

ECE 330 Power Circuits & Electromechanics, Summer 2025
(all times are in CST)

Instructor:

Sections ONL, ON1 - MTWRF (10:00-10:50am) via zoom: Olga Mironenko
(olgamiro@illinois.edu)

Zoom link (Illinois login required):

<https://illinois.zoom.us/j/87280328348?pwd=a0F2ZStTaTk5VFFRWXZNVmtrdjFxUT09>

Lecture recordings are available on Mediaspace:

https://mediaspace.illinois.edu/channel/ECE330_SUMMER_25/378021862

Teaching Assistant:

Dennis Butts (dbutts2@illinois.edu)

Office Hours:

Mironenko: Tuesdays 11:00 am-12:00 pm

Butts: Fridays 5:00pm-6:00pm

Zoom link (Illinois login required):

<https://illinois.zoom.us/j/83252466196?pwd=dWtrYmVhL3poSzlxTdhhd1hvY3h2QT09>

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	4
5. Electromechanical systems, energy, co-energy, energy cycles, computation of forces	6
6. Synchronous machines	3
7. Induction machines	3
8. Other machines	3
9. Dynamic equation, numerical integration of electromechanical systems	4
10. Equilibrium points, linearization, stability	3
11. Exams and review	4

Course Logistics:

- Canvas. Check Canvas for homeworks, course material, quiz, and exams scores. Have an administrative or technical question? Ask on the discussion forum.

Illinois Canvas

As the online learning management system for Illinois, Illinois Canvas lets students, faculty, and staff check grades, submit assignments, and store and download instructional and training materials. It is possible to use Illinois Canvas from any computer, tablet, or phone. For a list of help topics, please visit [Illinois Canvas Training Resources for Students](#).

Evaluation:

- **Homeworks:**

- Throughout the semester, you should expect a total of 10 homework assignments.
- These assignments do not count for credit but are designed primarily to help you practice the material that will be covered in quizzes and exams.
- HW assignments will be hosted on **PrairieLearn**.
- You will have an unlimited number of attempts for each homework assignment.
- Please be aware that when the corresponding quiz window becomes available on PrairieLearn, the corresponding homework will be temporarily closed. The homework will become accessible again once the quiz window has been closed.

- **Quizzes:**

- Throughout the semester, you should expect a total of 10 quizzes.
- Quizzes **count for credit** and are based on the material covered in the corresponding homework.
- Quizzes will be hosted on PrairieLearn. Final grades will be posted on Canvas.
- Typically, quizzes are open on Tuesdays and Fridays at 6PM CST and are due on Wednesdays and Saturdays at 11:59pm CST. Please check the schedule on Canvas for exact dates and changes. **Late assignments are not accepted.**
- Quizzes are timed assignments. Once you have it started, you must finish it within **180 minutes**. Please note that you will not be able to pause it.

- If you miss a quiz, it will count as a zero, no matter the reason. In order to account for sickness, travel, etc., we will drop **your two worst quiz grades** from the quiz average used to compute the final grade. **No** make-up quizzes will be granted.
- Quiz solutions will become available on Canvas once the quiz window has been closed.
- The quizzes are open book, open note, but they 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.
- Regrades: Email your instructor directly about possible questions regarding grading **within a week (7 days)** after the grades are released on Canvas. Any requests outside the 7 day window will not be honored.

- **Exams:**

- Two midterm exams: 7-8:30 pm on Monday, July 7 and Friday, July 25, 2025.
- Final Exam: 8-10am on Friday, August 8, 2025.

- **Proctoring:**

- Exams will be online and proctored identically to [CBTF online exams](#)
- You will need two devices with internet capability, one for you to look at the exam pdf on Gradescope and another one that will connect to Zoom so the proctor can monitor you.
- The proctor will also need to be able to see the screen of the device where you will look at the pdf. [Here](#) is CBTF's camera positioning handout, so please look at it and make sure you can position your camera correctly (you might need to prop it with something) so we can see your workspace, your computer screen, and your hands and face.
- You will have to make sure that you have a stable internet connection and that the device you will use for Zoom has the camera, microphone, and speakers working so we can hear your surroundings during the exam if needed.
- Please identify an appropriate place for you to take the exam, which should be quiet because you will have your microphone on so we can monitor the audio around you. When you join the Zoom session you will be asked to allow the host to unmute you and you must allow it.

- Failure to comply with these rules will cause you to receive a **zero** on the exam.
- **Exam access:**
 - The exam will be made available in Gradescope when the exam time starts.
 - You are **not allowed** to access the exam if you are not in the Zoom proctoring session. If you access the exam without being in the Zoom proctoring session, we will not accept your exam and you will **receive a zero**.
- **Allowed material:**
 - This exam is closed book and closed notes. You will be provided with an equation sheet for the exam. No other notes are allowed. Use of any external resources will result in a 0 on the exam and an **Academic Integrity report** being filed against you.
- **Calculations:**
 - Calculators are allowed on the exam, but Wolfram Alpha and other calculation means are prohibited. The use of prohibited calculation devices will result in an **Academic Integrity report** being filed against you.
- **No collaboration allowed:**
 - You are **not allowed** to share or collaborate on this exam and all work should be your own; otherwise, it will result in an **Academic Integrity report** being filed against you.
- **Solving the exam:**
 - You **must** solve the exam on blank sheets of paper. Tablets **are not allowed** for writing, and you **may not** print the exam; doing so will result in an **Academic Integrity report** being filed against you.
 - You must show all your work on the exam and provide explanations when needed to receive credit. Any answer without any work will receive no credit and an **Academic Integrity report** may be filed. Please note, that writing just the formula from the provided equation sheet will not result in partial credit.
- **Solution uploads:**
 - You will have 5 minutes to upload your solutions to Gradescope once the exam time is over or once you finish, whichever occurs first. You will be **deducted** 25% per extra minute after that.
 - You **MUST** remain in the proctoring session until you have finished uploading. We will not accept your exam if you leave the proctoring session before finishing your submission to Gradescope, and you will get a

zero on the exam. Gradescope will timestamp when the document is uploaded, so you can then take some additional time assigning your answers to the questions.

NOTE: An Academic Integrity report will be filed against you for unauthorized actions.

○ **Regrades:**

- We will grade exams on Gradescope. Final scores will be posted on Canvas.
- You will receive an email from Gradescope to log in and see your graded exam. If **after** looking at the posted solutions, you feel there was an **inaccuracy** in the grading of your exam, you can request a regrade within Gradescope itself.
 - Regrades should be used only to correct mistakes made in grading. Regrades are not to be used for getting back more partial credit on your exam. Only regrades regarding inaccurate grading will be addressed.
 - Regrades open 24 hours after exam scores are posted and must be submitted **within 7 days**. Regrades will **not be accepted** after that date.
- **Absence from the midterm exams:** If for some reason of emergency such as severe illness, family emergencies, or other uncontrollable circumstances you are not able to take the exam at the required time, you will need to obtain a written excuse from the [Office of the Dean of Students](#). Documentation which validates the absence is required by the Dean's Office to provide the absence letter.
- **Absence from the final exam:** If for some reason of emergency such as severe illness you are not able to take the final exam at the required time, you will need to contact the [Office of the Dean](#) of Students and request [Incomplete grade](#).

Grading:

It is a student's responsibility to check that the correct grades are entered on Canvas.

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

Other Course Policies:

- **Communications:**

- It is the student's responsibility to attend lectures/watch videos 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.

- **Accommodations:**

- We are happy to accommodate all DRES needs for our students. Please forward your DRES letter to your instructor **as soon as possible**, but **no later than 1 week** before the exam/quiz.
- You can contact DRES at 1207 S. Oak Street, Champaign, (217) 333-1970, via email at disability@illinois.edu or via the [DRES website](#).

- **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 MUST 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/>. We 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/>.

▪ **Academic integrity:**

Academic dishonesty will not be tolerated. Examples of academic dishonesty include the following:

- Cheating
- Fabrication
- Facilitating infractions of academic integrity
- Plagiarism
- Bribes, favors, and threats
- Academic interference
- Examination by proxy
- Grade tampering
- Non-original works

Should an incident arise in which a student is thought to have violated academic integrity, the student will be processed under the disciplinary policy set forth in the [Illinois Academic Integrity Policy](#). If you do not understand relevant definitions of academic infractions, contact your instructor for an explanation within the first week of class.

Anti-Racism and Inclusivity Statement:

The intent is to raise student and instructor awareness of the ongoing threat of bias and racism and of the need to take personal responsibility for creating an inclusive learning environment.

The Grainger College of Engineering is committed to the creation of an anti-racist, inclusive community that welcomes diversity along a number of dimensions, including, but not limited to, race, ethnicity and national origins, gender, and gender identity, sexuality, disability status, class, age, or religious beliefs. The College recognizes that we are learning together in the midst of the Black Lives Matter movement, that Black, Hispanic, and Indigenous voices and contributions have largely either been excluded from, or not recognized in, science and engineering, and that both overt racism and micro-aggressions threaten the well-being of our students and our university community.

The effectiveness of this course is dependent upon each of us to create a safe and encouraging learning environment that allows for the open exchange of ideas while also ensuring equitable opportunities and respect for all of us. Everyone is expected to help establish and maintain an environment where students, staff, and faculty can contribute without fear of personal ridicule, or intolerant or offensive language. If you witness or experience racism, discrimination, micro-aggressions, or other offensive behavior, you are encouraged to bring this to the attention of the course director if you feel comfortable. You can also report these behaviors to [Campus Belonging Resources](#). Based on your report, Campus Belonging Resources members will follow up and reach out to students to make sure they have the support they need to be healthy and safe. If the reported behavior also violates university policy, staff in the Office for Student Conflict Resolution may respond as well and will take appropriate action.

Sexual Misconduct Policy and Reporting:

The University of Illinois is committed to combating sexual misconduct. Faculty and staff members are required to report any instances of sexual misconduct to the university's Title IX and Disability Office. In turn, an individual with the Title IX and Disability Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options.

A list of the designated university employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found in the [Confidential Resources](#) section. Other information about resources and reporting is available at wecare.illinois.edu.

Student Wellness Resources:

The University of Illinois strives to promote student success through the support of student psychological and emotional well-being. Please take advantage of the resources listed on the [Student Affairs](#).