



JOINT INSTITUTE
交大密西根学院

ECE2150J Introduction to Circuits

Fall 2024

(Last Updated on 2024/09/12)

Instructor

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Course Description

Introduction to electric circuits. Basic concepts of voltage and current; Kirchhoff's voltage and current laws; Ohm's law; voltage and current sources; Thevenin and Norton equivalent circuits; DC and low active circuits using operational amplifiers; energy and power. Time- and frequency-domain analysis of RLC circuits. Basic passive and active electronic filters. Laboratory experience with electrical signals and circuits.

Textbook

Lecture: Fundamentals of Electric Circuits, 5/e, by Charles K. Alexander and Matthew N. O. Sadiku, McGraw Hill, 2013, ISBN 978-0-07-338057-5

Lab Manual: Circuits Make Sense – A New Lab Book for Introductory Courses in Electric Circuits, 5/e, by Alexander Ganago (Department of Electrical Engineering and Computer Science, University of Michigan), John Wiley & Sons, 2007, 9780470106792



Grading Policy

6 × Homework assignments	12%
5 × In-class quizzes	5%
8 × Lab participations and Lab reports	16% (8 + 8)
Mid-term exam	33%
Final exam	34%

Lecture

10:00 - 11:40 am on Tuesdays and Thursdays DZY (东中院) 1-107.

Jl	Mon	Tues	Wed	Thu	Fri	Sat	Sun
Fall	1 Sep	17	18	19	20	21	22
	2	23	24	25	26	27	28
	3	30	Oct 2	3	4	5	6
	4	7	8	9	10	11	12
	5	14	15	16	17	18	19
	6	21	22	23	24	25	26
	7	28	29	30	31	Nov 2	3
	8	4	5	6	7	8	9
	9	11	12	13	14	15	16
	10	18	19	20	21	22	23
	11	25	26	27	28	29	30
	12	2	3	4	5	6	7
	13	9	10	11	12	13	14
	14	16	17	18	19	20	21

Lab (TBD)

Location: 310A JI building.

Office Hour

9 am – noon Fridays at 544 Longbin building.

Or you are welcome to send an email to yuljae.cho@sjtu.edu.cn to arrange a meeting.



Tentative Course Schedule

Week	Date	Lecture Topics	Homework	Labs
1	Sep 19	Introduction and Ch1. Basic concepts		
2	Sep 24	Ch2. Basic laws		
	Sep 26	Ch3. Methods of analysis		
3	Oct 1	No lecture, National Holiday		
	Oct 3	No lecture, National Holiday		
4	Oct 8	Ch4. Circuit theorems	HW1: Chapter 1-4	Lab 1
	Oct 10	Ch4. Circuit theorems		
5	Oct 15	Ch5. Operational amplifiers		Lab 2
	Oct 17	Ch5. Operational amplifiers		
6	Oct 22	Ch6. Capacitors and inductors	HW2: Chapter 5, 6	Lab3
	Oct 24	Ch7. First-order circuits		
7	Oct 29	Ch7. First-order circuits	HW3: Chapter 7, 8	Lab 4
	Oct 31	Ch8. Second-order circuits		
8	Nov 5	Ch8. Second-order circuits		
	Nov 7	Mid-term Exam (TBC)		
9	Nov 12	Ch9. Sinusoids and phasors	HW4: Chapter 9, 10	Lab 5
	Nov 14	Ch10. Sinusoidal steady-state analysis		
10	Nov 19	Ch11. AC power analysis		Lab 6
	Nov 21	Ch11. AC power analysis		
11	Nov 26	Ch12. Three-phase circuits	HW5: Chapter 11, 12	Lab 7
	Nov 28	Ch12. Three-phase circuits		
12	Dec 3	Ch13. Magnetically coupled circuits		Lab 8
	Dec 5	Ch13. Magnetically coupled circuits		
13	Dec 10	Ch14. Frequency response	HW6: Chapter 13, 14	
	Dec 12	Ch14. Frequency response		
14	Dec 17	Final Exam (TBC)		

Academic Integrity

Problem sets (homework assignments) may be done with partners, but I believe that you do not fully understand the technical material unless you work on enough problems by yourself.

Exams will be given under the JI's Honor Code and will require individual efforts. The exams will be closed book, even though you can take one and two pieces of cheating paper for your Midterm Exam and Final Exam, respectively. Scientific calculators can be used for the exams.



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The use of other electronic devices such as electronic dictionary and cell phone during exams will constitute an Honor Code violation. If you miss an exam, real documentation is required stating why you could not attend (severe disease, for example).

The labs will help you develop engineering skills. Unexcused absence will result in a grade of zero for the missed and the student has the responsibility of contacting the instructor or teaching assistant to make up the missed lab. Skipping lab activities will result in an “F” or “Fail” for this course.