A111- Electronics I (online)
Summer 2015

Instructor: Michael Stucker
Email: mstucker@indiana.edu
Office: M257A (inside M257)
Office Phone: 856-4897
Office Hours: by appointment (just ask!)
This Syllabus may be updated throughout the semester. Check here for updates.

Course Format: This course is taught 100% online and asynchronously. You will be required, however, to meet synchronously with students in your Peer Investigation Group at least 5 times during the semester.

Technical Requirements: See Technical Requirements announcement

Course Objectives: At the end of this course students will be able to:

- Analyze a simple audio amplifier utilizing vacuum tubes.
- Define the function of each component
- Trace the DC, AC, and signal paths
- Determine the resulting output given an input and a circuit.

Sub-topics include: voltage and current, resistance and resistors, inductors and inductance, transformers, capacitors and capacitance, vacuum tubes and vacuum tube circuits.

Communication:

- I will communicate with students via the Canvas Inbox. Make certain that you are either checking Canvas regularly or have your email notifications set to email you.
- Communication directly to me should be through the inbox in Canvas, I will do my best to answer you within 48 hours.
- If you have questions relating to particular assignments please post them in the corresponding thread in the Canvas Discussions so that they can benefit the entire class.
- If you have answers or suggestions for questions posed in the Canvas Discussions, feel free to offer answers and help.

Course Structure: This course will be comprised of:

- Online Readings with interactive games and experiments
- Reading assessments and Exams delivered through Canvas.
- Electronic circuit simulation experiments utilizing Circuit Wizard software
  (Circuit Wizard is available for free through IUAnyWare [Links to an external site.] for students in A111)
- Hands on Lab experiments utilizing the JSOM Electronics Lab Kit
  [The JSOM Electronics Lab Kit will be provided to you for the semester, paid for through lab fees]
- Peer Investigation Group work that will encourage deeper about circuits through group discussion and experimentation
Assignments: All assignments must be turned in to pass the course. They must be turned in to Canvas by the due date and time (often 11:59pm EST). Late assignments will lose 10 points (a letter grade) for each week they are late. Be sure to allow extra time for assignments as “computer problems” are not an excuse for late assignments. Some of these assignments will be within the reading assignments as interactive elements (or games), you are still required to complete these. All due dates are listed in Canvas.

Exams: Exams must be completed on the scheduled day. You will be given access to the exam for 24 hours.

Reading: Readings must be completed by the assigned date. As many of the assignments are included in the reading you will also have late homework assignments if you are behind on the reading.

Lab Assignments: There will be weekly assignments utilizing your lab kit. These will include questions that must be answered (within Canvas) as you complete the lab experiments. Details on picking up your lab kit will be provided through Canvas announcements.

Circuit Wizard Assignments: Weekly assignments will also be given that utilize Circuit Wizard, a virtual electronic simulation software program. You will have access to this through IUAnyWare (Links to an external site.). The first assignment will lead you through the IUAnyWare (Links to an external site.) process as well as the software itself. The assignments will require you to save your Circuit Wizard files and upload them to Canvas assignments.

Peer Investigation Groups: Students will be working in groups at the end of each Unit to complete analysis of related circuits. This process will be broken into five stages. Students will be graded on these five stages as well as participation in the group.

1. Each student will individually answer questions about the circuit.
2. The group will discuss their individual answers to arrive at consensus group answers.
   {This will be done through Canvas Discussions and monitored by faculty.}
3. The group will turn in their group answers.
4. The group will prove their answers utilizing Circuit Wizard or the JSOM Electronics Lab Kit.
   {This portion must be done with the group physically together or in a virtual meeting.}

Participation: We will utilize the Canvas discussions for discussions that would normally take place in the classroom. There will be specific discussion assignments and you will also be required to post questions about readings or assignments. You will be required to post at least once in the discussion for each Unit.

Final grades: Final grades will be figured from the following:
20%: Exams (2 including Final)
15%: Reading Assessments and Games
15%: Lab assignments
10%: Circuit Wizard Assignments
30%: Peer Investigation Groups
10% Participation

**note: all assignments must be turned in before noon on Friday of the last week of classes to receive a passing grade in the course

Course Schedule Overview
May 12-20: Unit 1 - Voltage and Current
May 21-27: Unit 2 - Resistance and Resistors
May 28-June 2: Unit 3 - Inductance, Inductors, and Transformers
Jun 3: Exam #1
June 4-9: Unit 4 - Capacitance and Capacitors
June 10-15: Unit 5 - Vacuum Tubes
June 16-18: Unit 6 - Circuit Analysis
June 19: Final Exam - must be completed between midnight June 18, and 11:59pm (EST) on Friday June 19
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| Tue May 12, 2015 | Add photo  
Introduce Yourself                                         |
| Wed May 13, 2015 | Availability Poll                                                   |
| Fri May 15, 2015 | Read Unit 1, pages 1-8  
Reading Assessment #1-1  
CW #0: Getting to know Circuit Wizard |
| Mon May 18, 2015 | Read Unit 1, pages 9-13  
Reading Assessment #1-2  
Play Unit 1, Game 3  
CW #1-1: Measuring V and I  
Read Unit 1, pages 14-17  
Reading Assessment #1-3  
Lab #1: Photo Upload  
CW #1-2: Oscilloscope and AC |
| Tue May 19, 2015 | Unit 1 PIG Individual Answers  
Unit 1 PIG Discussion                                    |
| Fri May 22, 2015 | LockDown Browser Test (REQUIRED) - Requires Respondus LockDown Browser + Webcam  
Unit 1 Peer Investigation Group: Group Answers |
| Mon May 25, 2015 | Read Unit 2 (pages 1-6)  
Unit 2 Game 2: Practice with Voltage Dividers  
CW #2: Voltage Dividers  
Read Unit 2 (pages 7-8)  
Unit 2 Game 3: Practice with Current Dividers  
Read Unit 2 (pages 10-11)  
Reading Assessment 2  
Lab #2: Photo Upload  
Unit 1 Peer Investigation Group: Circuit Wizard proof |
| Tue May 26, 2015 | Unit 2 PIG Individual Answers  
Unit 2 PIG Discussion                                    |
| Fri May 29, 2015 | Read Unit 3 (pages 1-3)  
Reading Assessment #3-1  
Read Unit 3 (pages 4-9)  
Unit 3 Filters Game  
Lab #3: Photo Upload  
CW #3: Inductors and Transformers  
Read Unit 3 (pages 10-11)  
Reading Assessment #3-2  
Unit 2 PIG Group Answers |
| Mon Jun 1, 2015 | Unit 2 Peer Investigation Group: Proof  
Unit 2 PIG: Final Proven Group Answers |
| Wed Jun 3, 2015 | Exam #1: part 1 - Requires Respondus LockDown Browser + Webcam  
Exam #1: part 2 - Requires Respondus LockDown Browser + Webcam |
| Thu Jun 4, 2015 | Read Unit 4, pages 1-5  
Reading Assessment #4-1  
Read Unit 4, pages 6-10  
Unit 4 Filters "Game" |
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| Fri Jun 5,  2015 | CW #4: Capacitors and Reactance  
               Lab #4: Photo Upload                                      |
| Mon Jun 8,  2015 | Unit 4 PIG Individual Answers  
               Unit 4 PIG Discussion                                    |
| Wed Jun 10, 2015 | Unit 4 PIG Group Answers                                                |
| Thu Jun 11, 2015 | Unit 4 PIG: Final Proven Group Answers  
               Unit 4 PIG: Group Proof                                    |
| Thu Jun 11, 2015 | Read Unit 5 (pages 1-10)  
               Reading Assessment #5-1                                    |
| Thu Jun 11, 2015 | Lab #5-1: Photo Upload                                                  |
| Thu Jun 11, 2015 | Read Unit 5 (pages 11-16)                                               |
| Thu Jun 11, 2015 | Reading Assessment #5-2                                                |
| Thu Jun 11, 2015 | Lab #5-2: Photo Upload                                                  |
| Fri Jun 12, 2015 | Unit 5 PIG Discussion                                                   |
| Fri Jun 12, 2015 | Unit 5 PIG: Individual Answers                                          |
| Tue Jun 16, 2015 | Unit 5 PIG: Group Answers                                               |
| Wed Jun 17, 2015 | Watch Unit 6 Lecture                                                   |
| Fri Jun 19, 2015 | Final Exam: part 1 - Requires Respondus LockDown Browser + Webcam    |
| Fri Jun 19, 2015 | Final Exam: part 3 - Requires Respondus LockDown Browser + Webcam    |
| Fri Jun 19, 2015 | Final Exam:part 2 - Requires Respondus LockDown Browser + Webcam       |
|               | A511 Final Presentation                                                |
|               | Unit 1 PIG: Start the discussion!                                      |