

# EEE 130: ELECTROMECHANICAL CONVERSION

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## In Workflow

1. EEE Committee Chair (102011596@csus.edu)
2. EEE Chair (mahyar.zarghami@csus.edu)
3. ECS College Committee Chair (abadi@csus.edu)
4. ECS Dean (arad@csus.edu)
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7. Dean of Undergraduate (gardner@csus.edu)
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9. Catalog Editor (catalog@csus.edu)
10. Registrar's Office (k.mcfarland@csus.edu)
11. PeopleSoft (PeopleSoft@csus.edu)

## Approval Path

1. Fri, 10 Feb 2023 23:30:20 GMT  
102011596: Rollback to Initiator
2. Fri, 24 Feb 2023 22:04:50 GMT  
102011596: Approved for EEE Committee Chair
3. Fri, 05 May 2023 22:21:57 GMT  
Mahyar Zarghami (mahyar.zarghami): Approved for EEE Chair
4. Fri, 12 May 2023 16:39:27 GMT  
Masoud Ghodrat Abadi (abadi): Approved for ECS College Committee Chair
5. Fri, 12 May 2023 16:54:24 GMT  
Behnam Arad (arad): Approved for ECS Dean

## History

1. Feb 18, 2022 by Mahyar Zarghami (mahyar.zarghami)
2. Jun 14, 2022 by 302822325

Date Submitted: Thu, 16 Feb 2023 18:50:22 GMT

**Viewing: EEE 130 : Electromechanical Conversion**

**Last approved: Tue, 14 Jun 2022 14:01:32 GMT**

**Last edit: Fri, 12 May 2023 16:34:40 GMT**

Changes proposed by: Atousa Yazdani (217486426)

**Contact(s):**

Name (First Last)	Email	Phone 999-999-9999
Atousa Yazdani	atousa.yazdani@csus.edu	5302195018

**Catalog Title:**

Electromechanical Conversion

**Class Schedule Title:**

Electromechanical Conversion

**Academic Group: (College)**

ECS - Engineering & Computer Science

**Academic Organization: (Department)**

Electrical and Electronic Engineering

**Will this course be offered through the College of Continuing Education (CCE)?**

No

**Catalog Year Effective:**

Spring 2024 (2023/2024 Catalog)

**Subject Area: (prefix)**

EEE - Electrical and Electronic Engineering

**Catalog Number: (course number)**

130

**Course ID: (For administrative use only.)**

126876

**Units:**

3

**Is the only purpose of this change to update the term typically offered or the enforcement of existing prerequisites at registration?**

No

**In what term(s) will this course typically be offered?**

Fall, Spring

**Does this course require a room for its final exam?**

Yes, final exam requires a room

**This course complies with the credit hour policy:**

Yes

**Justification for course proposal:**

Traditionally the Electromechanical Conversion course offers knowledge of stationary and rotating electric machines. Students come in to the course with not enough visualization capabilities to understand the material. Recently, power lab was equipped with educational level equipment. The equipment is safe to be used by students. Requiring EEE 130 and EEE 131 as co-requisites will serve students in multiple ways.

1- enhances their understanding of the concepts

2- gives them hands on opportunity to test the concepts in a safe and educationally-friendly environment

3- there is room for mistakes in the lab and clearing the mistakes will teach students much better than listening to lectures in a one way class room environment.

**Course Description: (Not to exceed 80 words and language should conform to catalog copy.)**

Magnetic circuits and principles of electromechanical energy conversion, Transformers, Rotating Magnetic Fields, Asynchronous AC machines, Synchronous AC machines, DC machines, Introduction to special machines, Introduction to power electronic drives.

**Are one or more field trips required with this course?**

No

**Fee Course?**

No

**Is this course designated as Service Learning?**

No

**Is this course designated as Curricular Community Engaged Learning?**

No

**Does this course require safety training?**

No

**Does this course require personal protective equipment (PPE)?**

No

**Does this course have prerequisites?**

Yes

**Prerequisite:**

EEE 117 and EEE 161

**Prerequisites Enforced at Registration?**

Yes

**Does this course have corequisites?**

Yes

**Corequisite:**

EEE 131

**Corequisites Enforced at Registration?**

Yes

**Graded:**

Letter

**Approval required for enrollment?**

No Approval Required

**Course Component(s) and Classification(s):**

Discussion

**Discussion Classification**

CS#04 - Lecture /Recitation (K-factor=1 WTU per unit)

**Discussion Units**

3

**Is this a paired course?**

No

**Is this course crosslisted?**

No

**Can this course be repeated for credit?**

No

**Can the course be taken for credit more than once during the same term?**

No

**Description of the Expected Learning Outcomes and Assessment Strategies:**

List the Expected Learning Outcomes and their accompanying Assessment Strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers). Click the plus sign to add a new row.

	Expected Learning Outcome	Assessment Strategies
1	Apply fundamental equations in stationary and rotating magnetically coupled circuits and analyze and interpret formation of force and torque based on laws of electromechanical energy conversion.	Assignment 1: Magnetic Circuits Assignment 3: Energy Conversion Quiz 1: Magnetic Circuits Quiz 3: Energy Conversion Test 1
2	Analyze models and operation of single-phase and three-phase power transformers.	Assignment 2: Transformers Quiz 2: Transformers Test 1
3	Analyze models and operation of AC machines, including three-phase asynchronous and synchronous machines, and single-phase special purpose motors.	Assignment 4: Induction Machines Assignment 5: Synchronous Machines Quiz 4: Induction Machines Quiz 5: Synchronous Machines Quiz 7: Special Motors One Group Project Test 2
4	Analyze models and operation of DC machines.	Assignment 6: DC Machines Quiz 6: DC Machines One Group Project Test 3

- 5            Explain the role of power electronic drives and their application in operation and control of electric machines.      Quiz 8: Power Electronic Drives  
Test 3

**Attach a list of the required/recommended course readings and activities:**

EEE 130 Course Syllabus Outline\_ABET - Schedule-v2.docx

**Is this course required in a degree program (major, minor, graduate degree, certificate?)**

No

**Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?**

No

**Will there be any departments affected by this proposed course?**

No

**I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.**

I/we agree

## **University Learning Goals**

**Undergraduate Learning Goals:**

Competence in the disciplines  
Integrative learning

**Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?**

No

## **GE Course and GE Goal(s)**

**Is this a General Education (GE) course or is it being considered for GE?**

No

**Please attach any additional files not requested above:**

EEE130\_Syllabus\_Policy copy.docx

**Reviewer Comments:**

**102011596 (Fri, 10 Feb 2023 23:30:20 GMT):** Rollback: Make the changes suggested during the EEE Curriculum Committee meeting on 2/10/23.

Key: 1684