

CALIFORNIA STATE UNIVERSITY SAN MARCOS

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R. E. _____ Catalog _____ File _____

PROGRAM CHANGE PROPOSAL - Form P-2

COLLEGE CHABSS CoBA CoEHHS CSM

TITLE OF PROGRAM Master of Cybersecurity

Discipline CSIS (EL)

Check one: Change to Program Program Deletion

TITLE OF DEGREE PROGRAM: Master of Cybersecurity

This form is the signature sheet for a change to, or deletion of, an existing program. Note that the addition of a new option/concentration/emphasis/track is a new "program," and requires the use of Form P.

For a change to a program,

- 1. Attach a page (or pages) giving a brief summary of the purpose of this proposal, and its connection to the mission and student learning outcomes of the program.
2. Attach catalog copy showing exactly how the program should appear in the catalog if the changes are approved.

For a program deletion, attach a statement explaining the impact on students: how will the program be "taught-out" for declared majors?

Does this proposal impact other disciplines or units? Yes ___ X ___ No If yes, obtain signature(s). Any objections or concerns should be stated in writing and attached to this form. Please check the box to indicate whether a memo has been attached.

Table with 4 rows for signatures. Columns: Discipline/Unit, Signature, Date, Support, Oppose.

Approval process section with handwritten signatures and dates. Includes fields for Originator, Program/Department Director, College Curriculum Committee, College Dean, University Curriculum Committee, Budget and Long-Range Planning Committee, Academic Senate, Provost, and President.

* Where appropriate, attach a memo on program impact on the unit and the ability of the unit to support it. Check the box next to the signature line to indicate whether a memo has been attached. ^ Where appropriate, attach a memo summarizing the curricular and/or resource deliberations. Check the box next to the signature line to indicate whether a memo has been attached.

RECEIVED stamp: OCT 03 2017. Includes handwritten initials RP and PS, and a date of Revised 10/10/13.

This is a proposal to provide an online version of the existing Cybersecurity Professional Science Masters degree.

Program History

The Cybersecurity PSM program admitted its first cohort of students in the fall semester of 2015. Classes are held in the evenings, so that working professions may complete the program. The first cohort contained 10 students, 9 of which graduated in Spring 2017. Although interest in the program is high, the subsequent cohorts have been small. Students in the program often remark on the difficulty of driving to campus for classes due to regional traffic problems.

Program Mission

The workforce need for cybersecurity professionals is very large, with projected demand growing at 18% according to the US Bureau of Labor Statistics. Regional cybersecurity students are likely to enroll in an online program for In order to meet this demand, and create a sustainable program at CSU San Marcos we must offer the program in an online format.

People who express interest in the program frequently ask if is offered in an online. According to Peterson's database of accredited Schools and Programs, there are 92 Masters programs in Cybersecurity, of these 34 are online. Informal comments indicate that many of those not offering the degree online are considering or planning to make a change.

Student Learning Outcomes

The Cybersecurity Master's program was developed with the intent of providing a hands-on technology experience for students. While hands-on experiences remain valuable, a substantial amount of cybersecurity practice centers around online, virtual and/or cloud-based resources. The benefit of building experiences with cloud and virtual technologies will serve our students in their careers.

For technical labs and exercises this is achievable by means of virtual or "cloud" services. In order to participate, we will require that students have access to computer resources and network capabilities sufficient to host and access online resources. These requirements fall within normal parameters for home and business systems and do not constitute an unreasonable burden on students.

In order to provide experience with presentation and discussion skills, we will use a combination of synchronous sessions with zoom or similar "web presence" applications. This is again, consistent with modern practice where people often work at a distance and interact with people via web sessions. These sessions will be recorded and made available to the class.

Learning outcomes for individual classes do not change with the modality. In order to establish a "flipped" classroom model for distance education, most classes will implement a model where the lecture is recorded. The student reviews the lecture material and assigned readings. A weekly online session is used for discussion topics, presentations, review of labs and assignments, and/or other typical classroom purposes.

CYBERSECURITY*

The Master of Science in Cybersecurity is a professional science degree program designed to meet the needs of the computing industry and associated organizations. The program is a blend of technical courses and business courses with a capstone project. The objective of the program is to train an expertly skilled workforce to fulfill the imminent needs of the emerging and evolving cybersecurity industry. The program is designed to prepare those with strong background in computer science for management positions in cybersecurity such as the manager of the information security department, the director of risk assessment and compliance, the chief information security officer, the director of IT security, and project managers of security related projects.

Throughout the program, students will be exposed to real-world problems/cases, leading-edge technologies, managerial/interpersonal skills, ethics and governance knowledge, and problem solving skills.

The rigorous program is taught ^{online} ~~in the evenings and on weekends~~ to accommodate the working student. The program design is a cohort model that requires students to go through the program together over a five-semester period with a predetermined course sequence. It is a non-thesis degree program requiring a rigorous "Internship or Semester-In-Residence" project as culminating experience.

Each student will be guided and evaluated by an Advisory Committee that will be made up of university faculty, program instructors, and industry mentors, as well as program advisors.

Admission Requirements and Application

- Admission decisions will be made by the Admission Committee chosen by the Program Director in consultation with its faculty
- Admission decisions will be based on 1) undergraduate courses and GPA, 2) GRE scores, 3) TOEFL for some students **, and 4) the statement of purpose and recommendation letters.
- Admission to the program requires an undergraduate degree in computer science or closely related discipline, and should include upper-division courses in operating systems, networks and software engineering. Applicants with a baccalaureate degree in a related field may be able to meet pre-requisites with equivalent work experiences in computer science and will be considered for conditional admission.
- Admission requires a minimum of 3.0 grade point average in the upper-division computer science courses and at least a 2.5 undergraduate GPA in the last 60 semester units (or last 90 quarter units) attempted.

*The M.S. in Cybersecurity is offered through the Office of Extended Learning.

**All applicants must have a TOEFL score of 80 iBT or above (213 on the computer-based examination, 550 paper-based), or an IELTS score of 6.0, unless they possess a bachelor's degree from a post-secondary institution where English was the principal language of instruction.

- All applicants must submit general GRE scores ² when applying. Minimum GRE scores required are:
 - Verbal 143
 - Quantitative 155
 - Analytical Writing 3.5 (this will also satisfy the Graduate Writing Assessment Requirement)

Applicants must submit:

1. The program application form.
2. The statement of purpose outlining the reason for pursuing the degree.
3. GRE scores.
4. TOEFL score if required.
5. One set of transcripts from all colleges/universities attended.
6. Two recommendation letters on a provided form.

- Applicants to the program will be subject to standard background checks in accordance with Defense Security Service reporting requirements.

Student candidates may apply at any time throughout the year. However, selection and admission will be completed by early May for the fall semester start. Later applications will be considered, as spaces remain available. Feedback to applicants, but not final admission decisions, will be provided on a timely basis regardless of the time of application.

Degree Requirements and Courses

The Master of Cybersecurity requires thirty-eight (38) semester hours of coursework. Students must complete a set of courses and the culminating experience project with a 3.0 GPA and earn at least a "C" (2.0) in each course.

Seven Required Technical Side Courses (23 units)

MCS 510	3
MCS 511	3
MCS 512	4
MATH 503	3
MCS 610	4
MCS 611	4
MCS 680 500	2

Four Required Business Side Courses (10 units)

MGMT 521	2
MIS 522	2
MIS 621	3
MIS 622	3

Culminating Experience Total (5 units)

MCS 680A	1
MCS 680B	4
Total Units	38

- ① or resume,
- ② or resume

1346 ③ As an alternative to the GRE, applicants may submit a resume or CV showing work experience in cybersecurity or technology field.

A student who has obtained a waiver for a required course may enroll in MCS 697 Directed Studies upon consent of the instructor.

Continuation

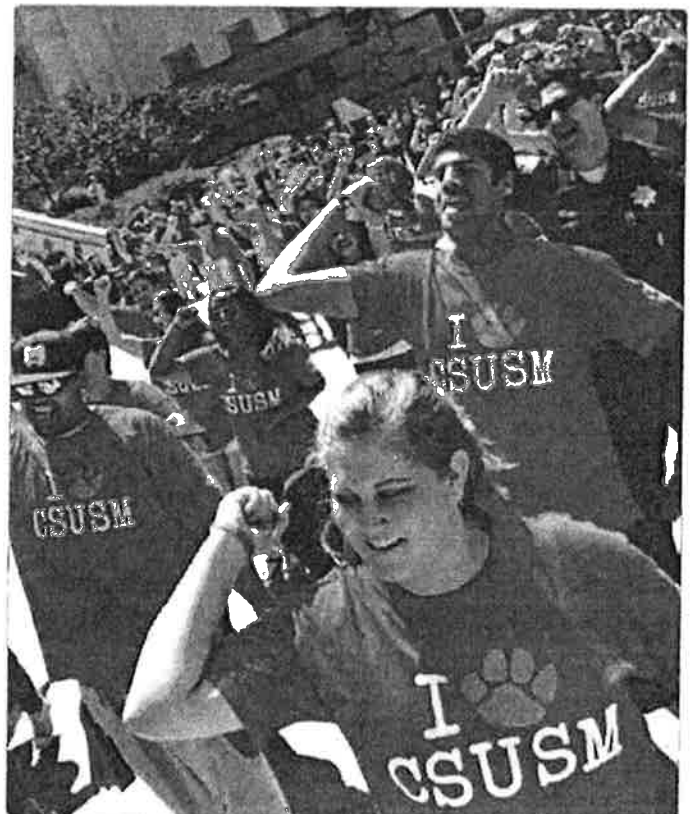
Graduate students must maintain an overall GPA of 3.0 and earn at least a C (2.0) in each course, except those taken for credit/no credit. Any student whose overall GPA falls below 3.0 for two consecutive semesters will be dropped from the program. A full-time student should be enrolled in the predetermined course schedule and credit hours each semester for the program.

Advancement to Candidacy

The student will advance to Master's Degree candidacy upon the completion of MCS 680A and approval of a Project Abstract by the student's Advisory Committee. The Advisory Committee is made up of a program faculty member, an industry mentor, and the Program Director.

Culminating Experience

All students must enroll in MCS 680A/B Internship/Semester in Residence and successfully complete a 16-week project in lieu of a research thesis. Completion and defense of the culminating experience project results in an oral defense and a substantial technically written report. Student projects will address and affect real-world challenges in cybersecurity. Students will demonstrate their ability to integrate principles of science and technology with fundamental business practices. The type of experience and nature of the project will vary, depending upon the student's background, employment, and right-to-work status. A substantive written project report must be submitted, orally defended, and approved at the end of the Internship/Semester-In-Residence. In unusual circumstances where project requirements are not completed, defended, and approved at the end of MCS 680B, a student may complete the requirements within six months under the guidance of the advisory committee. In such cases, enrollment in MCS 699 is required.



Criselda Yee

From: Criselda Yee
Sent: Thursday, October 05, 2017 4:43 PM
To: Ali Ahmadinia
Cc: Teresa Macklin; Youwen Ouyang; Ricardo Fierro; Aaron Guy; Paul Stuhr; Regina Eisenbach
Subject: M.S. in Cybersecurity P-2 Form

Hi Ali,

We received the P-2 form for Master of Science in Cybersecurity.

Please note, that since this is a proposal for an online program, it will need WASC approval as well. Regina Eisenbach, Dean of Academic Programs, will work with you on the template. You may obtain the template from Regina if your office does not have a copy.

Best regards,
Criselda

Criselda Yee

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