

**Office of the President
California State University, Chico**



Executive Memorandum 18-017

June 7, 2018

From: Gayle E. Hutchinson, President

Subject: Significant Change to the MS in Electrical and Computer Engineering

Upon the recommendation of the Academic Senate and the concurrence of the Provost, I approve the Significant Changes to the MS in Electrical and Computer Engineering. This change discontinues the options in Electronic Engineering and Computer Engineering to streamline the program and enhance the quality of the degree as students will take a selection of both computer and electrical engineering courses. The number of units will remain 30 and the change will be effective fall 2019.

Policy Title:	EM 18-017 Significant Change to the MS in Electrical and Computer Engineering
Contact:	Electrical and Computer Engineering Department
Supersedes:	
Revision:	
Enabling Legislation or Executive Order:	

Graduate Program Significant Change

Program Name: MS in Electrical and Computer Engineering _____

Complete only if applicable

Program named above is:

Option within _____
(degree program name)

Advising Pattern within _____
(option name)

within _____
(degree program name)

Certificate

Department Contact(s) w/phone #(s): Kathleen Meehan x5746

Required Signatures

The Department of Electrical and Computer Engineering
_____ **has reviewed and approved this program change**

Chair, Department Curriculum Committee

Date

Department Chair

Date

The College of ECC
_____ **has reviewed and approved this program change**

Chair, College Curriculum Committee

Date

College Dean

Date

The Graduate Council has reviewed and approved this program change

Dean of Graduate School

Date

Send signature page with proposal attached to Curriculum Services at Undergraduate Education, zip 128

Curriculum Review Completed

Date

Note: The department will be notified on the of dates for EPPC, Academic Senate, and Chancellor's Office (if applicable) review and number of copies needed.

Proposal for Significant Changes

I. Program name and level: *MS in Electrical and Computer Engineering (MSECE), Graduate*

A. Academic year of intended implementation.

2018-2019

B. Name of the department and college submitting the proposal.

Department of Electrical and Computer Engineering (EECE)

College of Engineering, Computer Science, and Construction

Management (ECC)

1. Identify the unit, which will have primary responsibility for the program.

Department of Electrical and Computer Engineering (EECE)

2. Name, title, and rank of the individual(s) primarily responsible for drafting the proposed program change.

Kathleen Meehan

*Chair, Department of Electrical and Computer Engineering
Professor*

3. How many declared students are currently in the program.

29 in fall 2017

II. Provide an **abstract**, no longer than one page, that describes why you are making these changes and how they are related to the University [Strategic Plan](#), the [Academic Plan](#), the [Diversity Action Plan](#) (see definition and Task 3.1) and your most recent academic program review (i.e. Five Year Review or Accreditation). *The MSECE degree currently has two options in Electronic Engineering and Computer Engineering. This proposal seeks to discontinue these options. The primary reasons for the elimination of options are to (1) streamline the program administration and (2) achieve efficient course offering to provide a better alignment of closely related fields of computer engineering and electrical/electronic engineering.*

The consolidated degree will require a minimum of 30 units of which 18 units must be from EECE courses. At least 18 of the required 30 units must be from 600-level courses. Three core courses are required including EECE 615, EECE 643, and EECE 682. Other requirements remain unchanged following the POLICIES, PROCEDURES, & FORMAT by the Office of Graduate Studies.

This program change fulfills University Strategic Priorities in “developing high-quality learning environments” and the “wise use of new technologies in learning and teaching”. These changes are not directly related to the University Diversity Action Plan.

The most recent program review is a Five Year Review of MSECE in 2012.

III. Resources and program support.

- A. Indicate additional faculty or staff support positions needed to implement the program changes.

In this program change, all proposed core courses are existing courses having been taught regularly. The three proposed core courses (EECE 615, EECE 643, EECE 682) are current core for Electronics Engineering and/ or Computer Engineering options.

There will be no impact to the EECE department as 500 and 600- level courses will be taught as core or elective courses as usual. There will be no additional faculty or staff support positions needed.

Removing EECE 655 from the core

EECE 655 currently is a core course for Computer Engineering option, but will not be included in the new core for the MSECE degree. Records show that nine (9 Computer Engineering option) students took CSCI 446 in the last two years; an average of 2 per semester. Conceivably, less students will take it when the course becomes an elective, and the need for CSCI 446 will be reduced. The department estimates the number will reduce to around three (3) per year.

The net impact of the proposed program change on the CSCI department will be reduced to very insignificant.

- B. Indicate changes in or additional space and facilities that would be needed.

No additional space and facilities will be needed as existing resources are adequate.

- C. List additional library resources, equipment, and other specialized materials that will be needed.

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None.

- D. A statement by the responsible administrator(s) should be attached to the proposal.

See Attachment I, page 7

IV. Program details.

- A. Total number of units required for the revised program. Indicate if this is a change from the current number of units and the reason for the change. If this is a high unit program, please indicate whether you will be asking for any modification for General Education requirements.

Total number of units required remains unchanged at a minimum of 30 units at 400, 500, and 600-levels. Of the 30 units, at least 18 must be from EECE courses, offered at the 600-level. Twelve units from the required core count toward the required 30 units.

- B. List courses required for the program that are added, deleted, or changed. Mode of delivery is either regular, on-line, or hybrid. More than mode of delivery can be indicated. Please add rows as necessary with one row for each course.

Course Number	Course Title	Change	Units of Credit	Prerequisites and/or Recommended Background	Course Description if New Course	Mode of Delivery
EECE 655	Topics in Computer Networking	Deleted from core	4	Prerequisites: CSCI 446 Recommended: EECE 555	N/A	Regular

- C. List new and changed elective courses for the revised program. Indicate which are added, deleted, or changed. Mode of delivery is either regular, on-line, or hybrid. Please add rows as necessary with one row for each course.

None

Note: The catalog defines prerequisites in the following manner “You must fulfill specific course work or other conditions before you will be allowed to enroll in the course. Prerequisites may be waived by the faculty member only on approval of a formal petition which fully outlines the equivalent attainment.” Recommended background may be preferable in some instances. The catalog defines recommended background in the following manner “It is

recommended that you have prior course work or knowledge; the term is used to advise and caution, but not to prevent enrollment.”

- D. For new, changed, and/or deleted courses identify the primary faculty responsible for those courses and how the shift in responsibilities will be accounted for by the program.

EECE 655 deleted from core courses

Primary instructor: Kurtis Kredo II

The primary instructor has other teaching assignments.

- E. Explanation of any special program characteristics (e.g., terminology, credit units required, types of coursework, etc.).

None

- F. Provision for meeting accreditation requirements, where applicable, and anticipated date of accreditation request.

N/A

- G. Other program requirements.

1. Undergraduate programs: Catalog number and title of the current writing proficiency (WP) course and replacement course, if applicable.

N/A

2. Graduate programs: Indicate how the graduate literacy requirement is met.

Students are required to successfully complete either the graduate writing exam or the writing proficiency course, EECE 335.

3. Graduate programs: indicate the culminating activity options for the program

Thesis, project, or comprehensive examination.

- H. For undergraduate programs, include a revised [Major Academic Plan \(MAP\)](#) with the proposal. If you have questions or need help, contact [Academic Advising Programs](#).

N/A

- I. Catalog copy of the current program.

See Attachment II, page 8

- J. Complete catalog copy for the revised program, including full degree requirements, admission, and completion requirements. See the current University Catalog for correct format and follow it exactly. Before the proposal is submitted to Academic Affairs (for undergraduate options) or

to the Office of Graduate Studies (for graduate program options), it may be helpful to review catalog copy with Academic Publications.

See Attachment III, page 13

Please number all pages of the proposal. Attach the [Undergraduate Program Signature form](#) or the [Graduate Program Signature form](#) to the front of the proposal and submit to Academic Affairs or the Office of Graduate Studies after all department and college reviews are complete.



Date: October 26, 2017

To: Academic Affairs

From: Kathleen Meehan, Chair of the Department of Electrical and Computer Engineering

A handwritten signature in blue ink, appearing to read 'K. Meehan'.

Subject: Proposal for Significant Changes in Master of Science in Electrical and Computer Engineering



As Chair of the Department of Electrical and Computer Engineering, I am in complete support of the proposed changes to the Master of Science in Electrical and Computer Engineering program. These changes, agreed upon by the faculty in the department, are the removal of the two options: Electrical Engineering and Computer Engineering, within the degree program and a modification to the required courses. These changes will assist in the administration of the graduate program and scheduling of the course offerings. These revisions will also enhance the quality of the graduate program as students will be able to take a selection of computer and electrical engineering courses, reflecting the reality in the workplace where the division of job responsibilities between electrical and computer engineer has blurred. In this process, no new courses have been added as all of the core courses are already in place. As a result, there are no additional resources needed to implement these changes.

The Master of Science in Electrical and Computer Engineering

The MS in Electrical and Computer Engineering is designed to serve those students who wish to obtain advanced knowledge in the design of high-speed electronic systems or computer-based systems. This knowledge helps prepare students for a doctoral program or an intermediate level position in industry.

Course Requirements for the Master's Degree: 30 units

Continuous enrollment is required. At the discretion of the academic program, a maximum of 30 percent of the units counted toward the degree requirements may be special session credit earned in non-matriculated status combined with all transfer coursework. This applies to special session credit earned through Open University, or in courses offered for academic credit through the Center for Regional and Continuing Education.

Graduate Time Limit:

All requirements for the degree are to be completed within five years of the end of the semester of enrollment in the oldest course applied toward the degree. See [Master's Degree Requirements](#) in the *University Catalog* for complete details on general degree requirements.

Prerequisites for Admission to Conditionally Classified Status:

1. Satisfactory grade point average as specified in [Graduate and Postbaccalaureate Admission Requirements](#) in the *University Catalog*.
2. Approval by the department and the Office of Graduate Studies.
3. A professionally accredited baccalaureate in electrical or computer engineering, or an equivalent approved by the Office of Graduate Studies.
4. Successful completion of the Graduate Record Examination if required by the Graduate Coordinator.

Prerequisites for Admission to Classified Status:

In addition to any requirements listed above:

1. Successful completion of the Graduate Writing Examination.
2. Completion of background preparation equivalent to the following undergraduate courses: MATH260, EECE 237, EECE 315, EECE 320, EECE 343, EECE 344, EECE 365, and EECE 482 or MECA 482.

All required undergraduate electrical and computer engineering (EECE) courses must be taken for a letter grade, and a grade of C or better must be earned in each course. Students are required to complete the background courses, if needed, immediately as a matter of reasonable progress toward the master's degree.

Advancement to Candidacy:

In addition to any requirements listed above:

1. Formation of the graduate advisory committee in consultation with the Graduate Coordinator.
2. Development of an approved program, including a thesis or project proposal if the thesis or project plan is chosen, in consultation with the Graduate Coordinator.
3. Classified graduate standing and completion at the University of at least 9 units of the proposed program with a minimum 3.00 grade point average.

Requirements for the MS Degree in Electrical and Computer Engineering

Completion of all requirements as established by the department graduate committee, the graduate advisory committee, and the Office of Graduate Studies, to include:

1. Completion of an approved program consisting of 30 units of 400/500/600-level courses as follows:

(a) Completion of the 12-unit core:

EECE 615	High-Frequency Design Techniques	4.0	FA
<i>Prerequisite: EECE 315.</i>			
EECE 643	Digital Design	4.0	SP
<i>Prerequisites: EECE 343</i>			
EECE 682	Computer Control of Dynamic Systems	4.0	SP
<i>Prerequisites: EECE 482 or MECA 482</i>			

(b) Completion of 18 of approved 400/500/600 level elective courses.

(c) At least 18 units, including a thesis or project if chosen, must be in electrical and computer engineering (EECE); remaining units may be selected from electrical or computer engineering or in related areas with the approval of the Graduate Coordinator.

(d) At least 18 of the units required for the degree must be 600-level EECE courses.

(e) At the discretion of the academic program, a maximum of 30 percent of the units counted toward the degree requirements may be special session credit earned in non-matriculated status combined with all transfer coursework. This applies to special session credit earned through Open University, or in courses offered for academic credit through the Center for Regional and Continuing Education. (Correspondence courses and UC Extension coursework are not acceptable for transfer).

2. Completion and final approval of one of the following three plans as specified by the graduate advisory committee:

(a) Thesis Plan. This plan includes 24 units of course work and 6 units of thesis research (EECE 699T). Research may be theoretical or applied, but must reflect an individual in-depth study into an approved topic. This plan requires a formal research thesis which must be submitted to the Office of Graduate Studies for approval and accession to the library.

(b) Project Plan. Requirements for this plan consist of 27 units of course work and 3 units of project preparation (EECE 699P). The project must show how analysis and design have been applied to a particular area of electronic or computer engineering. A written project description must be submitted to the Office of Graduate Studies for approval and accession to the library.

(c) Examination Plan. Requirements for this plan consist of 30 units of course work and a comprehensive written examination prepared by the faculty. The three-hour examination will cover areas covered in EECE 615, EECE 643, and EECE 682.

3. Approval by the Graduate Coordinator and the Graduate Coordinators Committee on behalf of the faculty of the University.

Graduate Requirement in Writing Proficiency:

Writing proficiency is a graduation requirement.

Students will demonstrate their writing competence through successfully completing either a departmentally administered examination or EECE 335. Consult the Graduate Coordinator for specific information.

Graduate Grading Requirements:

All courses in the major (with the exceptions of Independent Study - 697, Master's Project - 699P, and Master's Thesis - 699T) must be taken for a letter grade, except those courses specified by the department as ABC/No Credit (400/500-level courses), AB/No Credit (600-level courses), or Credit/No Credit grading only. A maximum of 10 units combined of ABC/No Credit, AB/No Credit, and Credit/No Credit grades may be used on the approved program (including 697, 699P, 699T and courses outside the major). While grading standards are determined by individual programs and instructors, it is also the policy of the University that unsatisfactory grades may be given when work fails to reflect achievement of the high standards, including high writing standards, expected of students pursuing graduate study.

Students must maintain a minimum 3.0 grade point average in each of the following three categories: all coursework taken at any accredited institution subsequent to admission to the master's program; all coursework taken at CSU, Chico subsequent to admission to the program; and all courses on the approved master's degree program.

In addition, students may not count more than two courses in which they received a grade of C toward the approved program.

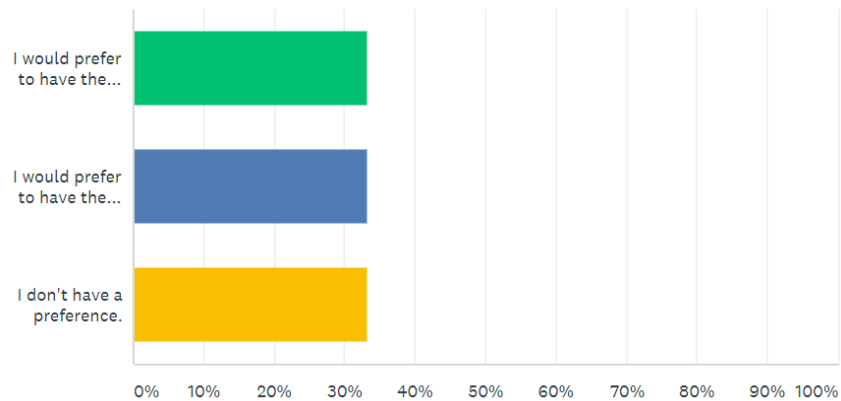
Appendix A

Graduate Student Survey

3 students responded from a population of 19 MS ECE students.

Having the options in MS ECE Curriculum is desirable.

Answered: 3 Skipped: 0



When asked for an explanation about their choice, the students' comments were:

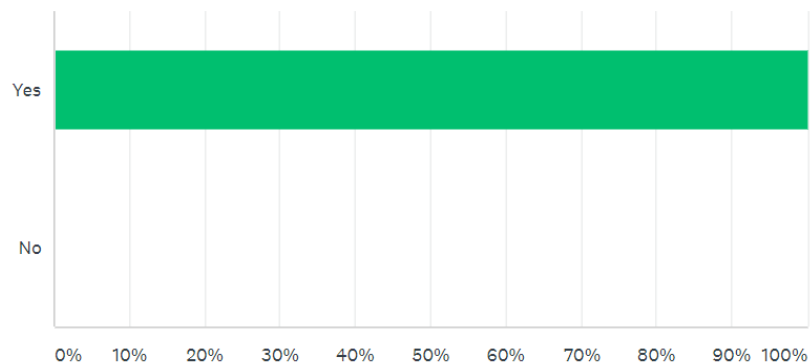
Some may want to take a more computer based degree while some are looking for a hands on or technical degree

I do not mind the current curriculum, being able to choose your current classes and what you are interested in is a good thing. While having something concrete on the curriculum provides the students guidance is also an advantage.

This will eliminate confuse on required courses and provide a more uniform exit exam.

If the options are removed, the required courses (EECE 615, EECE 643, and EECE 682) are acceptable.

Answered: 3 Skipped: 0



When asked which courses the students suggest should be required, the responses were:

N/A

EECE 643, EECE 655

EECE 653, Due to the undergraduate program giving the option between power systems and communications it would be nice to see the graduate program reflect that by requiring 653 as a course to be taken.

The courses identified in the second response cover topics in computer engineering while the course in the third response covers topics that are more appropriate for students studying electrical engineering.

From the survey results, we can conclude that:

- In general, the graduate students did not have a strong opinion about the required courses in the curriculum, given the low response to the survey (15.8%).
- There is no consensus of those students who did respond about the value of the current options in the MS ECE program.
- The three courses identified in the proposed modification to the MS ECE program are acceptable to those students who responded to the survey.