COURSE SYLLABUS

Instructors:
Prof. Jungho Kim (x55437, kimjh@umd.edu), 3137 EGR, Off Hrs: M9-11, W9-11, and by appt.
Prof. Xinan Liu (x58745, xliu@umd.edu), 1209 Kim Building, Off Hrs: Tu11-1, Fr11-1 and by appt.

Teaching Assistants:
Arvind Vasan, arvind88@umd.edu (Fr1-4)
Yunli Zhang, winnake6@umd.edu (Fr10-1)
Prakruthi Hareesh, nature87@gmail.com (Tu12:30-3:20)

Teaching Fellows:
Prabhath Aluthgama, prabhath.aluthgama@gmail.com (Tu3-5)
Daniel Dalgo, dadnielsoo@hotmail.com (Wed5-8)
Dengyun Chen, dchen925@terpmail.umd.edu (Tu10-1)


Semester Schedule*

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Reading</th>
<th>Lab/Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ch. 1: Introduction, Language of Electronics Ch. 2: KCL, KVL, Ohm’s Law, Simple Resistor Circuit</td>
<td>1.1-1.7 2.1-2.2</td>
<td>No Lab</td>
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<tr>
<td>2</td>
<td>Ch. 2: More Resistor Circuits, Node Voltage Analysis (NVA)</td>
<td>2.3-2.4</td>
<td>Lab 1: Introduction to Lab Equipment, Time Varying Signals</td>
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<tr>
<td>3</td>
<td>Ch. 2: Impedance Matching, Superposition Wheatstone bridge circuits</td>
<td>2.5-2.8</td>
<td>Lab 2: Voltage and Current Measurement</td>
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<tr>
<td>4</td>
<td>Ch 3: Energy Storage Elements</td>
<td>3.1-3.8</td>
<td>Lab 3: Thevenin Equivalent</td>
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<tr>
<td>5</td>
<td>Ch. 4: First order circuits</td>
<td>4.1-4.3</td>
<td>Review session</td>
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<tr>
<td>6</td>
<td>Midterm Exam 1 Ch. 4: First order circuits continued</td>
<td>4.3-4.4</td>
<td>Lab 4: PSpice Intro</td>
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<tr>
<td>7</td>
<td>Ch. 4: Second order circuits</td>
<td>4.5</td>
<td>Lab 5: RC Circuit Transient Response</td>
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<td>8</td>
<td>Ch. 5: Sinusoidal Sources, Phasors</td>
<td>5.1-5.2</td>
<td>Lab 6: RLC Circuits</td>
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<tr>
<td>9</td>
<td>Ch. 5: Complex Impedances, Frequency Domain, Power</td>
<td>5.3-5.5</td>
<td>Lab 7: Circuit design exercise</td>
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<tr>
<td>10</td>
<td>Ch. 10: Diodes</td>
<td>10.1-10.4, 10.6</td>
<td>Review session</td>
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<tr>
<td>11</td>
<td>Ch. 12, 13: FET and BJT Transistors</td>
<td>12.1-12.4 13.1-13.3</td>
<td>Lab 8: Diodes</td>
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<tr>
<td>12</td>
<td>Midterm Exam 2 Ch. 14: Operational Amplifiers</td>
<td>14.1-14.9</td>
<td>Lab 9: Transistors</td>
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<tr>
<td>13</td>
<td>Ch. 6: Filters and Transfer Functions</td>
<td>6.1-6.5</td>
<td>Lab 10: Operational Amplifiers</td>
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<tr>
<td>14</td>
<td>Transformers, Misc. components</td>
<td>15.5</td>
<td>Miniproject</td>
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<tr>
<td>15</td>
<td>Circuit applications</td>
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Final Exam, Thursday, May 15, 2014, 10:30-12:30

*The above topics and schedule are subject to change.
Course Description
ENME 350 covers the fundamentals of electric circuits and electronics that are important for measurement and instrumentation systems. Topics covered in this course include basic circuit laws, Thevenin and Norton equivalents, maximum power transfer, Wheatstone bridge circuits, first and second order circuits, diodes, transistors, and op-amplifiers, and transformers. This course requires two hours of lecture and two hours of lab per week.

Lecture: MW 8-8:50 AM in HJP 0226
Labs: M 1:00-2:50 PM (0101) in 3108 EGR, (Arvind, Daniel, Denyun)
      M 3:20-5:10 PM (0105) in 3108 EGR, (Prakruthi)
      Tu 3:20-5:10 PM (0104) in 3108 EGR, (Daniel, Prakruthi)
      W 3:20-5:10 PM (0103) in 3108 EGR, (Prabhath, Arvind, Denyun)
      Th 1:00-2:50 PM (0102) in 3018 EGR, (Prabhath, Yunli)

Grading
Homework 20%
Laboratory Work 20%
2 Midterm Exams 30%
Final Exam 30%

Please note that Canvas does not weight scores based on the above. It is your responsibility to pick up graded work (lab reports, homework, exams, etc.) and to check whether or not the proper grade is recorded online. You have one week from the date the work is returned to the class to dispute a grade.

Attendance
We will not be taking attendance during class.

Homework
Assignments will generally be posted on Canvas and emailed to you after each lecture and will be due at the beginning of the following lecture by 8:05 AM in class to encourage you to attend. The lowest five HW grades will be dropped when calculating your final grade to accommodate commuters who get stuck in traffic, travel for athletes, religious holidays, interviewees, family emergencies, deaths in the family, etc. Given the size of the class, no makeup work will be available. PLEASE PUT YOUR SECTION NUMBER ON EACH ASSIGNMENT.

Exams
Two midterms and a final exam will be given during the semester. The dates for the midterm exams will be determined a couple of weeks in advance. All exams are cumulative and will be closed book. Scientific calculators (but no smart phones!) are allowed. Material will be drawn from all classwork including reading assignments, lectures, homework, and lab assignments.

Canvas
Canvas (https://bb.eng.umd.edu) will be the official medium for posting class material such as homework, homework solutions, lab assignments, etc. We will be using Canvas to send email to the class so it is your responsibility to make sure your email address on Canvas is the correct one.

Office Hours
If you have questions about the lectures, labs, or clarification on homework, office hours are an excellent opportunity to get help. This time may also be used if you have questions about how you might explore this material in greater depth. However, office hours are not a substitute for lecture and we will most definitely not solve your homework for you.
Lecture Notes
We will not post lecture notes.

Laboratory
The lab is an integral, important, and fun part of this class.

- Laboratory assignments will be posted on Canvas. It is your responsibility to print out a copy of each lab assignment before you come to lab.
- Prelabs will be assigned before the lab starts and will be due as you walk into your lab and are worth 30% of the final lab grade. If you have not completed the prelab before start of the lab, you final grade for that lab (prelab+lab work) will be reduced by 30%, i.e., the maximum you can receive for that lab is 0.7*70%=49%.
- Lab work should be completed in lab and turned in before the lab is over. Late labs will not be accepted. PLEASE PUT YOUR SECTION NUMBER ON EACH LAB.
- A maximum of 3 students are allowed per lab station except when authorized by the lab TA.
- You may not turn in a lab report if you did not attend the lab.
- Each lab (prelab+lab work) will be graded out of 100 points.
- Tardiness of more than 10 minutes to lab is penalized by 10% off the lab grade.
- There are no make-up labs!
- Lab reports are done individually and must be clearly written and include well-labeled diagrams, plots, and schematics as necessary. Make sure to include units in your answers.

As an option to in-lab work, you can purchase hardware that allows you to perform most of the labs at home and simply show the TA your work during your assigned lab section. If you wish to pursue this option, you are required to purchase the following hardware:

- Analog Discovery USB Oscilloscope, $99 for students
  (http://www.digilentinc.com/Products/Detail.cfm?NavPath=2,842,1018&Prod=ANALOG-DISCOVERY)
- WaveForms software (free)
  http://www.digilentinc.com/Products/Detail.cfm?NavPath=2,66,849&Prod=WAVEFORMS

You will need a PC or Mac. Mac machines require Virtual Box or other Windows emulation software such as Parallels along with a licensed copy of Windows. We will be providing you with a bag containing components required to complete the labs for a $40 refundable deposit (cash only).

Academic Integrity
We encourage you to discuss homework assignments and labs. However, you will be cheating if you turn in anybody else’s work (homework, labs, exam answers, schematics, figures, etc.) but your own. If we catch you cheating, you will receive a zero on the assignment and be referred to the Office of Student Conduct. Facilitating cheating is the same thing. The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council. This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit http://www.shc.umd.edu.