ELEN 50: Electric Circuits I

**SYLLABUS**

<table>
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<th>WEEK</th>
<th>TOPICS</th>
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| 1    | 09/17  | Introduction  
          |        | Circuit variables  
          |        | Circuit elements  |
| 2    | 09/24  | Basic resistive circuits  
          |        | Topological concepts  |
| 3    | 10/01  | The node voltage method  |
| 4    | 10/08  | Thevenin and Norton equivalents  
          |        | **MIDTERM 1**  |
| 5    | 10/15  | Superposition  
          |        | The loop current method  |
| 6    | 10/22  | Operational amplifiers  |
| 7    | 10/29  | Inductance and capacitance  
          |        | Complex algebra and phasors  |
| 8    | 11/05  | Circuit analysis with phasors  
          |        | **MIDTERM 2**  |
| 9    | 11/12  | Circuit analysis with phasors (ctd.)  |
| 10   | 11/26  | Power calculations  
          |        | Maximum power transfer  |

**Final Exam: Tuesday, December 4, 1:30 - 4:30**
LEARNING OUTCOMES

Students who successfully complete this course should be able to:

1. Formulate Kirchoff current and voltage law equations in a systematic manner.
2. Formulate and solve node voltage and loop current equations.
3. Compute Thevenin equivalents and apply them in circuit analysis.
4. Analyze circuits with operational amplifiers.
5. Utilize phasor techniques to compute the sinusoidal steady state response of linear circuits.
6. Design and test circuits that meet a given set of specifications.

GENERAL INFORMATION

OFFICE: Engineering Center, Room 223
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/

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 AND PROJECTS

The labs and projects will be graded separately from the rest of the course work (they are worth 1 unit). The grading policy is as follows:

- Labs 0 – 5: 50% total
- Project 1: 25%
- Project 2: 25%
The first two labs are designed to provide an overview of Matlab, which is the primary software tool that will be used in this course. Lab 0 will be assigned on the first day of class, and can be done “off-line” (it will be due on the first lab meeting in week 2). The first lab meeting will serve as a “tutorial session” for Matlab, and will focus on the material described in Lab 1. You should come prepared, and do all the preliminary work associated with Lab 1 before this session.

In weeks 3, 4, 7 and 8, we will have four “traditional” lab sessions which involve physical measurements. There will also be two design projects, which should be completed according to the following timetable:

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 or three students. Each team should submit a single project report.

Academic Integrity Pledge:

“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.”

Disabilities Resources:

To request academic accommodations for a disability, students must be registered with Disabilities Resources, located in Benson, room 216. In order to register, please go online to www.scu.edu/disabilities. You will need to register and provide professional documentation of a disability prior to receiving academic accommodations. It is best to read “Required Documentation” on the website before starting the registration process in order to determine what is needed. You may contact Disabilities Resources at 408-554-4109 if you have questions.

To be in compliance with Title IX and the ADA/Section 504, a school must offer appropriate accommodation to a student whose absence is related to pregnancy or childbirth. If you are in need of an accommodation, contact the professor at the beginning of the course so that arrangement can be made. The student must also contact Disability Resources (DR) at (408) 554-4109 or www.scu.edu/disabilities to register for accommodations.
Santa Clara University upholds a zero tolerance policy for discrimination, harassment and sexual misconduct. If you (or someone you know) has experienced discrimination or harassment including sexual assault, domestic and dating violence or stalking, we encourage you to tell someone what happened promptly. For more information, please go to www.scu.edu/studentlife or contact the university's EEO and Title IX Coordinator, Belinda Guthrie at 408-554-4113 or by email at bguthrie@scu.edu. Look at: http://www.scu.edu/affirmativeaction/compliancelinks.cfm.