

EE 2001 Electrical Circuits I (3+2)

Fall 2019

Course Web: <http://mimoza.marmara.edu.tr/~mdogruel/ee2001>

Class Schedule: Monday 13:00 - 14:50 MB554, Thursday 13:00 - 13:50 MB554

Labs: Tuesday or Wednesday, 10:30 - 12:20 or 13:00 - 14:50 MC464

Instructor: Dr. Murat Doğruel, MC-476, (216) 418 2357 ext. 1655, mdogruel@marmara.edu.tr

Office Hours: Monday 10:00 - 12:50, Thursday 10:00 - 12:50, or by appointment.

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Course Outline: Circuit elements and Kirchhoff's laws. Analysis of resistive circuits. Network theorems. Capacitors and inductors. Analysis of first and second order circuits. Operational Amplifiers. Complex variables. Sinusoidal steady-state analysis. Laboratory work (Prerequisite: MATH 256, PHYS 102).

Objectives:

- To familiarize students with fundamental knowledge of circuit theory.
- To educate students on the basis of voltage and current laws, as well as voltage and current relationships.
- To teach students the concept and practice of equivalent circuits, circuit analysis methods, as well as measurement techniques.

Outcomes: By the end of the course the student should be able to

1. Relate fundamental concepts in electrical engineering;
2. Distinguish linear and nonlinear circuit modeling;
3. Identify basic circuit components;
4. Apply Kirchhoff's laws;
5. Analyze linear DC and AC networks using fundamental circuit theorems.

Text Book: James W. Nilsson, Susan A. Riedel: "Electric Circuits", 9th Ed., Prentice Hall, New Jersey, 2011.

Honor Code: All work done on the exams will be done on your own and pledged. Homework concepts and approaches may be discussed with other students, but the work will be done by the individual.

Attendance: Classroom attendance is mandatory. Pop-quizzes will be given at unscheduled and random times. No make-ups will be arranged for pop-quizzes.

Homework: Normally, homework is due one week from the assigned date, and will be collected at the beginning of the class. No late homework.

Examinations: Exams will be closed book and in-class.

Grades:

Attendance, Homework, Quizzes*	10%
Lab Work and PS	20%
Midterm	30%
Comprehensive Final Exam	40%

*Percentages for each homework and quiz will be determined at the end of the course.

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Tentative Schedule

Week	Date	Subjects	Chapters	Homework
1	Sept. 23,26	Introduction		
2	Sep.30, Oct. 3	Circuit Variables	1	9,10,11,12,18,19,28
3	Oct. 7, 10	Circuit Elements	2	11,14,18,19,28
4	Oct. 14, 17	Simple Resistive Circuits	3	6,8,10,14,27
5	Oct. 21,24	Node Voltage Analysis	4.1 - 4.4	6,16,18,21,25
6	Oct. 31	Mesh Current Analysis	4.5 - 4.9	33,37,39,59,60
7	Nov. 4, 7	Thevenin and Norton Equivalentents	4.10 - 4.13	64,66,67,69,77,91
		Midterm		
8	Nov. 18, 21	The Operational Amplifier	5	4,6,13,20,27,37,41
9	Nov. 25, 28	Inductance and Capacitance	6	2,3,9,16,17
10	Dec. 2, 5	Response of First-Order RL and RC Circuits	7	4,7,24,30,81,82,89
11	Dec. 9, 12	Sinusoidal Steady-State Analysis	9	4,11,12,13,15,16,17,25
12	Dec. 16, 19	Sinusoidal Steady-State Analysis (Cont'd)	9	29,33,35,44,46,49
13	Dec. 23, 26	Sinusoidal Steady-State Power Calculations	10	5,10,17,18
14	Dec. 30, Jan. 2	Sinusoidal Steady-State Power Calculations (Cnt'd)	10	20,21,25,27,29
15	Jan. 6	Review		
		Final Exam		