

Adnan Menderes University
Electrical and Electronics Engineering Department
EE 201 -CIRCUIT THEORY I (2017-2018 Fall)
Section 2 and 3 (Mechanical Engineering dep.)

Instructor

Dr. Coşkun DENİZ

Schedule

Sect.2: Tuesday, 09:30—12:15 (MA-207), Sect.3: Thursday, 13:30—16:15 (MA-206)

Office Hours

Wednesday, 12:00—14:00 (Block C, 2nd floor)

Textbook

1. Electric Circuits, J. W. Nilsson and S. A. Riedel, Pearson Prentice Hall.

Reference Books

1. Fundamentals of Electric Circuits, C. K. Alexander and M. N. O. Sadiku, McGraw-Hill Book Company.
2. Linear and Nonlinear Circuits, L. O. Chua, C. A. Desoer, E. S. Kuh, McGraw-Hill Book Company.
3. Principles of Electrical Circuits: Conventional Current Version (9th Edition) T. L. Floyd, Prentice Hall.

Grading

1 Midterm (40%), Final (60%)

Course Outline

I. Basic Concepts (Chapter 1 of Nilsson-6 Hrs.)

1. Introduction
2. System of Units
3. Current and Voltage
4. The Ideal Basic Circuit Element
5. Power and Energy

II. Basic Laws (Chapter 2&3 of Nilsson-9 Hrs.)

1. Voltage and Current Sources
2. Ohm's Law
3. Kirchhoff's Laws
4. Resistors in parallel and in series
5. Voltage and Current Division

III. Techniques of Circuit Analysis (Chapter 4 of Nilsson-12 Hrs.)

1. Node Analysis
 - a. Node-Voltage Method and Dependent Sources
 - b. Some Special Cases
2. Mesh Analysis
 - a. Mesh-Current Method and Dependent Sources
 - b. Some Special Cases
3. Source Transformations
4. Thevenin and Norton Equivalents
5. Maximum Power Transfer

6. Superposition Theorem

IV. Operational Amplifier (Chapter 5 of Nilsson-6 Hrs.)

1. Op-Amp Terminals

2. Ideal Op-Amp

3. Basic Op-Amp Circuits:

Buffer circuit, Inverting and Non-inverting Amplifiers, Summing Inverter, Difference Amplifier,

4. Cascade Op-Amp Circuits

V. Capacitors and Inductors (Chapter 6 of Nilsson-6 Hrs.)

1. Inductors

2. Capacitors

3. Series and Parallel Combinations of Inductors and Capacitors

4. Mutual Inductance

VI. First Order Circuits (Chapter 7 of Nilsson-6 Hrs.)

1. First Order Linear Differential Equations with Constant Coefficients

2. The Natural Response of an RL Circuit

3. The Natural Response of an RC Circuit

4. The Step Response of RL and RC Circuits

5. A General Solution for Step and Natural Responses

6. Integrating Amplifier Circuit

Expectations

Attendance is not mandatory for students who have exemption according to the regulations due to their previous attendances in the last recent semesters. According to the regulations, a student without such attendance exemption has to attend 70% of the lectures in a semester. If such a student does not attend more than 30% of the lectures, he or she fails and will not be permitted to enter the final examination.

Recitation Hours:

Will be announced during the lectures. (Attendance to the recitations is not mandatory but strongly recommended)