



ESOGÜ Electrical-Electronics Engineering Department

COURSE CODE: 151226356 - 151246356

COURSE TITLE: Communications

Semester	Weekly Hours		COURSE			
	Theoretical	Practical	Credits	ECTS	Type	Language
6	3	0	3	6	Compulsory (x) Elective ()	Turkish () English(x)
Write the credit (for non-credit courses weekly hours) below (If necessary distribute the credits.).						
Math and Basic Science		Electrical Engineering [mark (√) if there is high design content]		General Education		Humanities
		3 ()				
Assessment		THEORETICAL-PRACTICAL COURSES			LABORATORY COURSES	
		Type	Number	%	Activity Type	Number %
Midterm		Midterm	1	30	Quiz	
		Quiz	3	20	Lab performance	
		Homework	3	10	Report	
		Project			Oral exam	
		Other (.....)			Other (.....)	
Final			1	40		
Makeup exam (Oral/Written)		Written				
Prerequisites		151224299 SIGNALS AND SYSTEMS				
Brief content of the course		Fundamentals of electronic communications, signal/noise power-energy, sampling and quantization, AM, VSB, SSB-SC AM, DSB-AM, FM, QAM, PM, PAM, TV principles, random processes, noise figure, matching filters, introduction to source coding, Shannon's theorems.				
Objectives of the course		Learn the modulation techniques used in electronic communications, effects of noise, study on the methods for reducing the effects of noise,				
Contribution of the course towards professional education		Students will get familiar with the techniques used in electronic communication and get ready for the advanced techniques in communication.				
Outcomes of the course		5) Students get to know AM, FM, PM and the techniques made up from their derivatives. They learn some standards in communication (TV for example) and "how/why"s. 6) Improve the ability to solve fundamental problems in communication. 7) Start building a knowledge base for advanced communication techniques.				
Textbook of the course		B. Sklar, Digital Communications, Fundamentals and Applications, Prentice Hall, 2000				
Other reference books		1) J. G. Proakis, M. Salehi, Communication Systems Engineering, Prentice Hall, 2002. 2) B. P. Lathi, Modern Digital and Analog Communication Systems, Holt, Rinehart and Winston, Inc., 1989				
Required material for the course		The course is mostly theoretical. However some simulation is presented to the students. Some communication equipment brought to the class is used to demonstrate basic communication techniques and signals. A communication lab equipped with communication lab-kits is required for the lab counterpart that is planned and placed in the curriculum.				

WEEKLY PLAN OF THE COURSE	
Week	Topics
1	Fundamentals of electronic communication, frequency spectrum
2	Fourier series, Fourier Transform, power and energy
3	Amplitude modulation, SSB-AM, DSB-AM, VSB, intro. to other modulation techniques.
4	Frequency and Phase Modulation
5	TV systems
6	Sampling, quantization, companding, expanding
7	Frequency, phase and amplitude shift modulation
8,9	Midterm
10	Random processes and noise, noise figure.
11	Noise power, SNR, noise filters
12	Matched filters, emphasizing, de-emphasizing
13	Shannon theorems, introduction to source coding
14	Spread spectrum
15,16	Final

NO	OUTCOMES OF THE PROGRAMME	4	3	2	1
1	Adequate knowledge of mathematics, science and Electrical and Electronic Engineering; ability to practice theoretical and practical knowledge of these areas into modeling and solving complex problems of Electrical and Electronic Engineering	X			
2	Ability to identify complex engineering problems in Electrical and Electronic Engineering and related fields, for this purpose having skills to formulate, select and apply appropriate methods.			X	
3	Having skills to apply modern design methods to design a complex system, process, equipment or product that should work under realistic conditions and constraints and satisfy specific requirements concerning the Electrical and Electronic Engineering.				X
4	Having skills to develop, select and apply modern techniques and tools needed to analyze and solve complex applications in Electrical and Electronic Engineering, skills to use information technology effectively.				X
5	Skills to design and conduct tests, collect data, analyze results, and interpret data for the experimental investigation of complex problems in Electrical and Electronic Engineering				X
6	Ability to function effectively as an individual and as a member of teams within the discipline and in multidiscipline areas.				X
7	Communicating effectively in oral and written form both in Turkish and English. Effective report writing and understanding written reports, preparing design and manufacturing reports, making effective presentations, skills to give and receive clear and concise instructions.				X
8	Awareness of the necessity of lifelong learning, access to information, monitoring developments in science and technology and the ability to self-renewing				X
9	Understanding of professional and ethical responsibility				X
10	Information on project management, change management and risk management practices, awareness on entrepreneurship and innovation, knowledge on sustainable development.				X
11	Information about universal and societal effects of engineering applications on health, safety and environment; awareness of the legal consequences of engineering solutions.			X	

Scale for assessing the contribution of the course to the program outcomes:

4: High 3: Medium 2: Low 1:None

Name of Instructor(s): Asist. Prof. Erol Seke

Signature(s):

Date: