



# CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS POLICY MANUAL

**Division of Academic Affairs**

**Approved By:** Academic Senate  
February 3, 2015

**Policy Number:** SP.14.08

**Effective Date:** August 19, 2015

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## Security Systems Engineering Minor

### PROGRAM IDENTIFICATION

*NAME OF THE MINOR*

Security Systems Engineering Minor

*ACADEMIC PROGRAM PROPOSING THE MINOR*

Computer Science

### PROGRAM DESCRIPTION

*DESCRIPTION OF THE MINOR AND STUDENT LEARNING OUTCOMES*

This minor introduces students to the field of computer security. It provides a foundation in the fundamental computer science subjects that support the field. It also gives the student a sense of the breadth and depth of security systems and prepares them for industry or further study.

Upon successful completion of the Minor in Security Systems Engineering, a student will be able to:

- identify, describe, analyze, and interpret security issues that arise in application software, systems software and network communications,
- apply multidisciplinary, interdisciplinary, and integrative tools and methods to provide solutions for current and future security problems,
- communicate knowledge of the theory and practice of security systems engineering effectively in written, oral and visual formats.

Furthermore, upon successful completion of the minor, the student will have the equivalent of the required knowledge for the CompTIA Security+ certification, and also the students will have covered most of the topics in the Association of Computing Machinery (ACM) security curriculum.

*HOW THE MINOR SUPPORTS THE UNIVERSITY'S MISSION AND STRATEGIC GOALS*

The minor supports our Mission and Goals by increasing our interaction with other institutions and businesses in the community. In particular we are expecting to collaborate with the naval base in Ventura County. It also adds to our emphasis on interdisciplinary scholarship; security systems naturally encompass several fields. As mentioned above, the minor will cover the topics required for a CompTIA Security+ certification (in time we can form an agreement with CompTIA to have our students automatically certified upon completion of the minor). This will give our students an edge in the job market.



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## Security Systems Engineering Minor

*PROVIDE A CATALOG DESCRIPTION OF THE MINOR (include a program description, careers associated with the minor, and faculty names and titles)*

The Minor in Security Systems Engineering introduces students to the field of computer security. It provides a foundation in the fundamental computer science subjects that support the field. It also gives the student a sense of the breadth and depth of security systems and prepares them for industry or further study. The minor may be most relevant for students considering a career or postgraduate studies in the following areas: network security, application security, risk management, auditing and forensics.

Associated faculty:

Michael Soltys, Chair, Professor, Computer Science, Minor Advisor

Michael Berman, Professor, Computer Science

Andrzej Bieszczad, Professor, Computer Science

David Claveau, Assistant Professor, Computer Science

Brian Thoms, Assistant Professor, Computer Science

### CURRICULUM

- (a) Lower and Upper Division Course Requirements (including pre- and co- requisites.)  
Identify required elective courses. Identify currently available course in the catalog, and separately identify newly developed courses.

#### Required lower-division courses (10-15 units)

Choose one of the following three course sets:

1. IT/COMP 105 Computer Programming Introduction (3 units)  
+  
IT 151 IT Programming (3 units)
2. COMP 150 Object-Oriented Programming (4 units)  
+  
COMP 151 Data Structures and Program Design (4 units)
3. IT 152 Programming for Health Informatics (4 units)



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And:

COMP 162 Computer Architecture and Assembly Language (3 units)

And one of the following two courses:

1. IT/COMP 221 Unix System Programming I (3 units)
2. COMP 362 Operating Systems (4 units)

### Required upper-division courses (9 units)

MATH 300 or 301 Discrete Mathematics/Discrete Mathematics for IT (3 units)

MATH 482 Number Theory and Cryptography (3 units)

IT/COMP 424 Computer System Security (3 units)

### Electives (6-7 units)

IT 421 Unix System Programming II (3 units)

COMP/IT 420 Database Theory and Design (3 units)

COMP/IT 428 Computer Networks for Health Informatics (3 units)

COMP/IT 429 Computer Networks (3 units)

COMP/PHYS 345 Digital Image Processing (3 units)

COMP/PHYS 445 Image Analysis and Pattern Recognition (3 units)

CHEM 343 Forensic Chemistry (3 units)



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PSY/COMP 449 Human Computer Interaction (3 units)

COMP/MATH 452 Computational Bioinformatics (4 units)

COMP/SOC/COMM 342 Introduction to Social Networks (3 units)

No new courses are needed.

- (b) Total number of units in the Minor (including pre- and co-requisites)

28 - 34 units.

### ACADEMIC STRUCTURE AND ENROLLMENT

- (a) Identify the program area and persons responsible for program management and oversight.

Computer Science  
Dr. Michael Soltys, Chair

- (b) Estimate number of students enrolling in the minor in the initial year, and after three (3) and five (5) years.

	<b>Number of Students in the Minor</b>
<b>Initiation Year:</b>	5
<b>Third Year:</b>	10
<b>Fifth Year:</b>	20

### FACULTY AND STAFF RESOURCES

- (a) Existing faculty and staff qualified to each in and support the minor, including the percent of their work assignment contributing to the minor

As no new courses are introduced in support of the minor, the current faculty's teaching contribution to the minor is included in their normal course of duties.



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## Security Systems Engineering Minor

Michael Soltys, Chair, Professor, Computer Science: 2.5% (minor advisor) plus a varying amount depending on courses offered.

Time for all other faculty would vary depending on courses offered in a given semester.

Michael Berman, Professor, Computer Science

Andrzej Bieszczad, Professor, Computer Science

David Claveau, Assistant Professor, Computer Science

Brian Thoms, Assistant Professor, Computer Science

(b) Additional faculty and staff needed for the minor and the areas of expertise needed.

Two new faculty members have been hired in computer science to assist in the teaching of the courses.

### FACILITIES, EQUIPMENT, FINANCIAL AND INFORMATION RESOURCES

(a) Existing facilities, equipment, and information resources available to support the minor.

Existing computer labs: BT 2372 BT2352

Four new computer labs will be available in Sierra Hall opening Fall 2015.

(b) External funding already in progress or anticipated

We are supporting a Humboldt State University initiative to introduce Security to the CSU system. These resources are not needed to offer a minor, but if the initiative is successful (depends on NSF funding), we will have additional resources (mainly course material).

(c) Facilities, Equipment, and Information Resources Needed to Support the Minor

No new resources are required.