

## Course Information

Date Submitted: 8/1/2016

Current Prefix and Number: EE - Electrical Engineering , EE 211 CIRCUITS I

Other Course:

Proposed Prefix and Number: EE 211

What type of change is being proposed?

Major – Add Distance Learning

Should this course be a UK Core Course? No

## 1. General Information

a. Submitted by the College of: ENGINEERING

b. Department/Division: Electrical and Computer Engineering

c. Is there a change in 'ownership' of the course? No

If YES, what college/department will offer the course instead: Select...

e. Contact Person

Name: Sen-ching Samson Cheung

Email: [cheung@engr.uky.edu](mailto:cheung@engr.uky.edu)

Phone: 8592180299

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

f. Requested Effective Date

Semester Following Approval: Yes OR Effective Semester:

## 2. Designation and Description of Proposed Course

a. Current Distance Learning (DL) Status: Please Add

b. Full Title: CIRCUITS I

Proposed Title: CIRCUITS I

c. Current Transcript Title: CIRCUITS I

Proposed Transcript Title:

d. Current Cross-listing: none

Proposed – ADD Cross-listing :

Proposed – REMOVE Cross-listing:

e. Current Meeting Patterns

LECTURE: 2.5

RECITATION: 2

Proposed Meeting Patterns

LECTURE: 2

RECITATION: 1

INDEPSTUDY: 1

f. Current Grading System: ABC Letter Grade Scale

Proposed Grading System: *Letter (A, B, C, etc.)*

g. Current number of credit hours: 4

Proposed number of credit hours: 4

h. Currently, is this course repeatable for additional credit? No

Proposed to be repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester? No

2i. Current Course Description for Bulletin: Fundamental laws, principles and analysis techniques for DC and AC linear circuits whose elements consist of passive and active components used in modern engineering practice including the determination of steady state and transient responses.

Proposed Course Description for Bulletin: Fundamental laws, principles and analysis techniques for DC and AC linear circuits whose elements consist of passive and active components used in modern engineering practice including the determination of steady state and transient responses. In addition to the required text book, additional materials including a portable Oscillator & Signal Generator, a digital Multimeter, an electronics-part kit, and a simulation software are required for at-home laboratory assignments.

2j. Current Prerequisites, if any: Prereq: MA 114, prereq or concurrent; PHY 232, 242.

Proposed Prerequisites, if any: No Change

2k. Current Supplementary Teaching Component:

Proposed Supplementary Teaching Component: No Change

3. Currently, is this course taught off campus? No

Proposed to be taught off campus? Yes

If YES, enter the off campus address: The course will be taught online during summer.

4. Are significant changes in content/student learning outcomes of the course being proposed? No

If YES, explain and offer brief rational:

5a. Are there other depts. and/or pgms that could be affected by the proposed change? No

If YES, identify the depts. and/or pgms:

5b. Will modifying this course result in a new requirement of ANY program? No

If YES, list the program(s) here:

6. Check box if changed to 400G or 500: No

## Distance Learning Form

Instructor Name: Sen-ching Samson Cheung

Instructor Email: cheung@engr.uky.edu

Internet/Web-based: Yes

Interactive Video: No

Hybrid: No

1. How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations? The course uses (1) Canvas to disseminate all course information and for instructors to hold office hours, (2) BigBlueButton to run class meeting twice a week and (3) email & phone information of instructor to promote communication with students. Yes, the syllabus conforms to the guidelines as communicated to the instructor during a one-on-one meeting with Marshall Herbst, a representative from the Office of eLearning at UK.

2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc. The DL student use identical material to that of a classroom-based student. The learning outcomes are identical as well. Frequent online meetings are provided to ensure adequate interaction with the instructors. Online homework and quizzes are used in much the same way as the class-room based offering. All the exams will be conducted online through Canvas. The only aspect that is different is the in-class laboratory assignment. In the class-room version, the students will demonstrate the circuits to the instructors while the DL students will prepare a short video to demonstrate their works.

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc. The academic integrity policy based on the template provided by the Senate is clearly stated in the course syllabus. All course material is posted and submitted through the password protected Canvas website. Online quizzes with randomized questions are used and exams are taken on campus.

4. Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above? No, it will result in a percentage much smaller than 25% of any degree program.

If yes, which percentage, and which program(s)? This course is required for BS degrees in electrical engineering and computer engineering. Since it is the only DL core course offered in the department, the percentage will be less than 3% (4 units out of 130+ units required for graduation).

5.How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting? Yes, all the necessary information about resources in the college and department are provided in the course syllabus.

6.How do course requirements ensure that students make appropriate use of learning resources? The amount of work required for DL students is very similar to that from the class-room based students. This ensures that the instructor is quickly aware of any inappropriate use of learning resources which are needed to complete the assignments.

7.Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program. This course does not require any use of laboratories and equipment. Similar to the classroom based students, the DL students will need to purchase their own textbook, online access to the textbook resources and a laboratory kit to run experiment at home. Additional information about access to library and other on-campus facilities is posted in the course syllabus.

8.How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)? Yes, all relevant information are posted on the syllabus. In addition, the instructor will be available via email and teleconference to assist in resolving any technical difficulties.

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? YES

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology. N/A

10.Does the syllabus contain all the required components? YES

11.I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name: Sen-ching Samson Cheung

SIGNATURE|HOLLOWAY|Lawrence E Holloway|EE 211 CHANGE Dept Review|20150913

SIGNATURE|HOLLOWAY|Lawrence E Holloway|EE 211 CHANGE Dept Review|20150930

SIGNATURE|BJSTOK0|Barbara J Brandenburg|EE 211 CHANGE College Review|20151209

SIGNATURE|JMETT2|Joanie Ett-Mims|EE 211 CHANGE Undergrad Council Review|20160330

SIGNATURE|JEL224|Janie S Ellis|EE 211 CHANGE Senate Council Review|20160414

Course Change Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

Open in full window to print or save

Generate F

Attachments:

Browse...

Upload File

ID	Attachment
Delete 5952	ee211-online-syllabus-rev2.pdf

First 1 Last

NOTE: Start form entry by choosing the Current Prefix and Number (\*denotes required fields)

Current Prefix and Number:		EE - Electrical Engineering EE 211 CIRCUITS I	Proposed Prefix & Number: (example: PHY 401G) <input checked="" type="checkbox"/> Check if same as current	EE 211
* What type of change is being proposed?		<input type="checkbox"/> Major Change <input checked="" type="checkbox"/> Major - Add Distance Learning <input type="checkbox"/> Minor - change in number within the same hundred series, exception the same "hundred series" <input type="checkbox"/> Minor - editorial change in course title or description which does not it in content or emphasis <input type="checkbox"/> Minor - a change in prerequisite(s) which does not imply a change in content or emphasis, or which is made necessary by the elimination or si alteration of the prerequisite(s) <input type="checkbox"/> Minor - a cross listing of a course as described above		
Should this course be a UK Core Course? <input type="radio"/> Yes <input checked="" type="radio"/> No				
If YES, check the areas that apply:				
<input type="checkbox"/> Inquiry - Arts & Creativity <input type="checkbox"/> Composition & Communications - II <input type="checkbox"/> Inquiry - Humanities <input type="checkbox"/> Quantitative Foundations <input type="checkbox"/> Inquiry - Nat/Math/Phys Sci <input type="checkbox"/> Statistical Inferential Reasoning <input type="checkbox"/> Inquiry - Social Sciences <input type="checkbox"/> U.S. Citizenship, Community, Diversity <input type="checkbox"/> Composition & Communications - I <input type="checkbox"/> Global Dynamics				
1. General Information				
a. Submitted by the College of:		ENGINEERING	Submission Date: 12/3/2015	
b. Department/Division:		Electrical and Computer Engineering		
c.* Is there a change in "ownership" of the course?				
<input type="radio"/> Yes <input checked="" type="radio"/> No    If YES, what college/department will offer the course instead? <input type="text" value="Select..."/>				
e.* * Contact Person Name:		Sen-ching Samson Cheu Email: cheung@enr.uky.edu		Phone: 8592180299
* Responsible Faculty ID (if different from Contact):		Email:		Phone:
f.* Requested Effective Date:		<input checked="" type="checkbox"/> Semester Following Approval	OR	Specific Term: <sup>2</sup>
2. Designation and Description of Proposed Course.				
a. Current Distance Learning (DL) Status:		<input type="radio"/> N/A <input type="radio"/> Already approved for DL* <input checked="" type="radio"/> Please Add <input type="radio"/> Please Drop		
*If already approved for DL, the Distance Learning Form must also be submitted <u>unless</u> the department affirms (by checking this box ) the proposed changes do not affect DL delivery.				
b. Full Title:		CIRCUITS I	Proposed Title: *	CIRCUITS I
c. Current Transcript Title (if full title is more than 40 characters):			CIRCUITS I	
c. Proposed Transcript Title (if full title is more than 40 characters):				
d. Current Cross-listing:		<input checked="" type="checkbox"/> N/A	OR	Currently <sup>3</sup> Cross-listed with (Prefix & Number): none
Proposed - ADD <sup>2</sup> Cross-listing (Prefix & Number):				

Proposed - REMOVE <sup>3,4</sup> Cross-listing (Prefix & Number):					
<b>e. Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours <sup>5</sup> for each meeting pattern type.</b>					
Current:	Lecture 2.5	Laboratory <sup>2</sup>	Recitation 2	Discussion	Indep. Study
	Clinical	Colloquium	Practicum	Research	Residency
	Seminar	Studio	Other Please explain:		
Proposed: *	Lecture 2	Laboratory <sup>2</sup>	Recitation 1	Discussion	Indep. Study 1
	Clinical	Colloquium	Practicum	Research	Residency
	Seminar	Studio	Other Please explain:		
<b>f. Current Grading System:</b>		ABC Letter Grade Scale			
Proposed Grading System:*		<input checked="" type="radio"/> Letter (A, B, C, etc.) <input type="radio"/> Pass/Fail <input type="radio"/> Medicine Numeric Grade (Non-medical students will receive a letter grade) <input type="radio"/> Graduate School Grade Scale			
<b>g. Current number of credit hours:</b>			4	Proposed number of credit hours:*	4
<b>h.* Currently, is this course repeatable for additional credit?</b>					<input type="radio"/> Yes <input checked="" type="radio"/> No
* Proposed to be repeatable for additional credit?					<input type="radio"/> Yes <input checked="" type="radio"/> No
IF YES:	Maximum number of credit hours:				
IF YES:	Will this course allow multiple registrations during the same semester?				<input type="radio"/> Yes <input type="radio"/> No
<b>i. Current Course Description for Bulletin:</b>					
Fundamental laws, principles and analysis techniques for DC and AC linear circuits whose elements consist of passive and active components used in modern engineering practice including the determination of steady state and transient responses.					
* Proposed Course Description for Bulletin:					
No Change					
<b>j. Current Prerequisites, if any:</b>					
Prereq: MA 114, prereq or concurrent; PHY 232, 242.					
* Proposed Prerequisites, if any:					
No Change					
<b>k. Current Supplementary Teaching Component, if any:</b>					
<input type="radio"/> Community-Based Experience <input type="radio"/> Service Learning <input type="radio"/> Both					

Proposed Supplementary Teaching Component:	<input type="radio"/> Community-Based Experience <input type="radio"/> Service Learning <input type="radio"/> Both <input checked="" type="radio"/> No Change
<b>3. Currently, is this course taught off campus?</b>	<input type="radio"/> Yes <input checked="" type="radio"/> No
* Proposed to be taught off campus?	<input checked="" type="radio"/> Yes <input type="radio"/> No
If YES, enter the off campus address: The course will be taught online during summer.	
<b>4.* Are significant changes in content/student learning outcomes of the course being proposed?</b>	<input type="radio"/> Yes <input checked="" type="radio"/> No
If YES, explain and offer brief rationale:	
<b>5. Course Relationship to Program(s).</b>	
a.* Are there other depts and/or pgms that could be affected by the proposed change?	<input type="radio"/> Yes <input checked="" type="radio"/> No
If YES, identify the depts. and/or pgms:	
b.* Will modifying this course result in a new requirement <sup>2</sup> for ANY program?	<input type="radio"/> Yes <input checked="" type="radio"/> No
If YES <sup>2</sup> , list the program(s) here:	
<b>6. Information to be Placed on Syllabus.</b>	
a. <input type="checkbox"/> Check box if changed to 400G or 500.	If changed to 400G- or 500-level course you must send in a syllabus and you must include the differentiation undergraduate and graduate students by: (i) requiring additional assignments by the graduate students; and establishing different grading criteria in the course for graduate students. (See SR 3.1.4.)

### Distance Learning Form

This form must accompany every submission of a new/change course form that requests distance learning delivery. This form may be required when changing a course already approved for I fields are required!

**Introduction/Definition:** For the purposes of the Commission on Colleges Southern Association of Colleges and Schools accreditation review, *distance learning* is defined as educational process in which the majority of the instruction (interaction between students and instructors and among students) in a course occurs when students and instructor are not in the same place. Instruction may be synchronous or asynchronous. A distance learning (DL) course may employ correspondence study, or audio, video, or computer technology.

A number of specific requirements are listed for DL courses. **The department proposing the change in delivery method is responsible for ensuring that the requirements are satisfied at the individual course level.** It is the responsibility of the instructor to have read and understood the university-level assurances regarding an equivalent DL students utilizing DL (available at <http://www.ukv.edu/USC/Nav/forms.htm>).

Course Number and Prefix: EE 211	Date: 9/14/2015
Instructor Name: Sen-ching Samson Cheung	Instructor Email: cheung@enr.uky.edu
Check the method below that best reflects how the majority of the course content will be delivered.	
Internet/Web-based <input type="checkbox"/>	Interactive Video <input type="checkbox"/>
Hybrid <input checked="" type="checkbox"/>	

**Curriculum and Instruction**

1. How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Syllabus Guidelines, specifically the Distance Learning Considerations?  
 The course uses (1) Canvas to disseminate all course information and for instructors to hold office hours, (2) Adobe Connect to run class meeting twice a week and (3) email & phone information of instructor to promote
  
2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course go assessment of student learning outcomes, etc.  
 The DL student use identical material to that of a classroom-based student. The learning outcomes are identical as well. Frequent online meetings are provided to ensure adequate interaction with the instructors. Online

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

The academic integrity policy based on the template provided by the Senate is clearly stated in the course syllabus. All course material is posted and submitted through the password protected Canvas website. Online

4. Will offering this course via DL result in at least 25% or at least 50%\* (based on total credit hours required for completion) of a degree program being offered via a DL, as defined above?

No, this is the only course in the department that we are piloting to run DL. It will result in a percentage much smaller than 25% of any degree program.

Which percentage, and which program(s)?

This course is required for BS degrees in electrical engineering and computer engineering. Since it is the only DL course offered in the department, the percentage will be less than 3% (4 units out of 130+ units required for

\*As a general rule, if approval of a course for DL delivery results in 50% or more of a program being delivered through DL, the effective date of the course's DL delivery is six months from the date of approval.

5. How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting? Yes, all the necessary information about resources in the college and department are provided in the course syllabus.

#### Library and Learning Resources

6. How do course requirements ensure that students make appropriate use of learning resources?

The amount of work required for DL students is very similar to that from the class-room based students. This ensures that the instructor is quickly aware of any inappropriate use of learning resources which are needed to

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

This course does not require any use of laboratories and equipment. Similar to the classroom based students, the DL students will need to purchase their own textbook, online access to the textbook resources and a laboratory

#### Student Services

8. How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or of the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)?

Yes, all relevant information are posted on the syllabus. In addition, the instructor will be available via email and phone to assist in resolving any technical difficulties.

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)?

Yes

No

If no, explain how students enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

N/A

10. Does the syllabus contain all the required components, below?  Yes

- Instructor's *virtual* office hours, if any.
- The technological requirements for the course.
- Contact information for Distance Learning programs (<http://www.uky.edu/DistanceLearning/>) and Information Technology Customer Service Center (<http://www.uky.edu/UKIT/Help/>; 859-218-HELP).
- Procedure for resolving technical complaints.
- Preferred method for reaching instructor, e.g. email, phone, text message.
- Maximum timeframe for responding to student communications.
- Language pertaining academic accommodations:
  - "If you have a documented disability that requires academic accommodations in this course, please make your request to the University Disability Resource Center. The Center will require current disability documentation. When accommodations are approved, the Center will provide me with a Letter of Accommodation which details the recommended accommodations. Contact the Disability Resource Center, Jake Karnes, Director at 859-257-2754 or [jkarnes@email.uky.edu](mailto:jkarnes@email.uky.edu)
- Specific dates of face-to-face or synchronous class meetings, if any.
- Information on Distance Learning Library Services (<http://www.uky.edu/Libraries/DLIS/>)
  - Carla Cantagallo, DL Librarian
  - Local phone number: 859 257-0500, ext. 2171; long-distance phone number: (800) 828-0439 (option #6)
  - Email: [dllservice@email.uky.edu](mailto:dllservice@email.uky.edu)
  - DL Interlibrary Loan Service: [http://www.uky.edu/Libraries/llbpage.php?web\\_id=253&lib\\_id=16](http://www.uky.edu/Libraries/llbpage.php?web_id=253&lib_id=16)

11. I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

Sen-ching Samson Cheung

Abbreviations: DLP = Distance Learning Programs ATG = Academic Technology Group Customer Service Center = 859-218-HELP (<http://www.uky.edu/UKIT/Help/>)

Revised 8/09

- 
- <sup>143</sup> See comment description regarding minor course change. *Minor changes are sent directly from dean's office to Senate Council Chair.* If Chair deems the change as "n form will be sent to appropriate academic Council for normal processing and contact person is informed.
  - <sup>144</sup> Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
  - <sup>145</sup> Signature of the chair of the cross-listing department is required on the Signature Routing Log.
  - <sup>146</sup> Removing a cross-listing does not drop the other course – it merely unlinks the two courses.
  - <sup>147</sup> Generally, undergrad courses are developed such that one semester hr of credit represents 1 hr of classroom meeting per wk for a semester, exclusive of any lab meeting generally represents at least two hrs per wk for a semester for 1 credit hour. (See SR 5.2.1.)
  - <sup>148</sup> You must *also* submit the Distance Learning Form in order for the course to be considered for DL delivery.
  - <sup>149</sup> In order to change a program, a program change form must also be submitted.

---

# EE 211 Circuit I

## Summer 2016

---

All the course contents will be posted onto the Course Canvas Shell site <http://uk.instructure.com>.

---

### Instructor

Dr. Sen-ching "Samson" Cheung

Email: [cheung@engr.uky.edu](mailto:cheung@engr.uky.edu) (preferred communication, respond within 24 hours)  
Physical Office: Room 217, Davis Marksbury Building  
Office phone: 859-218-0299 (for immediate technical support during online meeting)  
Office Hours: Daily "pop-in" conference on Canvas (~0.5 hours, announced by 8am)  
Schedule appointment at <http://drcheung.youcanbook.me> (at least 2 hours lead time)

---

### Class Schedule

Class Meetings: 7/11 M 2:00p-3:30p FPAT 211 Midterm 1  
8/4 Th 2:00p-4:00p FPAT 211 Final Exam

Online Meetings: Canvas ([BigBlueButton](#)) – I will be online 10 min before to help with any technical issues  
Monday 2:00p-4:00p Week Overview + Lab Demo  
Friday 2:00p-4:00p Homework Session

Work In Teams: Students work in teams either online or physically. Attendance will be taken online.  
Instructor's help will be available through Canvas.  
Tues+Thurs 2:00p-4:00p

---

### Course Description

*From Course Bulletin:* Fundamental laws, principles and analysis techniques for DC and AC linear circuits whose elements consist of passive and active components used in modern engineering practice including the determination of steady state and transient responses.

*More details:* This course will cover the fundamental laws, principles and analysis techniques for circuit analysis. This skill allows us to understand and design any circuits. Circuit analysis and simulation tools are extremely important to the success of microchip manufacturers like Intel and Texas Instruments. Initial circuit analysis involves only sources and resistors. Linear systems of equations are used to solve problems during the second phase. Energy storage elements (capacitors and inductors) are introduced next. Transient analysis of circuits follows and the course ends with sinusoidal steady state problems and complex phasor analysis.

The key to doing well in the course is *consistent hard work*. Plan on at least 12-15 hours of work outside of class to study course material, work on homework problems and prepare pre-lab assignments. The material builds from fundamental concepts to more advanced analysis techniques. It is critical that students master the fundamentals in order to do well throughout the semester and in the future ECE courses.

---

### Online Learning Strategies

This is a VERY INTENSIVE online flipped class. We will begin each week with an online meeting providing an overview of that week material and motivating the learning objectives with a hands-on lab. All students should attempt the lab prior to attending the meeting so as to give ample time for discussions. Detailed video lectures, organized into modules of lectures and examples, will be available on Canvas. Students need to go over all modules and complete the online quizzes, homework and lab assignments during the week. At the end of the week, we will meet again online to discuss homework and other problem solving techniques.

But you certainly do not need to wait for the weekly meeting if you have any questions. You are encouraged to (i) email me with any questions, (ii) schedule a physical/on-line meeting with me, or (iii) post the questions on Canvas's online forum for the class.

You can always contact the instructor for technical assistance. However, there are technical issues that you can resolve faster by contacting the specialists on campus. For logon issues, please contact UKAT at <http://www.uky.edu/ukat> or 859-218-4357 or emailing questions to [218help@uky.edu](mailto:218help@uky.edu). For Canvas issues, go to the Canvas help page or call their support on-line at 844-480-0838.

### Prerequisites:

MA 114	Solving system of linear equations; Trigonometric, Exponential and Logarithm functions; Basic differentiation and integration; Polar coordinates and basic complex numbers; Okay to take concurrently
PHY 232, 242	Electricity, Magnetism and Light; Okay to take concurrently

### Student Learning Outcomes

*A student who has successfully completed this course should be able to:*

1. Understand and solve simple resistive circuits including those containing operational amplifiers and controlled sources with loop and nodal analysis.
2. Compute Thévenin and Norton equivalent circuits.
3. Understand and solve direct current circuits containing switches, independent sources, dependent sources, resistors, capacitors, inductors, and operational amplifiers for transient response using loop and nodal analysis
4. Understand and solve alternate current circuits with sinusoidal excitation sources for steady-state response using loop and nodal analysis.
5. Use circuit simulator to compute voltages, currents, transient responses, and sinusoidal steady-state responses.
6. Build basic circuits with multi-meter, oscilloscope, and signal generator.

### Required Material

To prepare for the unique requirements of distance learning, you need to have access to a webcam and PC. Detailed requirements are at <http://www.uky.edu/elearning/technology/technicalrequirements>. Additional information can be found at UK's Distance Learning Program (<http://www.uky.edu/DistanceLearning/>) and UK's Information Technology Customer Service Center (<http://www.uky.edu/UKIT> or 859-218-HELP).

The specific materials required for this class are listed below:

Items	Specifics
-------	-----------

Laptop/Tablet to be used in class	Windows 7 or up. For Mac User, you will need to setup a virtual machine running windows 7 or up based on <a href="#">this instruction</a> .
Textbook	Circuits 10e Editor's Choice Edition with WileyPLUS for Blackboard by Irwin (price: \$126.50 <u>with hard-copy text</u> , \$92.50 <u>without</u> ). This book will also be used in EE221.
Scientific calculator w/o network	Must have capability for solving system of linear equations and complex number manipulation. I like <a href="#">TI 36X-Pro</a> . It cannot have any networking capability to be used during the exams.
Lab Kit and Simulation Tool	<a href="#">Digilent Analog Discovery</a> (\$99) + NI Multisim (\$9.95) + Analog Parts kit (\$49.99) needed for homework and laboratory assignment. This kit will be used in EE221, EE222, and many other analog electronics courses all the way to capstone design.
Digital Multimeter	I personally use <a href="#">this</a> , which includes alligator clips (very handy) and a temperature probe (price: ~\$40)

There are other excellent textbooks and references about circuits that you can check out from the library. For additional information on Distance Learning Library Services (<http://libraries.uky.edu/dlls>), please contact

Carla Cantagallo, DL Librarian

(859) 257-0500, ext. 2171

Email: [dllservice@email.uky.edu](mailto:dllservice@email.uky.edu)

DL Interlibrary Loan Service: [http://libraries.uky.edu/page.php?lweb\\_id=253](http://libraries.uky.edu/page.php?lweb_id=253)

## Course Assignments

1. Video lectures (Canvas)  
The textbook and the video lectures on Canvas are the two main sources of course content. You are expected to watch the video lectures on a daily basis.
2. Online quizzes (Wiley Plus)  
These are simple questions that are due after each video lecture. You are expected to complete them on a daily basis. To allow some flexibility in study schedules, they are usually due midnight Thursday.
3. Online homework (Wiley Plus)  
These are longer homework problems. Some of them require you to provide detailed steps leading to your solutions and/or computer simulations. Our Friday meetings are designed to provide help in doing the homework. They are due midnight Sunday. The two quizzes with the lowest scores can be dropped.
4. Circuit lab exercises (Canvas)  
This course has a number of lab assignments to provide hands-on experience on circuit building. There are two components to each assignment: you need to submit a worksheet documenting the measurements and data analysis, and produce a 5-minute video to demonstrate the construction and testing of your circuit. You can capture your procedure using your camera-equipped smart phone mounted on a mini-tripod such as [this one](#). The video should be uploaded to YouTube and the link should be submitted alongside with the worksheet.
5. Midterm and Final (on campus)  
One midterm (1.5 hours) and a comprehensive final (2 hours) will be given. No makeup will be given unless the instructor is notified prior to the exam and proper documentation is provided to explain the absence. All exams are closed-book but one doubled-sided cheat sheet is allowed for all tests. Scientific/engineering calculator without networking capability is allowed. All tests will be conducted onsite at UK.

## Grading

<b>Your grade will be based on:</b>	<b>Percentage</b>
Online quizzes (lowest two dropped)	10%
Homework	20%
Circuit lab exercises	20%
Midterm	20%
Final Examination	30%
<b>Total</b>	<b>100%</b>

The numerical score is computed using the above weighting system. The A's will be in the 90's, B's in the 80's, etc., unless, in my opinion, the difficulty of the material/tests justifies curving the grades. Numerical scores will not be adjusted for external circumstances.

Mid-term grades, calculated based on all the work collected thus far, will be posted in myUK by the deadline established in the Academic Calendar (<http://www.uky.edu/registrar/content/academic-calendar>)

---

### **Course Policies**

#### **1. Submission of Assignments**

All submissions are done through either Wiley Plus or Canvas. Late homework will only be accepted if acceptable excuse is provided to the instructor before the deadline. Otherwise, 50% will be deducted if the submission is less than 24 hours late and the submission window will be closed after 24 hours.

#### **2. Online meeting attendance policy**

All students are required to attend online meeting via Adobe Connect. Students need to notify the instructor of absences prior to meeting when possible.

#### **3. Excused Absences**

Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor. Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754). Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

#### **4. Verification of Absences**

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

---

### **Academic Integrity**

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of Student Rights and Responsibilities (available at <http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

**Please note:** Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

### Academic Accommodations:

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (DRC). The DRC coordinates campus disability services available to students with disabilities. It is located on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407. You can reach them via phone at (859) 257-2754 and via email at [drc@uky.edu](mailto:drc@uky.edu). Their web address is <http://www.uky.edu/StudentAffairs/DisabilityResourceCenter/>.

### Course Schedule

Reading	Topics	Assignments
Week 0	Familiarity with distance learning strategies and Wiley Plus	Homework 0 (due 6/9)
Week 1 (Ch. 1, 2)	SI Units; Current and Voltage; Passive Sign Convention; Power Conservation; Basic Circuit Components; Circuit Topology; Ohm's Law; Kirchoff's Laws	Homework 1 (due 6/18)
Week 2 (Ch. 2, 3)	Equivalent Resistance; Nodal Analysis	Homework 2 (due 6/25) Lab 1 (due 6/22)

Week 3 (Ch. 3, 4)	Loop Analysis; Operational Amplifier	Homework 3 (due 7/2) Lab 2 (due 6/29)
Week 4 (Ch. 5)	Linear System; Superposition, Source Transformation; Thevenin & Norton Theorems; Maximum Power Transfer;	Homework 4 (due 7/9) Lab 3 (due 7/6)
Midterm (7/11 on campus)		
Week 5 (6, 7.1-2)	Capacitor & Inductor; Dynamic Systems; Forced and Natural Responses; Differential Equation; First-order Systems	Homework 5 (due 7/16) Lab 4 (due 7/20)
Week 6 (7, 8.1-3)	Second-order Systems; Complex Number; Complex Sinusoids; Phasor Representation;	Homework 6 (due 7/23) Lab 5 (due 7/27)
Week 7 (Ch. 8)	AC Steady State Analysis; Impedance and Admittance; General Nodal & Mesh Analysis; General Equivalent Circuits	Homework 7 (due 7/30) Lab 6 (due 8/3)
Week 8	Course Review on 8/1	
Final (8/4 on campus)		