

EEE 137: APPLICATIONS OF POWER ELECTRONICS IN POWER SYSTEMS

In Workflow

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Approval Path

1. Fri, 09 Apr 2021 22:36:34 GMT
Perry Heedley (pheedley): Approved for EEE Committee Chair
2. Sat, 08 May 2021 00:53:54 GMT
Mahyar Zarghami (mahyar.zarghami): Approved for EEE Chair
3. Fri, 17 Sep 2021 17:20:55 GMT
Mohammed Eltayeb (mohammed.eltayeb): Approved for ECS College Committee Chair
4. Fri, 17 Sep 2021 17:36:37 GMT
Behnam Arad (arad): Approved for ECS Dean

History

1. Mar 27, 2019 by 212408496

New Course Proposal

Date Submitted: Fri, 09 Apr 2021 22:36:12 GMT

Viewing: EEE 137 : Applications of Power Electronics in Power Systems

Last approved: Wed, 27 Mar 2019 14:00:52 GMT

Last edit: Sat, 24 Apr 2021 01:33:51 GMT

Changes proposed by: Mahyar Zarghami (214200923)

Contact(s):

Name (First Last)	Email	Phone 999-999-9999
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Catalog Title:

Applications of Power Electronics in Power Systems

Class Schedule Title:

Power Elec in Power Sys

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:

Fall 2022 (2022/2023 Catalog)

Subject Area: (prefix)

EEE - Electrical and Electronic Engineering

Catalog Number: (course number)

137

Course ID: (For administrative use only.)

202766

Units:

3

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

Spring term only

Does this course require a room for its final exam?

Yes, final exam requires a room

Does this course replace an existing experimental course?

Yes

This course replaces the following experimental course:

EEE 196C - Applications of Power Electronics in Power Systems

This course complies with the credit hour policy:

Yes

Justification for course proposal:

The main change in the course is to remove EEE 130 from the list of prerequisites of the course and add EEE 141 as a pre-requisite instead.

The EEE department is changing an upper division course for the EEE major requirement through a Form B. (EEE141 is now a major requirement while EEE130 is now an elective). Other electives related to the power area for EEE department should be looked into for possible changes as well.

This course introduces applications of new power-electronic technologies in the control and operation of power systems. The required prerequisite contents for this course are now sufficiently covered in EEE 141. The new pre-requisite will be: EEE141.

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

Analysis methods for power electronics. Power electronic devices and their control methodologies. Electric machinery drives and flexible alternating current transmission systems (FACTS) devices simulation of cases relevant to applications of power electronics in power systems.

Are one or more field trips required with this course?

No

Fee Course?

No

Is this course designated as Service 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 141

Prerequisites Enforced at Registration?

Yes

Does this course have corequisites?

No

Graded:

Letter

Approval required for enrollment?

No Approval Required

Course Component(s) and Classification(s):

Discussion

Discussion Classification

CS#02 - Lecture/Discussion (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: Describe outcomes using the following format: "Students will be able to: 1), 2), etc."

Students will be able to:

- 1) analyze and model the operation of power electronic devices such as DC-DC, DC-AC, and resonant converters and rectifiers.
- 2) integrate FACTS devices such as STATCOM and UPFC into power systems.
- 3) analyze and model the operation of electric motor drives, vector control, reference frame analysis, and direct torque control.
- 4) use software packages such as MATLAB for simulation of power electronic drives.

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

EEE 137 Course Outline_ABET - Schedule.docx

Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above.

Homework Assignments (ELOs 1 - 4)

In-Class Quizzes (ELOs 1 - 4)

Examinations (ELOs 1 - 4)

Special Individual and/or Team Projects (may be assigned) (ELOs 1 - 4)

Students' understanding of the concepts will be evaluated by determining whether the student can properly use the available simulation programs and software packages. (ELOs 1 - 4)

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

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

Key: 13574