

Sabancı University  
Faculty of Engineering and Natural Sciences  
**EE 312 - Discrete Time Signals and Systems**

Spring 2022-2023  
Course Information

We may have to revise the course plan according to the countrywide reassessment to be made regarding higher education. This is expected to happen at the beginning of April. The content to be delivered is certain but the method of course delivery, the number and dates of exams, and some other details are subject to change.

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<b>Lecturer</b>	: Hüseyin Özkan, <a href="mailto:huseyin.ozkan@sabanciuniv.edu">huseyin.ozkan@sabanciuniv.edu</a> Room: FENS 1107, Phone: x9594.
<b>Teaching Assistants</b>	Ali Kanaani, <a href="mailto:ali.kanaani@sabanciuniv.edu">ali.kanaani@sabanciuniv.edu</a> İdil Bensu Çilbir, <a href="mailto:idil.cilbir@sabanciuniv.edu">idil.cilbir@sabanciuniv.edu</a>
<b>Textbook</b>	: Digital Signal Processing (e-book), A computer based approach 4th edition, Sanjit K. Mitra, McGraw Hill, 2011.
<b>Lecture Hours</b>	: Monday 12:40-14:30 (FENS L047), Tuesday 16:40-17:30 (FENS G029). Note that lectures will be held in classrooms and also online at the zoom link below. So anyone can attend online from home or physical in the classroom.
<b>Zoom</b>	: <a href="https://sabanciuniv.zoom.us/j/97778407597">https://sabanciuniv.zoom.us/j/97778407597</a> (Passcode: dspdft)
<b>Recitation (Online)</b>	: Tuesday 17:40-19:30.
<b>Office Hours (Online)</b>	: Hüseyin Özkan: By appointment, please drop an email to arrange one. İdil Bensu Çilbir: Tuesday 11:40-12:30. Ali Kanaani: Wednesday 13:40-14:30.
<b>Course Objectives</b>	: To provide students fundamentals of signal processing in discrete-time and enable them to develop the background for graduate level studies. To provide students knowledge of algorithm design, implementation and analysis through comprehensive experiments/simulations in MATLAB during laboratory sessions.
<b>Prerequisite</b>	: ENS 211 - Signals
<b>Grading Policy</b>	: Midterm 1, 25%; Midterm 2, 25%; Final, 30%; Labs, 20%.

**Topics (tentative schedule):**

- Signals and Signal Processing, Discrete-Time Signals in Time Domain [**2 weeks**]
- Discrete-Time Signals in Frequency Domain [**2 weeks**]
- Discrete-Time Systems [**1 week**]
- Finite-Length Discrete Transforms [**2 weeks**]
- z-Transform [**1 week**]
- LTI Discrete-Time Systems in Transform Domain [**1 week**]
- Digital Filter Structures [**1 week**]
- IIR Digital Filter Design [**1 week**]

- FIR Digital Filter Design [1 week]
- Fast Fourier Transform [1 week]

**Exams are physical on campus.**

There will be two midterms and a final. All of them are closed-book and closed-notes and no electronics devices. The first exam (Midterm 1) will be after 10 April.

**Laboratories/Recitations are online at the Zoom link provided above.**

There will be 9 recitations and 5 laboratories. **Recitation sessions** will focus on applications of the concepts introduced in lectures to problem solving, whereas the **laboratory sessions** will focus on computer-aided demonstrations. In each lab, you will be assigned a MATLAB exercise and required to submit a lab report within a week after the session. If you miss a laboratory session without a valid reason, you will lose half of your grade for the corresponding report.

**Problem Sets**

There will be (roughly) 6 homework assignments. These assignments will not be graded. Hence, you are not required to submit your answers. Exams will include problems from these assignments. Hence, you are strongly recommended to study and solve all the assignments thoroughly.

**Make-up Policy**

There will only be one make-up exam at the end of the semester. Only health or other personal emergencies will be accepted as valid reasons to qualify you for a make-up exam. The make-up exam will cover the entire course material.

**SUCourse**

We will use SUCourse to distribute problem sets and their solutions, and as a communication medium between you and the staff. If you have any problems accessing the course material on SUCourse, please let us know as soon as possible so we can have such problems fixed.