PROBABILITY AND STATISTICS IN ENGINEERING

1	Course Title:	PROBABILITY AND STATISTICS IN ENGINEERING
2	Course Code:	END5501
3	Type of Course:	Optional
4	Level of Course:	Second Cycle
5	Year of Study:	1
6	Semester:	1
7	ECTS Credits Allocated:	7.50
8	Theoretical (hour/week):	3.00
9	Practice (hour/week):	0.00
10	Laboratory (hour/week):	0
11	Prerequisites:	Undergraduate Level Math Skills
12	Language:	Turkish
13	Mode of Delivery:	Face to face
14	Course Coordinator:	Doç. Dr. Fatih ÇAVDUR
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	e-posta: fatihcavdur@uludag.edu.tr, Telefon: + 90 (224) 294 20 77 Adres: Uludağ Üniversitesi, Mühendislik-Mimarlık Fakültesi, Endüstri Mühendisliği Bölümü, Görükle Kampüsü, 16059 Nilüfer, Bursa
17	Website:	
18	Objective of the Course:	Learning basic concepts of probability and statistics, and data analysis methods.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	

		1	Being able to understand the basics probability and statistics concepts.
		2	Being able to perform data analysis.
		3	Being able to conduct hypothesis testing.
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21	Course Content:	

Course Content:	

Week	Theoretical	Practice
1	Introduction to Data Analysis -Introduction to Data Analysis Methods -Measures of Location and Variability	

Week	Topic
2	Introduction to Probability Concepts -Sample Space, Events, Probabilities of Events -Basic Definitions
3	Random Variables and Probability Distributions -Introduction to Random Variables, Definitions -Discrete and Continuous Random Variables
4	Expectation -Mean of a Random Variables -Definition of Expectation -Variance of a Random Variable
5	Discrete Probability Distributions -Bernoulli Process and Binomial Distribution -Negative Binomial, Geometric, Hypergeometric Distributions -Poisson Distribution
6	Continuous Probability Distributions -Uniform Distribution -Exponential Distribution
7	Continuous Probability Distributions (cont.) -Normal Distribution

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study	14	9.00	126.00
Homeworks	1	14.00	14.00
Projects	1	30.00	30.00
Field Studies	0	0.00	0.00
Midterm exams	1	5.00	5.00
Others	0	0.00	0.00
Final Exams	1	8.00	8.00
Total Work Load			225.00
Total work load/ 30 hr			7.50
ECTS Credit of the Course			7.50

Overlapping course schedule text:
- t-Distribution, F-distribution
- One and Two Sample Mean Estimation
- One and Two Sample Proportion Estimation
- One and Two Sample Hypothesis Testing about the Means, Proportions and Variances
- 11 Simple Linear Regression
  - -Introduction to Linear Regression
  - -ANOVA

Week	Topic
	-Coefficient Estimation -Inferences in Multiple Linear Regression -Categorical or Indicator Variables
13	One Factor Experiments -ANOVA Technique -Introduction to Experimental Design -One-Way ANOVA -Randomized Designs
14	Student Project Presentations

22	Textbooks, References and/or Other Materials:	1. Probability and Statistics for Engineers and Scientists; 9th Edition; Ronald E. Walpole, Raymond H. Myers, Sharon L. Myers, Keying Ye, Pearson 2. Probability and Statistics for Engineering and the Sciences, Jay L. Devore, Duxbury Press

23	Assesment

TERM LEARNING ACTIVITIES	NUMBER	WEIGHT
Midterm Exam	1	35.00
Quiz	0	0.00
Home work-project	1	30.00
Final Exam	1	35.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade		65.00
Contribution of Final Exam to Success Grade		35.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		

24	ECTS / WORK LOAD TABLE

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	1	3	1	5	1	1	1	3	1	1	1	0	0	0	0	0
ÖK2	1	3	1	5	1	1	1	3	1	1	1	0	0	0	0	0
ÖK3	1	3	1	5	1	1	1	3	1	1	1	0	0	0	0	0

LO: Learning Objectives   PQ: Program Qualifications

Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High