



**KOÇ  
ÜNİVERSİTESİ**

**ELEC 316**

**Analog and Digital Communications  
Laboratory**

**Lecture 0 – Syllabus**

Dr. Ertuğrul Başar

Department of Electrical and Electronics  
Engineering

Spring 2021

# Course Information

- Instructor  
Associate Professor (Doç. Dr.) Ertuğrul Başar  
[ebasar@ku.edu.tr](mailto:ebasar@ku.edu.tr) – ENG 168 - <https://corelab.ku.edu.tr/>
- Meeting Information:  
Zoom – Mo We 11:30-12:45 (two 75-min labs/lectures)
- Lab slides will be available weekly on the course website.  
Please download and bring them with you to take further notes.
- Course website: Blackboard
- Office Hours: Mo 10:30-11:30 or by appointment
- TAs : Emre Arslan ([earslan18@ku.edu.tr](mailto:earslan18@ku.edu.tr)), Burak Özpoyraz ([bozpoyraz20@ku.edu.tr](mailto:bozpoyraz20@ku.edu.tr)), Tuğberk Doğukan ([adogukan18@ku.edu.tr](mailto:adogukan18@ku.edu.tr))

# What You Need to Know?

- Signals & Systems (ELEC 201)
- Analog Communications (ELEC 301)
- Digital Communications (ELEC 301 or ELEC 411)
- Digital Signal Processing (ELEC 303) – *highly recommended*
- Basic Programming Skills (Matlab)
- **Prerequisite: *ELEC 301***
  
- However, we will briefly review all of these and you will memorize almost NOTHING in this course !

# Resources:

## Textbook:

- Robert W. Stewart et al., Software Defined Radio using MATLAB® & Simulink® and the RTL-SDR, Strathclyde Academic Media, 2015.  
<https://www.desktopsdr.com>

## Reference Books/Notes:

- Travis F. Collins et al., Software-Defined Radio for Engineers, Artech House, 2018. <https://www.analog.com/en/education/education-library/software-defined-radio-for-engineers.html#>
- Cory Prust (2020). Introductory Communication Systems Course Using SDR  
(<https://www.mathworks.com/matlabcentral/fileexchange/69417-introductory-communication-systems-course-using-sdr>), MATLAB Central File Exchange. 2018
- Robert Heath, Introduction to Wireless Digital Communication: A Signal Processing Perspective, Pearson, 2017.

# Evaluation Methodology

Item	%	DATE
Lab Reports	100	10-11 reports in 13-14 weeks

- No midterm or final exam.
- Lab reports: mainly Matlab/Simulink exercises, experimenting Simulink models.
- Students who miss to submit 3 or more reports will be given F grade.
- Each report may require 1-2 hours of work. Lab reports will be prepared individually.

Asking questions is the key to learning !!!

# Academic Dishonesty

- Academic dishonesty is a serious violation of the trust upon which an academic community depends.
- The students must submit their own work in all exams, quizzes, and homeworks. In exams and quizzes, all forms of information exchange and talking between students is forbidden.
- KU Statement on Academic Dishonesty  
[https://vpaa.ku.edu.tr/sites/vpaa.ku.edu.tr/files/Misc\\_Documents/Statement\\_on\\_Academic\\_Honesty.pdf](https://vpaa.ku.edu.tr/sites/vpaa.ku.edu.tr/files/Misc_Documents/Statement_on_Academic_Honesty.pdf)

	Lab Outline (Tentative)	Date
1	Introduction to Analog and Digital Communications Laboratory with SDRs	Feb 15-17
2	Introduction to Analog and Digital Communications Laboratory with SDRs & Fundamentals of MATLAB and Simulink	Feb 22-24
3	Fundamentals of MATLAB and Simulink	Mar 1-3
4	Fundamentals of Signals and Systems	Mar 8-10
5	Radio Frequency Spectrum Viewing	Mar 15-17
6	Amplitude Modulation: Theory and Simulation	Mar 22-24
7	Frequency Tuning and Simple Synchronization	Mar 29-31
8	Desktop AM Transmission and Reception	Apr 5-7
	Spring Break	Apr 12-14
9	Frequency Modulation: Theory and Simulation	Apr 19-21
10	Frequency Modulation: Theory and Simulation	Apr 26-28
11	Frequency Modulation: Desktop FM Transmission/Reception	May 3-5
12	Digital Communication: Theory and Simulation	May 10-12
13	Digital Communication: Theory and Simulation	May 17-19
14	Digital Communication: Transmission/Reception	May 24-26

# Online Lectures



Your current Time Zone is (GMT+03:00) Istanbul. [↗](#)

[All My Zoom Meetings/Recordings](#)

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**Upcoming Meetings**

Previous Meetings

Personal Meeting Room

Cloud Recordings

[Get Training](#)

Show my course meetings only

Start Time	Topic	Meeting ID	
Mon, Feb 15 (Recurring) 11:30 AM	<a href="#">(LEC) ANALOG AND DIGITAL COMMUNICATION LAB - 01</a>	980 1347 1980	<a href="#">Start</a> <a href="#">Delete</a>
Wed, Feb 17 (Recurring) 11:30 AM	<a href="#">(LEC) ANALOG AND DIGITAL COMMUNICATION LAB - 01</a>	980 1347 1980	<a href="#">Delete</a>

- Students are free to open or close their webcams during lectures.
- Please raise your hand if you want to ask a question.
- All lectures will be recored and uploaded to Panopto/Blackboard.