Introduction to Circuit Analysis (ENGR 37) (13170)

De Anza College Summer 2026

Instructor

Ping Hsu
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Student Hours

Monday & Wednesday, 1:45 -2:15PM in room S48

Class hours:

MTWR (June 29 - August 7) (In person) room S48
11:30PM - 1:45PM

Course objectives

This course introduces the analysis of linear circuits; first- and second-order differential equations describing RLC circuits; the natural and forced response of simple circuits; the development of steady-state sinusoidal circuit analysis for the network differential equations; and the study of Thevenin, Norton, and operational amplifiers.

PREREQUISITE:

MATH 1D or MATH 1DH; and PHYS 4B (may be taken concurrently)

Text

Lecture note (available from the course website on Canvas)
Recommended (optional): Fundamentals of Electric Circuits, 5th Edition (or later), by Alexander and Sadiku, McGraw Hill.

Course Outlines:

The following topics will be covered in this course:

- Circuit Laws, Ohms, KVL, and KCL.
- Analysis methods: Superposition, Nodal analysis, Mesh analysis
- Dependent Source
- Thevenin and Norton theorems
- Operational Amplifier
- Capacitors and inductors
- RC, RL, and RLC Transient Analysis
- Phasor and Impedance
- AC steady state analysis
- AC Power

Grading Policy

In-class quizzes	15%
Homework	15%
Midterm 1	20%

Midterm 2	20%
Final Exam	30%

The following grading scale will be used to convert the overall numerical grades to letter grades. The instructor may adjust the scale to give more favorable letter grades when appropriate.

- 100% to 90%: A, A+, A-
- 89% to 80%: B, B+, B-
- 79% to 70%: C, C+, C-
- 69% to 60%: D,D+, D-
- 59% and below: F

Course Requirements and Assignments

There will be one to two homework assignments each week. Assignments are typically due on Monday and Wednesday at midnight. The lowest-scoring homework assignment, including missing ones, will be dropped. No late homework will be accepted.

There will be an in-class quiz in every class meeting. Students are allowed to discuss the quiz problems during the quiz time. The two lowest-scoring homework assignments, including missing ones, will be dropped.

Both quizzes and homework will be administered as online quizzes on Canvas. **Students are required to bring a laptop to every class to complete the online quizzes.**

There is no make-up exam for the midterm or the final exams unless there is an unforeseeable, compelling, and verifiable reason.

CLASS ATTENDANCE

Students are expected to attend all class sessions. Instructors may drop students from the class if they fail to attend the first class meeting, fail to attend the second and the third class meeting, or accumulate unexcused absences exceed 10% of the total number of hours of the quarter

IMPORTANT DATES

Students are responsible for checking the Academic Calendar for important deadlines and any changes in the deadlines

Before the Census date, students who miss the first day of class and one additional session may be dropped unless prior arrangements are made with the instructor.

After the Census date, students are responsible for dropping the class if they are absent more than three times. Failure to drop will result in a grade based on the grading policy outlined in the syllabus or on Canvas.

SLO (Student Learning Outcomes)

Upon successful completion of this course, students will be able to:

1. Determine voltages and currents in a DC circuit consisting of resistors, current sources, voltage sources, and dependent sources.
2. Determine the Thevenin and Norton equivalent circuits of a DC circuit and find the maximum power output of a DC circuit.
3. Determine the DC gain and operating point of an operational amplifier circuit.
4. Determine the transient response of a first and second-order circuit consisting of RLC.
5. Determine the sinusoidal steady state response of a circuit consisting of RLC.
6. Determine the power delivered and absorbed by an element in an RLC circuit.

Honesty is the foundation of academic work

Occasionally, you may feel overwhelmed by the amount of work you need to accomplish. If you cheat, you may get a warning, receive no credit for the assignment or be referred to the Vice President of Student Services for disciplinary action. You would also be devaluing your resulting degree or certificate when you enter the workforce or transfer, and cannot meet the expectations that your degree or certification requires.

Here are some examples of what you should and should not do:

What not to do

- Pay someone to do your homework/project. Recent reports show that people who sell papers or do schoolwork for pay by students may end up "blackmailing" those students in a variety of situations. For example, if the student defaults on the agreed amount of compensation, does not purchase additional services, etc., these people have been known to notify the college of the misbehavior of students caught in this kind of trap.
- Use applications on the web to find answers on tests or quizzes. If I suspect that your work is copied from an application, I'll set up a meeting with you and ask you to do a similar problem with me.
- Copy answers or work from another student.
- Ask another student to do your work for you.

What to do

- Trust the value of your own intellect.
- Demonstrate your own achievement and abilities.
- Ask for help from me, or your classmates
- Start a study group with your classmates

CODE OF STUDENT CONDUCT

The district shall enforce a student code of conduct the purpose of which is to promote and maintain orderly conduct of a responsible student body in a manner compatible with the District and College function as an educational institution (Education Code 76030)

Name and pronoun

If you'd like to be known by a name different from the name on the roll sheet or if you have a personal pronoun, please contact me, and I will make every effort to call you by the name and pronoun you use.

What you can expect from me

- I will treat you with dignity and respect and be flexible to support your individual needs.
- I will provide you with a clear, organized course that is designed to ensure you meet our course outcomes in a meaningful manner.
- I will provide a variety of assignments to ensure your learning needs are met.
- I will grade assignments in a timely manner to facilitate your success on future assignments.
- I will be actively present in your learning.
- I will provide a supportive and safe environment for you to share and discuss ideas with your peers.
- I will reach out to you when I sense that you need support.

What I will expect from you

- Treat your peers and me with dignity and respect.
- Strive to be an active participant in this course.
- Maintain an open line of communication with me so I understand how to support you.
- Aim to meet due dates. Contact me if an emergency arises.
- Do your best to have patience with technology. There will be hiccups; expect them. We will get through them together.

What we can expect from each other

- We won't be perfect. We are human and will make mistakes at times. We will view mistakes as an opportunity to learn and grow.
- We will all strive to contribute regularly in collaborative activities to ensure all members of the community have ample opportunity to read/listen, reflect, and respond to all ideas.
- Disagreements are part of learning and growing, but we will always treat one another with dignity and respect. If you sense a negative emotion surfacing within yourself, step away for a while; reflect on what is happening; then return and respond by focusing on the issue, not the person.

Is there anything else you would like to add to any one of these lists? If so, you will have the opportunity to share your suggestions during the first week of school.

DISABILITY STATEMENT

AS PART OF DE ANZA'S DISABILITY SUPPORT PROGRAMS AND SERVICES (DSPS), DSS ASSISTS THE COLLEGE TO COMPLY WITH LEGAL MANDATES RELATED TO ACCESS AND EQUAL OPPORTUNITY FOR PERSONS WITH DISABILITIES SUCH AS APPLICABLE REQUIREMENTS IN THE 1990 AMERICANS WITH DISABILITIES ACT. TITLE 5 OF THE CALIFORNIA COMMUNITY COLLEGE CODE OF REGULATIONS AND SECTIONS 504 AND 508 OF THE 1973 REHABILITATION ACT. PLEASE REFER TO LINK BELOW ON SERVICES PROVIDED:
HTTPS://WWW.DEANZA.EDU/DSPS/DSS/

SAFETY/EMERGENCY

It is the student's responsibility to know the evacuation procedures, evacuation route, and assembly area for this classroom. In case of an emergency, you are to follow the directions of your instructor. When directed to evacuate the classroom, *be sure to take all of your belongings when you leave* and remain with your class in the assembly area until you receive further directions. Also, we recommend reading the following link for more information:

https://www.deanza.edu/collegeops/emergencies/index.html

Class schedule

(This schedule is subject to change.)

Week	Date	Topics	**Lecture note**
1	6/29	Basic circuit concepts.	Lecture 1 & 2
	6/30	Series and Parallel circuit	
	7/1	Problem solving (HW1 Due)	
	7/2	Superposition	
2	7/6	Nodal analysis (HW2 Due)	Lecture 3 &4
	7/7	Mesh analysis	
	7/8	Dependent Source (HW3 Due)	
	7/9	Thevenin and Norton theorems	
3	7/13	Operational Amplifier (HW4 Due @ 11AM)	Lecture 5
	7/14	**Midterm I,** Operational Amplifier	
	7/15	Operational Amplifier (HW5 Due)	
	7/16	Operational Amplifier	
4	7/20	Capacitors and inductors (HW6 Due)	Lecture 6 & 7
	7/21	RC Transient analysis	
	7/22	RL Transient analysis (HW7 Due)	
	7/23	RLC transient analysis	
5	7/27	AC steady state analysis (HW8 Due @ 11AM)	Lecture 8
	7/28	**Midterm II,** AC steady state	
	7/29	AC steady state analysis (HW7 Due)	
	7/30	AC steady state analysis	
6	8/3	AC Power (HW8 Due)	Lecture 9
	8/4	AC Power	
	8/5	Review (HW9 Due @ 11AM)	
	8/6	**Final Exam**	

Student Learning Outcome(s):

- Analyze circuits containing resistive, capacitive, inductive passive elements, along with op-amps interconnected to voltage and current sources.
- Use circuit laws and network theorems to solve DC steady state circuits, RC, RL, and RLC DC circuit transients and sinusoidal AC steady state circuits.

Office Hours:

S84	M,W	1:45 PM - 2:15 PM