California State University Chico
Office of the President

Executive Memorandum 24-021

May 31, 2024

From: Stephen Perez, President

Subject: Approval of Blended BS + MS Electrical and Computer Engineering programs

In accordance with EM 23-005 and with the approval of the Chancellor's Office, I approve two blended programs within the Department of Electrical and Computer Engineering, College of Engineering, Computer Science, and Construction Management.

- Electrical/Electronic Engineering BS + Electrical and Computer Engineering MS
- Computer Engineering BS + Electrical and Computer Engineering MS

These blended programs will allow 12 units to double count towards both the bachelor's and master's degrees and will be effective fall 2025.

Policy Title:	EM 24-021 Blended BS + MS Electrical and Computer Engineering
Contact:	Department of Electrical and Computer Engineering, College of Engineering, Computer Science, and Construction Management
Supersedes:	
Revision:	
Enabling Legislation or Executive Order:	

The California State University
ACADEMIC & STUDENT AFFAIRS

Brent M. Foster, Ph.D.
Assistant Vice Chancellor and
State University Dean of Academic Programs
CSU Office of the Chancellor
401 Golden Shore, Long Beach, CA 90802

www.calstate.edu

May 16, 2024

Dr. Kate McCarthy
Dean of Undergraduate Education
California State University, Chico
400 West First Street
Chico, California 95929

Dear Kate,

Thank you for notifying us that California State University, Chico has approved the new state support blended program, effective fall 2025, as shown below:

Degree	**Degree/ CIP Code**	**Concentration**	**Concentration/ CIP Code**	**Support Mode**
BS Electrical/Electronic Engineering	09093/14.1001	Electrical/Electronic Engineering BS + Electrical and Computer Engineering MS	09093/14.1001	State
MS Electrical and Computer Engineering	09095/14.0901	Electrical/Electronic Engineering BS + Electrical and Computer Engineering MS	09095/14.0901	State
BS Computer Engineering	09094/14.0901	Computer Engineering BS + Electrical and Computer Engineering MS	09094/14.0901	State
MS Electrical and Computer Engineering	09095/14.0901	Computer Engineering BS + Electrical and Computer Engineering MS	09095/14.0901	State

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The CSU Degrees Database should be updated prior to implementation of these programs. If you have questions, please contact me at bfoster@calstate.edu.

Sincerely,

Brent M. Foster, Ph.D.
Assistant Vice Chancellor & State University Dean of Academic Programs

c: Dr. Sharon Barrios, Dean of Graduate Studies

Blended Program Screening Form

Section One: Program Name, Principles, and Description

1. Which department and college will maintain/oversee the program?*

   Electrical and Computer Engineering Department

2. What will be the full title of the blended program (e.g, BS Environmental Engineering + MS Engineering Management)?*

   Blended BS Electrical/Electronic Engineering + MS Electrical and Computer Engineering, Blended BS Computer Engineering + MS Electrical and Computer Engineering

3. Date of Proposed Implementation (e.g., fall 2024)*:

   Fall 2025

4. Who has been consulted about this proposed blended program (include related correspondence, if pertinent)?

   Electrical and Computer Engineering Department, Vice Provost of Undergraduate Education and Academic Success Kate McCarthy, Dean of Graduate Studies Sharon Barrios

5. Existing undergraduate program to be blended*: **BS Electrical/Electronic Engineering and BS CoBS Electrical/Electronic Engineering and BS Computer Engineeringmputer Engineering**

   a. State- or Self-Support?*

   State-Supported for both programs

6. Existing graduate program to be blended*: **MS Electrical and Computer Engineering**

   a. State- or Self-Support?*

   State-Supported

7. If either program is self-support, how will the tuition and fees be clearly defined and distinguished for each program and appropriately assessed?*

   N/A

8. How will students be supported in the blended/accelerated program?*

   Existing undergraduate academic advising, MS advising, and the ECC Student Success Center.

9. Delivery format for each program (e.g., fully in-person, fully online, hybrid, or HyFlex)*

   All programs are delivered in-person.

10. How many undergraduate units do students need to complete in order to apply for the program?

    90

11. Provide a degree roadmap (including blended double-counts) for the entire blended program that outlines the recommended courses and sequence.*
Complete BS flowchart + MS degree requirements with up to 12 hours of approved 400/500/600 courses with B average or better, with no grade less than a C counted toward both degrees (note that all CSU Chico BS degree holders will meet MS prerequisites). The 12 hours of 400/500/600 courses for Electrical/Electronic Engineering majors are EECE 465, EECE 490AW, and EECE 490B. The 12 hours of 400/500/600 courses for Computer Engineering majors are EECE 525, EECE 490AW, EECE 490B. The CMPE+ECE program requires 144 units (126 +30-12). The EENG+ECE program requires 145 units (127+30-12). The attached MAPs show these points.

Per the Chancellor's Office's, a degree roadmap "serves as a visual presentation of the department's recommended pathway for the achievement of all program requirements. Thus, the degree roadmap is an invaluable advising tool for students and their advisors. While there is no prescriptive format for the roadmap, at a minimum, the roadmap should reflect the recommended*:

i. Courses by term*

See attached for each program.

ii. Number of units per course*

4 units except for EECE 693, EECE 699P, EECE 699T, and EECE 697.

iii. Total number of units per term*

8

iv. Timing of completing any offsite, internship, and/or capstone requirements* **N/A**

v. All blended double-counting (maximum 12 units)*

12

vi. For undergraduates, GE/breadth course taking pattern and any potential double-counting with major requirements*

N/A

Section Two: Impact on or Changes to Existing Programs

12. Will the graduate program requirements be affected? If so, in what way(s)?

    No

13. Will the undergraduate program requirements be affected? If so, in what way(s)?

    No

14. Will the undergraduate learning objectives be altered in any way? If so, how?

    No

15. Will the change to the undergraduate program affect another program's curriculum in any negative way?

    No

16. How will the established assessment practices for the existing programs to be blended inform improvements in the new blended program?*

    The department will use existing assessment practices, as defined for ABET for the undergraduate program, and by the department for the graduate program, to evaluate and improve the blended programs. Collating results from both programs for those students in the blended program will enable the department to ensure students meet all learning objectives.

17. If the current undergraduate or graduate program is externally accredited, could this blended program affect our accreditation status? (Please include any correspondence with external accrediting bodies, if applicable.)

    No

18. Do you anticipate any resource or faculty needs to implement and maintain this program? How will these costs be met?

    Additional faculty if program growth requires given teaching workload limits.

19. Provide a coordination plan between the academic department(s), budget and/or financial aid office and campus registrar regarding students' transition from undergraduate and graduate status.*

    Program will be initially advertised to BS Capstone students and applications are required prior to census date of last semester of undergraduate work. **We are developing a multi-step process to ensure the successful transition of students from undergraduate to graduate status involving the offices of the Registrar, Advising, Financial Aid, Student Financial Services, Graduate Studies, and the academic department. The responsibilities and duties of each unit will be clearly defined and prescribed and include: (1) developing the program's academic planner, (2) opening up the blended program application process, (3) admitting students into the blended program and changing their major, (4) providing ongoing program and financial aid advising, (5) conducting an evaluation of graduation eligibility for the bachelor's degree, (6) transitioning students to graduate status; and (7) evaluating and clearing the graduate student for the master's degree.**

Approved: H Salehi Mar 18, 2024

Graduate Program Coordinator(s)

Approved: Kurtis Kredo II Mar 19, 2024

Department Chair(s)

Approved: [signature] Mar 19, 2024

College Dean(s)

Approved: Sharon Barrios Mar 21, 2024

Graduate Studies Dean

BS Electrical/Electronic Engineering + MS Electrical & Computer Engineering Course Plan (Freshman)

Year	Term	Major Courses				GE Courses	Units
1	Fall	MATH 120: Analytic Geometry and Calculus	EECE 101: Exploration of Electrical and Computer Engineering	CSCI 111: Programming and Algorithms I		A1, A2	16
	Spring	MATH 121: Analytic Geometry and Calculus	PHYS 204A: Physics for Students of Science and Engineering: Mechanics	EECE 144: Digital Logic Fundamentals		POLS 155	15
2	Fall	MATH 260: Elementary Differential Equations	PHYS 204B: Physics for Students of Science and Engineering: Electricity and Magnetism	EECE 211: Linear Circuits I	EECE 211L: Linear Circuits I Activity	Area C	15
	Spring	MATH 220: Analytic Geometry and Calculus	CHEM 111: General Chemistry OR EECE 314/314L: Biomedical Instrumentation	EECE 311: Linear Circuits II **UD-B**	EECE 237: Embedded System Development	HIST 130	18
3	Fall	MATH 314: Probability and Statistics for STEM	EECE 365: Signals, Systems, and Transforms	EECE 315: Electronics I		Area F	15
	Spring	EECE 343: Computer Architecture Performance and Implementation OR EECE 416: CMOS Digital Integrated Circuits Design	EECE 481: Electromechanical Conversion OR EECE 483: Power Systems Operation	EECE 344: Digital System Design		B2, **UD-C**	18
4	Fall	**EECE 465: Digital Signal Processing**	EECE 375: Fields and Waves OR EECE 453: Communication Systems Design	**EECE 490AW: Engineering Profession and Design**		**UD-D**	15
	Spring	EECE 565: Bioimaging Systems OR EECE 566: Applied Digital Image Processing	EECE 316: Electronics II OR EECE 482: Control System Design	**EECE 490B: Engineering Economics and Project Implementation**	Restriced Elective		15
5	Fall	EECE 664: Machine Learning for Engineers	EECE 600 Elective	EECE 600 Elective			11
	Spring	EECE 600 Elective	EECE 693: Research Methods in Electrical and Computer Engineering				7
						Total	**145**

BS Computer Engineering + MS Electrical and Computer Engineering Course Plan (Freshman)

Year	Term	Major Courses				GE Courses	Units
1	Fall	MATH 120: Analytic Geometry and Calculus	EECE 101: Exploration of Electrical and Computer Engineering	CSCI 111: Programming and Algorithms I		A1, A2	16
	Spring	MATH 121: Analytic Geometry and Calculus	PHYS 204A: Physics for Students of Science and Engineering: Mechanics	EECE 144: Digital Logic Fundamentals	MATH 217 or CSCI 217: Discrete Mathematics		15
2	Fall	PHYS 204B: Physics for Students of Science and Engineering: Electricity and Magnetism	EECE 237: Embedded System Development	CSCI 211: Programming and Algorithms II		Area F, POLS 155	17
	Spring	MATH 260: Elementary Differential Equations	EECE 211: Linear Circuits I	EECE 211L: Linear Circuits I Activity	CSCI 311: Algorithms and Data Structures	HIST 130	15
3	Fall	CHEM 111: General Chemistry	EECE 311: Linear Circuits II **UD-B**	EECE 343: Computer Architecture Performance and Implementation	EECE 446: Introduction to Computer Networks and Network Management	Area C	18
	Spring	EECE 315: Electronics I	EECE 344: Digital System Design	Restricted Elective		**UD-C**	14
4	Fall	MATH 314: Probability and Statistics for STEM	EECE 365: Signals, Systems, and Transforms	EECE 437: Real-Time Embedded Systems	**EECE 490AW: Engineering Profession and Design**		16
	Spring	Restriced Elective	**EECE 525: High Performance Computing**	**EECE 490B: Engineering Economics and Project Implementation**		**UD-D**	15
5	Fall	EECE 664: Machine Learning for Engineers	EECE 600 Elective	EECE 600 Elective			11
	Spring	EECE 600 Elective	EECE 693: Research Methods in Electrical and Computer Engineering				7
						Total	**144**

BS Electrical/Electronic Engineering + MS Electrical & Computer Engineering Course Plan (Transfer)

Year	Term	Major Courses				GE Courses	Units
1	Fall	MATH 120: Analytic Geometry and Calculus	EECE 101: Exploration of Electrical and Computer Engineering	CSCI 111: Programming and Algorithms I		A1, A2	16
	Spring	MATH 121: Analytic Geometry and Calculus	PHYS 204A: Physics for Students of Science and Engineering: Mechanics	EECE 144: Digital Logic Fundamentals		POLS 155	15
2	Fall	MATH 260: Elementary Differential Equations	PHYS 204B: Physics for Students of Science and Engineering: Electricity and Magnetism	EECE 211: Linear Circuits I	EECE 211L: Linear Circuits I Activity	Area C, B2	18
	Spring	MATH 220: Analytic Geometry and Calculus	CHEM 111: General Chemistry OR EECE 314/314L: Biomedical Instrumentation		EECE 237: Embedded System Development	HIST 130, Area F	17
3	Fall	MATH 314: Probability and Statistics for STEM	EECE 365: Signals, Systems, and Transforms	EECE 315: Electronics I	EECE 311: Linear Circuits II **UD-B**		16
	Spring	EECE 343: Computer Architecture Performance and Implementation OR EECE 416: CMOS Digital Integrated Circuits Design	EECE 481: Electromechanical Conversion OR EECE 483: Power Systems Operation	EECE 344: Digital System Design		**UD-C**	15
4	Fall	**EECE 465: Digital Signal Processing**	EECE 375: Fields and Waves OR EECE 453: Communication Systems Design	**EECE 490AW: Engineering Profession and Design**		**UD-D**	15
	Spring	EECE 565: Bioimaging Systems OR EECE 566: Applied Digital Image Processing	EECE 316: Electronics II OR EECE 482: Control System Design	**EECE 490B: Engineering Economics and Project Implementation**	Restriced Elective		15
5	Fall	EECE 664: Machine Learning for Engineers	EECE 600 Elective	EECE 600 Elective			11
	Spring	EECE 600 Elective	EECE 693: Research Methods in Electrical and Computer Engineering				7
						Total	**145**

BS Computer Engineering + MS Electrical and Computer Engineering Course Plan (Transfer)

Year	Term	Major Courses				GE Courses	Units
1	Fall	MATH 120: Analytic Geometry and Calculus	EECE 101: Exploration of Electrical and Computer Engineering	CSCI 111: Programming and Algorithms I		A1, A2	16
	Spring	MATH 121: Analytic Geometry and Calculus	PHYS 204A: Physics for Students of Science and Engineering: Mechanics	EECE 144: Digital Logic Fundamentals	MATH 217 or CSCI 217: Discrete Mathematics		15
2	Fall	PHYS 204B: Physics for Students of Science and Engineering: Electricity and Magnetism	EECE 237: Embedded System Development	CSCI 211: Programming and Algorithms II		Area F, POLS 155	17
	Spring	MATH 260: Elementary Differential Equations	EECE 211: Linear Circuits I	EECE 211L: Linear Circuits I Activity		HIST 130, Area C	14
3	Fall	CHEM 111: General Chemistry	EECE 311: Linear Circuits II **UD-B**	EECE 343: Computer Architecture Performance and Implementation	CSCI 311: Algorithms and Data Structures		16
	Spring	EECE 315: Electronics I	EECE 344: Digital System Design	Restricted Elective	EECE 446: Introduction to Computer Networks and Network Management	**UD-C**	17
4	Fall	MATH 314: Probability and Statistics for STEM	EECE 365: Signals, Systems, and Transforms	EECE 437: Real-Time Embedded Systems	**EECE 490AW: Engineering Profession and Design**		16
	Spring	Restriced Elective	**EECE 525: High Performance Computing**	**EECE 490B: Engineering Economics and Project Implementation**		**UD-D**	15
5	Fall	EECE 664: Machine Learning for Engineers	EECE 600 Elective	EECE 600 Elective			11
	Spring	EECE 600 Elective	EECE 693: Research Methods in Electrical and Computer Engineering				7
						Total	**144**