DEPARTMENT OF CIVIL ENGINEERING
COURSE SYLLABUS

Course Details				
Code	**Academic Year**			**Semester**
BAU533	1			1
Title	**T**	**A**	**L**	**ECTS**
Ulaştırma Mühendisliği için Olasılık ve İstatistik (Probability and Statistics for Transportation Engineering)	3	-	-	6

Language	English					
Level	**Undergraduate**		**Graduate**	✓	**Postgraduate**	
Department / Program	Civil Engineering					
Forms of Teaching and Learning	Formal					
Course Type	**Compulsory**		**Elective**	✓		
Objectives	This course aims for students to understand the fundamentals of probability and statistics and its application in engineering.					
Content	Fundamentals of probability, discrete and continuous random variables, jointly distributed random varibles, basics of descriptive statistics, inductive statistics, point estimation, confidence intervals, hypothesis tests, paired t-Test, analysis of variance, regression, goodness of fit tests, nonparametric tests					
Prerequisites	-					
Coordinator						
Lecturer(s)	Dr. Ömer Faruk AYDIN					
Assistant(s)						
Work Placement						

Recommended or Required Reading	
Books / Lecture Notes	Ang, Alfredo, and Wilson Tang. Probability Concepts in Engineering Planning and Design: Vol I - Basic Principles. New York, NY: John Wiley & Sons, 1975. ISBN: 047103200X.
Other Sources	

Additional Course Material	
Documents	-
Assignments	-
Exams	-

Course Composition		
Mathematics und Basic Sciences	70	%
Engineering	30	%
Engineering Design		%
Social Sciences		%

DEPARTMENT OF CIVIL ENGINEERING
COURSE SYLLABUS

Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge		%

Assessment

Activity	Count	Percentage (%)
Midterm Exam		
Quiz		
Assignments	1	40
Attendance		
Recitations		
Projects		
Final Exam	1	60
	Total	**100**

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	3	42
Self-Study	14	3	42
Assignments	1	10	8
Presentation / Seminar Preparation			
Midterm Exam			
Recitations			
Laboratory			
Projects			
Final Exam	1	2	2
		Total Work Load	**96**
		ECTS Points (Total Work Load / Hour)	**6**

Learning Outcomes

1	Fundamentals of probability
2	Discrete and Continuous Probability Distributions, Random Variables, Random Variable Functions
3	Point Estimation, Confidence Intervals and Hypothesis Tests
4	Variance Analyses, Regression, Goodness of Fit Tests, Nonparametric Tests
5	
6	
7	

DEPARTMENT OF CIVIL ENGINEERING
COURSE SYLLABUS

8	
9	
10	
11	
12	

Weekly Content	
1	Fundamentals of Probability
2	Discrete and Continuous Variables
3	Discrete and Continuous Variables
4	Discrete and Continuous Variables
5	Jointly Distributed Random Variables
6	Jointly Distributed Random Variables
7	Descriptive Statistics
8	Point Estimation, Confidence Intervals
9	Point Estimation, Confidence Intervals
10	Hypothesis Tests
11	Hypothesis Tests, t-test
12	Variance Analysis, Regression Analysis
13	Goodness of Fit Test
14	Nonparametric Tests
15	Applications in Engineering

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

DEPARTMENT OF CIVIL ENGINEERING
COURSE SYLLABUS

Compiled by:	Dr. Ömer Faruk Aydın
Date of Compilation:	30.07.2021