



ESOGÜ Electrical-Electronics Engineering Department

COURSE CODE: 151225394 - 151245394

COURSE TITLE: Probability

Semester	Weekly Hours		COURSE			
	Theoretical	Practical	Credits	ECTS	Type	Language
5	3	0	3	4	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
			()			
Assessment			THEORETICAL-PRACTICAL COURSES			LABORATORY COURSES
			Type	Number	%	Activity Type
Midterm			Midterm	1	30	Quiz
			Quiz	3	30	Lab performance
			Homework			Report
			Project			Oral exam
			Other (.....)			Other (.....)
Final				1	40	
Makeup exam (Oral/Written)			Written			
Prerequisites			None			
Brief content of the course			Sets, axioms of probability, random variables and functions of random variables, expectation and moments, discrete distributions, continuous distributions, jointly distributed random variables and their functions.			
Objectives of the course			To learn basic concepts of probability, to be able to analyze continuous and discrete random variables, to be able to compute the expected value and standard deviation of a distribution, to compute the probabilities related to the popular distributions.			
Contribution of the course towards professional education			In this course students learn basic concepts of probability and develop mathematical background which is necessary for the related engineering courses.			
Outcomes of the course			1) Students can solve probability problems related to the combinatorial analysis. 2) Students can analyze discrete and continuous random variables. 3) Students can compute the expected value and standard deviation of the well-known distributions and solve the related problems.			
Textbook of the course			Sheldon Ross, A First Course in Probability, Prentice Hall, 7th edition, 2006.			
Other reference books			1) J. L. Devore, Probability and Statistics, Thomson Brooks/Cole, 2004. 2) H. Stark, J. W. Woods, Probability and Random Processes with applications to Signal Processing, Pearson Education, 2002.			
Required material for the course						

WEEKLY PLAN OF THE COURSE	
Week	Topics
1	Combinatorial Analysis
2	Axioms of Probability
3	Conditional Probability and Independence
4	Discrete Random Variables
5	Expectation and Variance
6	The Bernoulli and Binomial Distributions
7	Continuous Random Variables
8	Midterm
9	Midterm
10	Normal Random Variable
11	Other Continuous Distributions
12	Jointly Distributed Random Variables
13	Independent Random Variables
14	Probability Distributions of Joint Random Variables
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): Assoc. Prof. Dr. Hakan CEVIKALP

Signature(s):

Date: