

ECE 330 Power Circuits & Electromechanics, Spring 2023

Instructor:

Section C- MWF (10:00-10:50 am) 3013 ECEB: Prof. Richard Zhang

Office Rm. 4056 ECEB

Section F- MWF (2:00-2:50 pm) 2017 ECEB: Prof. Jonathon Schuh

Office Rm. 4066 ECEB

Teaching Assistant:

TBD

Office Hours:

Zhang (TBD): Mondays 11:00am-12:00pm

Schuh (TBD) Fridays 11:00am-12:00pm

TA: TBD

Course Text: Power Circuits and Electromechanics (Paperback Version) by M.A. Pai, Stipes Publishing, Champaign

Course Outline

	Hrs
1. Review of phasors, complex power	3
2. Three phase circuits, three phase power, wye-delta conversion	4
3. Magnetic circuits, self and mutual inductance, Maxwell's equations	5
4. Ideal transformers, practical transformers, equivalent circuits	<u>4</u>
5. Electromechanical systems, energy, co-energy, energy cycles, computation of forces	6
6. Synchronous machines	<u>3</u>
7. Induction machines	3
8. Other machines	3
9. Dynamic equation, numerical integration of electromechanical systems	4
10. Equilibrium points, linearization, stability	<u>3</u>
11. Exams and review	4

Course Resources:

- **Course Logistics:** Canvas. Check Canvas for homeworks, and course material, and quiz scores. Have an administrative or technical question? Ask on the discussion forum. (Use it like Piazza!)
- **Homework/Quizzes:** PrairieLearn.
- **Exam grades:** Gradescope. Exams will be graded and scores posted on Gradescope.

Evaluation:

- Final quiz scores will be posted on Canvas. Exam scores will be posted on Gradescope.
- Exams: 7:00-8:30pm; Thursday February 23, 2023 and Tuesday April 11, 2022
- Final: TBD

Grading:

Two hour exams	25% each
Final exam	35%
Quizzes	15%

Grading is on an absolute scale. You will be compared against the following performance standard, and not to other students.

A+ >97%	B+ 87-90%	C+ 77-80%	D+ 67-70%	F <60%
A 93-97%	B 83-97%	C 73-77%	D 63-67%	
A- 90-93%	B- 80-83%	C- 70-73%	D- 60-63%	

These cutoffs are strict. For example, an 89.99 is a B+ and not an A-. We reserve the right to adjust these numbers downward (in the students' favor) but guarantee that they will not be raised.

Other Course Policies:

- It is the student's responsibility to attend lectures and check their emails daily in case there are announcements from the course staff. Missing a lecture and/or not checking email will not excuse complying with the course deadlines and policies.
- All exams (MT1, MT2, Final) are closed book, closed notes. A formula sheet will be provided. **Please remember to bring your own calculator.**
- Talk to the instructor directly about possible regrades **within a week (7 days)** after the grades are released. All regrade request **must be made in Gradescope.** Any regrade requests outside the 7 day window or not through Gradescope will not be honored.
- Quizzes are open on Monday evenings and are due on Tuesdays at 11:59pm.
- The quizzes are open book, open note. Quizzes must be completed individually.
- **Partial credit:** Before submitting the quiz, make sure to upload a scan or picture of the work you used to solve the quiz problem. Your preliminary score issued by the automated system may be adjusted upwards (but never downwards) for partial credit based on submitted work.
NOTE: attach your work **BEFORE** you submit your quiz on PrairieLearn. **Work that is submitted by email will not be accepted!**
- Course staff **will not answer questions while the quiz for the week is open** on PrairieLearn. We will respond to questions after the quiz window closes.
- Course staff **will not answer questions on the day of the midterm or final exam.**
- We **do not drop any quiz scores.** If a quiz is not completed during the allotted time, it will be a 0. If you have a documented reason for not completing a quiz, you must reach out to your instructor immediately with the necessary supporting documents. This includes cases of short-term illnesses and COVID-19 exposure. Your instructor will work

with you on a possible make up quiz. **Make up quizzes will not be granted without proper documentation.**

- **Late assignments are not accepted.**
- We are happy to accommodate all DRES needs for our students. Please forward your DRES letter to your instructor as soon as possible, and we will work with you on providing the accommodations.
- **All DRES exams will be taken at the TAC.** It is the student's responsibility to register with the TAC for each exam.
- **Religious Observances:** Illinois law requires the University to reasonably accommodate its students' religious beliefs, observances, and practices in regard to admissions, class attendance, and the scheduling of examinations and work requirements. You should examine this syllabus at the beginning of the semester for potential conflicts between course deadlines and any of your religious observances. If a conflict exists, you should notify your instructor of the conflict and follow the procedure at <https://odos.illinois.edu/community-of-care/resources/students/religious-observances/> to request appropriate accommodations. This should be done in the first two weeks of classes.

Emergency Response Recommendations

Emergency response recommendations can be found at the following website: <https://police.illinois.edu/em/>. I encourage you to review this website and the campus building floor plans website within the first 10 days of class. <http://police.illinois.edu/emergency-preparedness/building-emergency-action-plans/>.