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

Syllabus

Code/Name	EEE 202 / Circuit Theory 2
Type	Required
Credit/ECTS	6/6
Hour per Week	4
Level/Year	Undergraduate/2
Semester	Spring
Classroom	A103
Content	Sinusoidal steady state analysis. Application of circuit analysis techniques to AC circuits. Phasors. Power and energy in sinusoidal circuits. Application of Laplace transformation to circuit analysis. Filters. Fourier series and transformation. Two-port circuits. Mutual inductance and transformers.
Prerequisites	None
Textbooks	***Primary*** J. David Irwin, Basic Engineering Circuit Analysis, 10th ed. John Wiley ***Supplementary*** J.W. Nilsson, S.A. Riedel, Electric Circuits, 9th. Ed., Prentice Hall.
Objectives	• To learn the methods, techniques and transformations necessary for AC circuit analysis, • To design simple circuits by using these concepts
Course Outcomes	In this course you will be able to: CO1 Perform sinusoidal steady state analysis by using phasor concept CO2 Calculate power, rms and average values of periodical signals CO3 Analyze and design passive low-pass, high-pass, band-pass, band-reject filter circuits CO4 Analyze frequency response of the circuits CO5 Calculate the parameters of two-port circuits

Weekly Schedule of Topics

W	Topic
1	Basic definitions in sinusoidal steady state analysis: Amplitude, frequency, phase angle
2	Phasor concept, Passive circuit elements in frequency domain
3	Application of mesh current and node voltage equations to AC circuits.
4	Application of other circuit analysis techniques and transformations to AC circuits
5	AC Power in Steady State; Instantaneous power, Average Power
6	Maximum Power Transfer. RMS value calculations
7	Power factor; Reactive Power, Complex Power.
8	Magnetically Coupled Circuits and Ideal Transformers.
9	Variable Frequency Response Analysis
10	Filter Networks
11	Application of Laplace Transformation to Circuit Analysis
12	Passive Filter Circuits and transfer functions

13-14	Two Port Circuits

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	• 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	• 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.gökhan@alanya.edu.tr
Room	209	Office Hours	W 11.30-12.30 | F 13.30-14.30

Prepared by Akın Uslu on june 10th, 2024.