ELEN 100: Electric Circuits II  

## SYLLABUS

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<th>WEEK</th>
<th>TOPICS</th>
<th>CHAPTER</th>
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</table>
| 1    | Circuit analysis using phasors (review)  
      | (Modules 1 – 3) | 9, 10 |
| 2    | Power calculations and RMS values  
      | (Modules 4 – 6) | 9, 10 |
| 3    | Op-amps and phasors  
      | Frequency selective circuits | 14, 15 |
      | (Modules 7 – 9) | |
| 4    | Transfer functions  
      | Bode plots | 14,  
      | (Modules 10 – 13) | Appendix E |
|      | **Note:** Modules 11 and 12 provide an overview of Project 1 |  |
| 5    | Fourier series  
      | (Module 14) | 16 |
|      | **MIDTERM 1** |  |
| 6    | Mutual inductance  
      | (Modules 15 – 16) | 6 |
| 7    | Linear and ideal transformers  
      | (Modules 17 – 18) | 9 |
| 8    | Fund. of Laplace transforms  
      | (Module 21) | 12 |
|      | **MIDTERM 2** |  |
LEARNING OUTCOMES

Students who successfully complete this course should be able to:

1. Apply the principle of active power maximization to circuits with variable load impedances.
2. Use transfer functions and Bode plots to analyze frequency selective circuits.
3. Use Laplace transforms to analyze the transient and steady-state behavior of linear circuits.
4. Explain the relationship between phasor analysis and Laplace transforms in circuits with sinusoidal sources.
5. Use Matlab and SPICE to design frequency selective circuits, and circuits with prescribed transient behavior.

GRADING

The course grade will be based on three criteria – homework, midterms and the final exam. This grade is worth 4 units, and will be calculated in the following way:

Homework: 10%
Midterm 1: 25%
Midterm 2: 25%
Final Exam: 40%

LABS

The lab component of this course consists of two projects, and is worth 1 unit. The projects will be graded separately from the rest of the course work, and each one will be worth 50% of the lab grade.

Project 1 begins in week 4, and must be completed in two weeks. The design is demonstrated in the laboratory in week 6.
Project 2 begins in week 8, and must be completed in two weeks. The design is demonstrated in the laboratory in week 10.

The work should be done by teams of two students. Each team should submit a single project report.

**GENERAL INFORMATION**

OFFICE: SCDI 4025 – O  
OFFICE HOURS: Tuesdays and Thursdays, 4:00-5:00, and by appointment.  
PHONE: (408) 554-2394  
E-MAIL: azecevic@scu.edu  
WEBSITE: http://www.engr.scu.edu/~azecevic/

**Academic Integrity Pledge:**

The Academic Integrity pledge is an expression of the University’s commitment to fostering an understanding of—and commitment to—a culture of integrity at Santa Clara University. The Academic Integrity pledge, which applies to all students, states:

“I am committed to being a person of integrity. I pledge, as a member of the Santa Clara University community, to abide by and uphold the standards of academic integrity contained in the Student Conduct Code.”

Academic integrity is part of your intellectual, ethical, and professional development. I expect you to uphold the principles of this pledge for all work in this class. I will clarify expectations on academic integrity as needed for assignments and exams. If you have questions about what is appropriate on any assignment, please let me know before you hand in work. For more resources about ensuring academic integrity in your work, including the appropriate use of course sharing sites such as Chegg, see this site created by the SCU Library at https://libguides.scu.edu/academic-integrity or visit www.scu.edu/academic-integrity.

**Safety Measures**

In order to meet our learning objectives, we will adhere to the highest standards for safety and mutual respect. I expect everyone to adhere to current university mask mandates at all times; to make their best attempt to make themselves heard when asking questions or contributing to discussions; and refrain from eating or drinking in class. It is expected that everyone will follow university guidelines about health and public safety measures outlined in the emails that was sent to students and their families on August 31, 2021.
Office of Accessible Education

If you have a documented disability for which accommodations may be required in this class, please contact the Office of Accessible Education (oae@scu.edu, http://www.scu.edu/oae) as soon as possible to discuss your needs and register for accommodations with the University. If you have already arranged accommodations through OAE, please be sure to request your accommodations through your myOAE portal and discuss them with me during my office hours within the first two weeks of class.

To ensure fairness and consistency, individual faculty members are required to receive verification from the Office of Accessible Education before providing accommodations. OAE will work with students and faculty to arrange proctored exams for students whose accommodations include double time for exams and/or assistive technology. Students with approved accommodations of time-and-a-half should talk with me as soon as possible. The Office of Accessible Education must be contacted in advance (at least two weeks notice recommended) to schedule proctored examinations or to arrange other accommodations.

In light of shifting health advisories related to COVID-19, exams may be administered online. Students with approved testing accommodations should contact me (at least two weeks notice recommended) prior to an exam date to notify me of their intent to use their testing accommodations on the upcoming exam to ensure their accommodations are effectively implemented.

Discrimination, Harassment and Sexual Misconduct (Title IX)

Santa Clara University is committed to providing a safe learning environment for all students that is free of all forms of discrimination, sexual harassment, and sexual violence. SCU has dedicated staff trained to support you in navigating campus resources, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and filing a formal complaint with the university or with law enforcement. Here are key resources: Confidential Survivor Advocate, (408) 551-3307; Counseling & Psychological Services (CAPS), (408) 554-4501; and Equal Opportunity and Title IX Office, (408) 551-3043.

Wellness Statement and Mental Health Resources

Jesuit education is grounded in concern for the whole person—mind, body, and spirit—and SCU has many resources and programs to support you. Resources that assist with
mental wellness and mindfulness can be found through the Cowell Center and Campus Ministry, to name but a few.

University students may experience stressors or setbacks from time to time that can impact both their academic experience and their personal well-being. These may include academic pressure or challenges associated with relationships, mental health, alcohol or other drugs, identities, finances, etc.

If you are experiencing difficulties, seeking help is a courageous thing to do for yourself and those who care about you. If you are concerned with your progress in this class, please contact me so that we can find solutions together. Drahmann Center can also offer support with issues regarding your academic progress more broadly. For personal concerns, SCU offers many resources, some of which are listed on the Cowell Center website.