EEL 4201L – SPRING 2005: SYLLABUS

http://plaza.ufl.edu/gtlax25/4201L/index.html

COURSE OBJECTIVES: This is a one-credit laboratory aimed at exposing students to basic power measurements- {voltage, current, wattage, speed}- in simple power systems such as single-phase transformers and motor/generator connections. At the end of the semester, the student is expected to understand some of the electromagnetic and circuit issues with respect to such systems as well as be able to express them PROFESSIONALLY in written form. As per this goal, this lab will be report-based and thus proficiency in explanation and data analysis is compulsory to success.

PERSONNEL INFORMATION:

<table>
<thead>
<tr>
<th>MEETING TIME</th>
<th>TA</th>
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<tbody>
<tr>
<td>TE1-E3: 7:20PM – 10:20PM</td>
<td>SID PANDEY</td>
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<td>WE1-E3: 7:20PM – 10:20PM</td>
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<td>R3-5: 9:35AM – 12:35PM</td>
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<tr>
<td>W9-11: 4:05PM – 7:05PM</td>
<td>JEFFREY COHEN</td>
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<td>R6-8: 12:50PM – 4:55PM</td>
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<td>R10-E1: 5:10PM – 8:10PM</td>
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  Cell Phone: (954) 592-7133
- Sidhartha Pandey: hanumana@hotmail.com
  Cell Phone: (352) 514-3141

PREREQUISITES: EEL 3211 or similar basic power course, MAC 2313 or familiarity with vector calculus, and EEL 3472 or other such basic electromagnetics course. While MAC 2313 and EEL 3472 are not required by the Registrar’s Office, you will need to know vector calculus and fields, or at least be able to review the info and understand it for BOTH your reports and exams. The relevant concepts will certainly be revisited by the TAs.
**COURSE OUTLINE and ROUGH SCHEDULE:** This is subject to change, but it does give us a good timeline for the semester. Since there are only six lab meetings and two exams, we have a few weeks of stretch room. If we do finish early, then you are all home free-(save for the paper)! 😊

<table>
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<tr>
<th>DATE¹</th>
<th>EVENT</th>
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<tr>
<td>Week 1: 1/11 – 1/13</td>
<td>Introduction and Lab 1: Two-Wattmeter Method</td>
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<td>Week 2: 1/18 – 1/20</td>
<td><strong>LAB 2 CANCELLED!!!</strong></td>
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<td>Week 3: 1/25 – 1/27</td>
<td>Lab 2: Single-Phase Transformers</td>
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<td>Week 4: 2/1 – 2/3</td>
<td>Lab 4: DC Motors; <strong>PAPER TOPICS DUE 2/1!!!</strong></td>
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<td>Week 5: 2/8 – 2/10</td>
<td>MIDTERM 1-(Labs 1-6)</td>
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<td>Week 6: 2/15 – 2/17</td>
<td>Labs 5 &amp; 6-(Combined): DC Generators</td>
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<td>Week 7: 2/22 – 2/24</td>
<td>SPRING BREAK-(2/26-3/5): NO LABS—BUT REPORTS WILL BE DUE!!!</td>
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<td>Week 8: 3/8 – 3/10</td>
<td>Lab 7: AC Synchronous Generators</td>
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<td>Week 10: 3/22 – 3/24</td>
<td>MIDTERM 2-(CUMULATIVE!!!!)</td>
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PAPERS DUE THE WEEK OF APRIL 11th!!

¹ Official Dates obtained from: http://www.reg.ufl.edu/records/criticaldates.html
GRADING: The grading for the class is as follows:

- Reports: 40%
- Pre-Labs: 10%
- Midterm 1: 10%
- Midterm 2: 20%
- Final Paper: 20%
- TOTAL: 100%

- Pre-Labs: Pre-labs for the current experiment are due at the beginning of that particular lab session—(e.g. Prelab 2 due on the day you perform Lab 2). NO late prelabs will be accepted except for circumstances to be discussed individually with the TA. Take the prelabs seriously as many of the exam questions are derived from them.

- Reports: The lab reports compose nearly half of your grade because it is important to learn and know how to convey information in a sound manner. The breakdown for a 100-point lab report is as follows:

  - Purpose: 5
  - Theory: 25
  - Procedure: 10
    - Not in your own words = -10
  - Data/Data Analysis: 25
  - No Signed Data = -15
  - Conclusions: 25
  - Neatness: 10
    - ANY hand-drawn schematics or plots = -10
  - TOTAL: 100 pts.

  - You are expected to write the theory for a 3211 Student.
  - Anyone can explain something in high-sounding words and hide behind them, not knowing AT ALL what they mean. However, one who can explain a complicated topic to a beginner truly knows what he/she is talking about.
  - Diagrams MUST be documented, REGARDLESS of where it is from, if it is not your own work—including the manual.
  - Procedures are to be IN YOUR OWN WORDS!!!
  - Data Sheets MUST be signed
  - As for neatness, you will be amazed how sloppy some of your colleagues can be and this will not be tolerated in this lab.
- If you have trouble using MS Word or Excel, PLEASE don’t feel shy; see your TA and they will be more than happy to help you. This is all part of the learning process and your TA will make that learning curve as flat as possible for you. 😊
  - Ctrl + ‘+’ is for subscripts
  - Ctrl + Shift + ‘+’ is for superscripts

- Use PSPICE or other schematic capture for the circuits and screen capture the schematic to MS Word.

- Cheating = AUTOMATIC 0 on assignment + HONOR COURT!

- **Midterms:** Midterm 1 spans Labs 1-6 and will include theory and derivations. Midterm 2 is cumulative and will include all the labs.

- **Final Paper:** The final paper will be a 4-5-page report concerning some aspect of power. For example, you could discuss power electronic control strategies-(e.g. PWM), power system analyses-(e.g. Load Flow, Fast Load Flow, Newton-Raphson), regional concerns in the power grid-(e.g. FERC), the history of power, or new power generation/distribution strategies-(biopower or robotics for fault testing of lines). These are just some ideas. You may choose virtually any topic that deals with power.
  - Paper must be in IEEE format: The Word-template is on the webpage for download. The paper will be discussed in class later in the semester.
  - Topic statement-(Title + Brief Abstract)-due to your TA anytime upto and including Midterm 1-(2/8-2/10). Any changes to topic must be approved by your TA.
  - USEFUL diagrams, graphs, and plots are not only allowed, but also encouraged.
  - You are writing-(as with your lab theory)-for 3211 Students…NOT graduate research professors like Dr. Domijan.
    - Thus, you are expected to be clear and descriptive of not only the advanced aspects, but also of the basic concepts.
    - A 3211 student should feel enthused about his/her abilities by reading your paper.
Grading will be based upon both technical content as well as its presentation-(i.e. readability for a beginning power student).

- Point breakdown will be provided later in the semester-(probably close to Midterm 1).

- The paper will be due the week of April 11th, but can be turned in anytime after Midterm 1.