

ECE 462: Power Systems Laboratory

Syllabus, Fall Semester, 2021

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Course Description: Laboratories designed to enhance students' understanding of power systems; concurrent with registration in ECE 461. 1 credit hour.

Laboratory Location

Engineering Building classroom C11, CSU Fort Collins campus.

Laboratory Information & Workbench Download

<https://sciamble.com/Resources/pe-drives-lab/basic-drives>

Laboratories & Assignments

There will be a total of five (5) laboratories for this class, with four (4) assignments (“lab reports”) that are due, see the schedule of lab weeks and due dates below. The laboratory descriptions and assignments are provided under “List of experiments” on the **sciamble** page linked above, experiments 1 – 5. Lab reports need to be uploaded to Canvas by the group leader before the due date for full credit.

Laboratory Groups

The Teaching Assistant (TA) will divide the class into lab groups of 4–8 students before the beginning of the semester. The groups will be posted in Canvas under People > Groups. If you would like to change groups, let the TA know as soon as possible; any changes must be made by 8/26 so laboratory meeting dates/times can be coordinated before the first laboratory. Your group should work together completing the laboratory experiments and the lab reports.

Each group needs to designate a leader; the group leader will be responsible for ensuring the lab reports are submitted in time on behalf of the group.

Laboratory Dates & Times

The TA will post open time slots during each lab week on Canvas. Let the TA know via email or Canvas which times your group would like to perform the experiments. Finalized laboratory dates/times for each group will then be posted on Canvas.

Communication Policy

Questions on the laboratories and/or lab reports should be directed to the TA via Canvas messaging or email. A response to your inquiry will be provided within 36 hours (but typically sooner).

Grading Weights

Assignment 1 (Report for Labs 1 & 2):	25%
Assignment 2 (Report for Lab 3)	25%
Assignment 3 (Report for Lab 4):	25%
Assignment 4 (Report for Lab 5):	25%

Laboratory Descriptions and Execution Week

Lab	Week	Description
1	2	Introduction: An introduction to the basic components of an electric drive system and general idea of the speed-control of a DC motor.
2	4	Switched-mode DC-DC converter: Modeling of a SMDC-DC electronic converter in Workbench simulation software.
3	6	Characterization of DC motor: Determining the parameters of a DC motor and modeling it in Workbench simulation software.
4	9	DC motor speed control
5	11	Four-quadrant operation of DC motor

Assignment Due Dates

Assignment 1 (Report for Labs 1 & 2):	Sept. 24
Assignment 2 (Report for Lab 3)	Oct. 15
Assignment 3 (Report for Lab 4):	Nov. 5
Assignment 4 (Report for Lab 5):	Nov. 19

Academic Integrity

Students are expected to work together on laboratory assignments. However, all work performed and submitted by your group must be solely the group's work. Any material (e.g., text, images) used in a report that is not contained in the assignment description or produced by your group must be appropriately cited. See ECE 461 syllabus for further details regarding academic integrity.

Sexual Harassment-Free Environment

Colorado State University strives to create and maintain a work and study environment that is fair, humane, and responsible so that each member of the University community is treated with dignity and rewarded for such relevant considerations as ability and performance. Abusive treatment of individuals on a personal or stereotyped basis is contrary to the concepts of academic freedom and equal opportunity. Sexual harassment is one form of such abuse and cannot be tolerated.

For more information, please see the CSU Office of Equal Opportunity's Sexual Harassment Policy* and Principles of Community†.

Additional Resources and Policies

For additional information on university resources and policies, see the "Resources and Policies" document posted under Canvas > Modules > Organizational.

*<http://oeo.colostate.edu/sexual-harassment-policy>

†<http://oeo.colostate.edu/colorado-state-university-principles-of-community/>

COVID-19 University Policy

Important information for students: All students are expected and required to report any COVID-19 symptoms to the university immediately, as well as exposures or positive tests from a non-CSU testing location.

If you suspect you have symptoms, or if you know you have been exposed to a positive person or have tested positive for COVID, you are required to fill out the COVID Reporter (<https://covid.colostate.edu/reporter/>). If you know or believe you have been exposed, including living with someone known to be COVID positive, or are symptomatic, it is important for the health of yourself and others that you complete the online COVID Reporter. Do not ask your instructor to report for you. If you do not have internet access to fill out the online COVID-19 Reporter, please call (970) 491-4600. You may also report concerns in your academic or living spaces regarding COVID exposures through the COVID Reporter. You will not be penalized in any way for reporting. When you complete the COVID Reporter for any reason, the CSU Public Health office is notified. Once notified, that office will contact you and, depending upon each situation, will conduct contact tracing, initiate any necessary public health requirements and notify you if you need to take any steps.

For the latest information about the University's COVID resources and information, please visit the CSU COVID-19 site: <https://covid.colostate.edu/>.