

EEE 142: POWER SYSTEM ANALYSIS II

In Workflow

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Approval Path

1. Fri, 09 Apr 2021 22:32:26 GMT
Perry Heedley (pheedley): Approved for EEE Committee Chair
2. Sat, 08 May 2021 00:53:35 GMT
Mahyar Zarghami (mahyar.zarghami): Approved for EEE Chair
3. Fri, 17 Sep 2021 17:21:01 GMT
Mohammed Eltayeb (mohammed.eltayeb): Approved for ECS College Committee Chair
4. Fri, 17 Sep 2021 17:36:44 GMT
Behnam Arad (arad): Approved for ECS Dean

History

1. Feb 15, 2021 by Mahyar Zarghami (mahyar.zarghami)

Date Submitted: Fri, 09 Apr 2021 22:31:49 GMT

Viewing: EEE 142 : Power System Analysis II

Last approved: Mon, 15 Feb 2021 17:23:46 GMT

Last edit: Sat, 01 May 2021 02:20:55 GMT

Changes proposed by: Mahyar Zarghami (214200923)

Contact(s):

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Catalog Title:

Power System Analysis II

Class Schedule Title:

Power System Analysis II

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)

142

Course ID: (For administrative use only.)

203330

Units:

3

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

Does this course replace an existing experimental course?

No

This course complies with the credit hour policy:

Yes

Justification for course proposal:

The main change in EEE 142 is to add contents about transmission line parameters and modeling to the course, which will make EEE 161 a necessary prerequisite. We also remove EEE 130 as a prerequisite, since the needed prerequisite materials are included in EEE 141. Modifications to EEE 142 are specifically associated with:

- Adding the topics of transmission line parameters and modeling to the course.
- Added introduction to power flow and fault analysis in hybrid AC/DC systems.
- Reducing the course contents associated with the power flow analysis (1/2 week), economic dispatch (1/2 week), stability (1/2 week) and control (1/2 week) to open space for the added materials mentioned in the above. Reduced materials are associated with the more detailed contents which overall will not impact the mission of the course.

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

Transmission line parameters and modeling, power flow analysis, analysis of power systems under faulted conditions, introduction to economic operation of power systems, introduction to power system stability and control.

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, EEE 161, and EEE 184 (EEE 184 may be taken concurrently).

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."

After completion of this course, the students will be able to:

1. Apply distributed transmission line parameters to find proper models for transmission lines.
2. Implement power flow solution methods for steady-state analysis of power systems.
3. Analyze power systems under faulted conditions.
4. Formulate economical operation of power systems and economical dispatch of generations.
5. Analyze small-signal and transient stability in simple power systems using proper models and techniques.
6. Apply fundamentals of frequency and voltage control in power systems using linear control theory.

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

EEE 142 Course Syllabus 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.

Assignment 1, Transmission Line Parameters and Modeling, ELO 1

Assignment 2, Power Flow Analysis, ELO 2

Assignment 3, Power Flow Analysis, ELO 2

Assignment 4, Fault Analysis, ELO 3

Assignment 5, Economic Dispatch, ELO 4

Assignment 6, Power System Stability, ELO 5

Assignment 7, Power System Controls, ELO 6

Quiz 1, Transmission Line Parameters and Modeling, ELO 1

Quiz 2, Power Flow Analysis, ELO 2

Quiz 3, Fault Analysis, ELO 3

Quiz 4, Economic Dispatch, ELO 4

Quiz 5, Power System Stability, ELO 5

Quiz 6, Power System Controls, ELO 6

One group project on ELO 2, ELO 5, or ELO 6

Exam 1: ELOs 1 and 2

Exam 2: ELOs 3 and 4

Exam 3: ELOs 5 and 6

Final Exam: Comprehensive (ELOs 1 through 6)

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

Key: 1689