

Alanya Alaaddin Keykubat University | Rafet Kayış Faculty of Engineering
Electrical-Electronics Engineering Department
 2023-2024 Fall Semester

Syllabus

Code/Name	EEE 205 / Circuit Theory I
Type	Required
Credit/ECTS	6/6
Hour per Week	4
Level/Year	Undergraduate/2
Semester	Fall
Classroom	A103
Content	Circuit concept. Circuit variables and components. Ohmic circuits. Techniques and methods used for DC circuit analysis. Operational amplifiers. Inductance and capacitance. Transient and steady state responses of first and second order circuits.
Prerequisites	None
Textbooks	<i>Primary</i> J. David Irwin, Basic Engineering Circuit Analysis, 10th ed. John Wiley <i>Supplementary</i> J.W. Nilsson, S.A. Riedel, Electric Circuits, 9th. Ed., Prentice Hall.
Objectives	<ul style="list-style-type: none"> • To learn the necessary concepts and techniques required for the analysis of electric circuits • to use these concepts to carry out simple designs
Course Outcomes	In this course you will be able to: CO1 Use the basic circuit analysis methods (node voltages, loop and mesh currents) CO2 Use various techniques (circuit reduction, Y-delta conversion, Thevenin and Norton equivalents, superposition, source transformation) in circuit analysis CO3 Analyze first and second order circuits by differential equation approach and step-by-step approach CO4 Analyze operational amplifier circuits CO5 Choose and apply the proper technique for the analysis of a complex circuit

Weekly Schedule of Topics

W	Topic
1	Passive Sign Convention; Sources; Power and Energy; Resistor element; KCL and KVL
2	Dependent Sources. Resistive Circuits. Current and voltage dividers
3	Measuring current and voltage. Star-Delta transformation.
4	Node Voltages Method
5	Mesh Current Method
6	Source Transformation. Thevenin Equivalent Circuit
7	Thevenin Equivalent Circuit. Norton Equivalent Circuit.
8	Maximum Power Transfer.
9	Superposition Technique
10	Operational Amplifiers
11	Inductor and Capacitor
12	First Order Circuits: Natural and Step Responses

13-14 Second Order Circuits: Natural and Step Responses

Contribution to Program Outcomes*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	5	5	1	5	0	5	1	3	1	3	0
CO2	5	5	1	4	0	5	4	3	4	3	0
CO3	5	5	3	5	2	5	1	3	1	3	0
CO4	5	4	3	5	0	5	2	3	1	4	0
CO5	5	4	1	4	0	5	4	3	4	1	2

* Contribution Level | 0: None | 1: Very Low | 2: Low | 3: Medium | 4: High | 5: Very High

Requirements	Basic knowledge of Electromagnetic Field Theory
Course Policy	<ul style="list-style-type: none">• Be in the class on time.• English should always be used to communicate with one another.• At least 70% attendance is required, otherwise a grade of DZ will be assigned.
Cheating & Plagiarism	<ul style="list-style-type: none">• Copying or letting someone copy your work on exams, assignments, or reports is cheating.• Cutting and pasting text, figures and tables from web sources or any other electronic source is plagiarism.• The consequence of academic dishonesty is to receive a grade of FF for the course.
Evaluation	Midterm 40% Final Exam 60% Total 100%

Instructor

Name/Surname	Fikri Serdar Gökhan	Email	serdar.gokhan@alanya.edu.tr
Room	209	Office Hours	W 11.30-12.30 F 13.30-14.30

Prepared by Akin Uslu on June 10th, 2024.