	Course name: EE307 – Digital Signal Processing	Department: Electrical and Electronics Engineering					Semester
							5
	Methods of Education						Credit (ECTS)
	Lecture	Recitation/ (Etud)	Lab	Project/ Field Study	Homework	Other	Tot al	6
	42	28		50	50	15	185	

Language	English
Compulsory/Elective	Compulsory
Prerequisites	EE208 Signals and Systems
Course Contents	Discrete-time signals and systems, Discrete-Time Fourier Transform (DTFT), z-Transform, digital filter structures, Discrete Fourier Transform (DFT) and Fast Fourier Transform (FFT), Sampling and quantization, finite word length effects, Frequency response of LTI systems, and filter design techniques
Course Objectives	To understand the basic digital signal processing concepts and techniques and to provide to design and realize intended filters.
Learning Outcomes and Competences	After taking this course, students will be able to understand: Discrete-time signals, Frequency domain techniques filters, Filter design and filter structures, Applications..
Textbook and /or References	● Understanding Digital Signal Processing," by R.G. Lyons, Prentice Hall, 3rd Edition, 2011. ● "Discrete Time Signal Processing," by A.V. Oppenheim and R.W. Schafer, Prentice Hall, 3rd Edition, 2009. ● "Digital Signal Processing", by J.G. Proakis, D.K. Manolakis, Prentice Hall, 4th Edition, 2006. ● "Digital Signal Processing," by S. Mitra, McGraw-Hill, 2010. ● "Schaums Outline of Digital Signal Processing," by Monson Hayes, 2nd Edition (Schaum's Outline Series), McGraw-Hill, 2011 ● "Wavelets and Subband Coding" by M. Vetterli and J. Kovacevic. *(free at berkeley.edu)* ● "Fourier and Wavelet Signal Processing" by M. Vetterli, J. Kovacevic and V. Goyal. *(free at berkeley.edu)*

Assessment Criteria		If any, mark as (X)	Percentage (%)
	Midterm Exams	X	25
	Quizzes		
	Homeworks	X	20
	Projects	X	20
	Term Paper		
	Laboratory work		
	Other		
	Final Exam	X	35

Instructors	Prof. Dr. Hüseyin Canbolat

Week	Subject
1	Discrete-time signals

2	Discrete time Fourier Transform (DTFT)
3	z-Transform,
4	digital filter structures,
5	IIR and FIR Filters
6	Discrete Fourier Transform (DFT)
7	Fast Fourier Transform (FFT)
8	**Midterm**
9	Sampling and quantization,
10	finite word length effects,
11	Frequency response of LTI systems,
12	Filter design techniques.
13	Transform techniques, Wavelets.
14	Transform techniques, Short Time Fourier Transform.
15	Project, Homework