal 10/11/2017

Division Dean: Howard Davis 11/02/2017

Approved By:
Curriculum Chair: Jerry Mansfield 03/07/2018

Executive Vice President: _____

Articulation Officer: Jodi Dickey 02/27/2018

Librarian: Mary LaBarge 02/27/2018

Implementation Term and Year: Fall 2018

Approval Dates:

Approved by Moorpark College Curriculum Committee: 03/06/2018

Approved by Board of Trustees (if applicable): 06/12/2018

Approved by State (if applicable): 06/21/2018