IM 225 STATISTICS FOR CIVIL ENGINEERS	CIVIL ENGINEERING	

Semester	Credit Structure		
	Lecture	**Recitation**	**Laboratory**
3	3	0	0

Language	English
Compulsory / Elective	Compulsory
Prerequisites	-
Catalog Description	Importance of Statistics in Civil Engineering. Histogram. Combination of Events. Conditional Probability. Bayes's theorem. Random variables. Probability Distributions. Hypothesis tests. Regression and Correlation Analyses. Risk and Return period. Structural reliability Analysis.
Course Objectives	Solution of civil engineering problems by using probability theory and statistical methods, analysis of random events, decision making by the inclusion of uncertainties and risk factors.
Course Outcomes	Application ability of statistical methods in civil engineering problems, decision theory developments including uncertainty and risk factors, reliability based design.
Textbook and /or References	A. H. S. Tang and W. H. Tang, 1975, Probability Concepts in Engineering Planning and Design, Vol:1, John Wiley and Sons, USA. D. C. Montgomery and G. C., Runger, 1999, Applied Statistics and Probability for Engineers, John Wiley and Sons, USA.

Assessment Criteria		**Quantity**	**Percentage**
	Midterm Exams	2	40
	Quizzes	-	-
	Homeworks	5	10
	Projects	-	-
	Term Paper	-	-
	Laboratory Work	-	-
	Other	-	-
	Final Exam	1	50

Course Category by Content (%)	**Mathematics and Basic Sciences**	50
	Engineering Science	50
	Engineering Design	-
	Social Sciences	-

Instructors	**Prof. Dr. Can E. BALAS**

COURSE PLAN

Week	Topics
1	Importance of Statistics in Civil Engineering
2	Probability Theory
3	Probability Theory
4	Probability Theory
5	Frequency Analysis and Estimating of Parameters
6	Frequency Analysis and Estimating of Parameters
7	Probability Distributions
8	Probability Distribution Functions
9	Determination of Probability Distribution Models
10	Statistical Hypothesis Tests
11	Regression and Correlation Analysis
12	Regression and Correlation Analysis
13	Risk and Return Period. Structural Reliability Analysis
14	Risk and Return Period. Structural Reliability Analysis

RELATIONSHIP BETWEEN THE COURSE AND DEPARTMENT CURRICULUM

	Program Outcomes	1	2	3
1	An ability to apply knowledge of mathematics, science, and engineering		X	
2	An ability to design and conduct experiments, as well as to analyze and interpret data		X	
3	An ability to design a system, component, or process to meet desired needs			X
4	An ability to function on multi-disciplinary teams			X
5	An ability to identify, formulate, and solve engineering problems			X
6	An understanding of professional and ethical responsibility		X	
7	An ability for effective written and oral communication in Turkish and English		X	
8	The broad education necessary to understand the impact of engineering solutions in a global and societal context			X
9	A recognition of the need for, and ability to engage in life-long learning		X	
10	A knowledge of contemporary issues		X	
11	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			X
Contribution of the course : 1:None 2:Partially 3:Completely				