

EE306 – Introduction to Radio Frequency (RF) and Microwave Design

Sabanci University, 2023-2024 Spring

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Office Hours: Online or face-to-face: Communicate first with e-mail (Office: FENS1064)

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Grading Policy: Homework 20%, Midterm 20%, Projects 30%, Final 30%

The midterm will be after Ramadan Bayram in the second half of April.

Lectures: Tuesdays 09:40-10:30 FENS L048
Thursdays 14:40-16:30 FENS L058

Recitations: Fridays 10:40-12:30 FENS L058

Tentative Outline:

Week	Topic	Ludwig&Bretchko	Pozar
#1	Introduction	Ch. 1.1-1.5	Ch. 1.1-1.4
#2-4	Transmission Lines	Ch. 2.1-2.3, 2.6-2.11	Ch. 2.1, 2.3-2.8 Ch. 3.5, 3.7, 3.8, 3.10
#5-7	Smith Chart and Matching Networks	Ch. 3.1-3.4 Ch. 8.1-8.2	Ch. 2.4 Ch. 5.1-5.5
#8-9	Two-Port Networks and S-Parameters	Ch. 4.1-4.4	Ch. 4.2-4.6
#10-12	Amplifier Design Stability	Ch. 9.1-9.5, 9.7	Ch. 12.1-12.5
#13	Dividers and Couplers	App. G	Ch. 7.1-7.3, 7.5-7.8
*If time permits	Noise and Distortion	App. H	Ch. 10.1-10.4

Projects: Hands-on projects, including implementation and measurements. During Recitations, you will learn about these and some simulation tools and practice some course content.

1. Quarter-wave transformer (around the midterm)
2. Transistor amplifier working around 1-GHz (towards the end of the term)

Recommended Textbooks: Note that these are recommended, not strictly followed.

1. RF Circuit Design, Theory and Applications by R. Ludwig & P. Bretchko.
2. Microwave Engineering by David M. Pozar.