



PHYS/ENGR 235

Electric Circuits

Spring 2019

- Instructor: **Dr. Siming Guo**
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Email address sguo@coastal.edu
Office Hours MW 10-11, T 10:40-11:30am, Th 2-3pm
- Webpage: We will use the Moodle course management system.
- Class Times: MWF, 9-10am, Smith 113
- Texts: *Electric Circuits, 10th Ed*, James W. Nilsson (not the most recent edition)
- Description: (=PHYS 235) (Prereq: PHYS 137 and MATH 160, or PHYS 212 or PHYS 214, or permission of the instructor) This course is an introduction to electrical circuit theory and its application to practical direct and alternating current circuits. Topics include: Kirchhoff's laws, fundamental principles of network theorems, transient and steady-state response of RC, RL and RLC circuits by classical methods, time-domain and frequency-domain relationships, phasor analysis and power.
- Outcomes: At the end of the course, the student will be able to:
1. Find voltages and currents throughout a resistive circuit with independent and dependent sources, and calculate the power consumption by each component, using mesh current and node voltage methods
 2. Formulate the Thevenin and Norton equivalents for linear circuits
 3. Describe and calculate the transient behavior of RLC circuits and filters
 4. Represent AC circuit quantities using phasors or complex numbers, and calculate RMS voltages, currents, and power
- ABET This course supports the following ABET student learning outcomes:
1. ***an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics***
 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
 3. an ability to communicate effectively with a range of audiences
 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Grading:

Grades will be assigned as follows:

A	90.0 – 100	exceptional work, significantly above the expectations of the course
B+	85.0 – 89.9	
B	80.0 – 84.9	excellent work, solid understanding of all concepts
C+	75.0 – 79.9	
C	70.0 – 74.9	good work, solid understanding of main concepts
D+	65.0 – 69.9	
D	60.0 – 64.9	poor work, weak understanding of main concepts
Homeworks:		20%
Midterms (2):		40%
Final exam:		35%
Participation:		5%

Attendance:

STUD-SENA-332: Unexcused Absence Penalties – an instructor is permitted to impose a penalty, including assigning the grade of F, for unexcused absences in excess of 25 percent (11 classes) of the regularly scheduled class meetings.

STUD-SENA-332 also lists the valid circumstances for an excused absence, notably:

- Incapacitating illness
- Official representation of the university
- Death of a close relative
- Religious holidays

Homework:

Homework will be assigned on a weekly basis. It will be due the following week at the beginning of class (within the first 10 minutes). Late work will incur a penalty of 20% (additive) per day.

Exams:

There will be two exams during the semester, in class. If you will miss a test for a valid reason, a make-up test will be arranged. However, you must give me prior notice by email, and supporting documentation will be required.

Honesty:

Code of Student Conduct: Plagiarism, cheating, attempted cheating and all other forms of academic dishonesty is prohibited. This includes copying on homework or tests, using unauthorized aids on tests, and knowingly aiding another student. The Code of Student Conduct provides further information, including other examples of cheating and the list of possible sanctions.

Online resources:

You should be able to access PhET simulations, such as this one:

<https://phet.colorado.edu/en/simulation/circuit-construction-kit-dc>

Communication:

I will try to respond to emails within one business day. Please use your @coastal.edu email.

ADA statement: Coastal Carolina University is committed to equitable access and inclusion of individuals with disabilities in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. Individuals seeking reasonable accommodations should contact Accessibility & Disability Services (843-349-2503 or <https://www.coastal.edu/disabilityservices/>).

Revisions: This syllabus and schedule are tentative and subject to change by the instructor with notice to the student as the semester progresses.