STATISTICS

1	Course Title:	STATISTICS	
2	Course Code:	OTO1008	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	3.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç.Dr. ERHAN KENAN ÇEVEN	
15	Course Lecturers:	Doç. Dr. Ömer KAYNAKLI	
16	Contact information of the Course Coordinator:	Tel: 0 224 294 1953 Mail: mkilic@uludag.edu.tr	
17	Website:		
18	Objective of the Course:	To gain data collection, analysis and interperation skills by learning the basics of probability and statistics methods for the tests and measurements under the mechanical engineering	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	Visualising the data by using graphical methods
		2	Can edit the data numerically with the help of various statistical parameters
		3	Know the basic concepts of probability
		4	Use curve fitting techniques for the given data
		5	Knows the techniques of sampling and types of the data collection
		6	Can estimate the population mean and sample rates
		7	Can use the hypothesis methods
		8	
		9	
		10	
21	Course Content:		
	Course Content:		
Week	Theoretical		Practice

1	To describe the basic concepts statistics such as variable,sample and population. Classification of variables Graphical representation of quantitative variables and interpretation of graphics Relative frequency histograms	
2	Identification of numeric parameters that diagnoses central tendency such as arithmetic mean, median and mode and interpretation of distributions by comparing the parameters. Identification of numeric parameters that indicates variability of distributions such as variance and standart deviation. The method of box representation	
3	Defining the correlation coefficient and determination the shape and direction of the relationship between the variables Introducing Linear curve fitting (regression) method	
4	Permutations and combinations Conditional and total probability rules, Baye's law	
5	Binomial probability distributions Hypergeometric probability distribution	
6	Reading the probalities from the Z table for Normal distribution approach to binomial	
7	Problem solving for practice	
8	Repeating courses and midterm exam	
9	The central limit theorem Calculation of probabilities for the sample average Statistical process control for the binomial and normal distributions	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	13	5.00	65.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	2.00	2.00
Others	0	0.00	0.00
Final Exams	1	2.00	2.00
Total Work Load			97.00
Total work load / 30 hr			3.23
ECTS Credit of the Course			3.00

10	Estimation of the population mean by the methods of confidence interval Estimation of the success rate of binomial distribution by the methods of confidence interval Estimation of the difference between the population means by the methods of confidence interval Estimation of the difference between the success rates of two binomial distribution by the methods of confidence interval	
11	Large sample (n> 30) hypothesis testing method One-way and bi-directional hypothesis testing Types of error in the method of test statistics	
12	Large sample hypothesis testing of the difference between the two population mean Hypothesis testing for binomial probability distribution Large sample hypothesis testing of the difference between success rates of two binomial distribution	
13	Small sample (n <30) hypothesis testing method Identification of the t distribution table and reading the probabilities t table Estimation of the population mean with small sample hypothesis testing Estimation of the difference between the two population mean with small sample hypothesis testing Paired t-tests	
14	Problem solving for practice	

22	Textbooks, References and/or Other Materials:	1. Introduction to probability and statistics lecture notes, slides and solved questions, Prof. Dr. Muhsin Kılıç. 2. Statistics, 3rd Ed, M.R Spiegel, L.J. Stephens. Schaums Outline Series McGraw-Hill, Newyork,1999. 3. Uygulamalı İstatistik, S. Özer, Filiz Kitabevi, İstanbul, 1996. 4. Introduction to Probability and Statistics, 3rd Ed., Wadsworth, California,1971.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00

Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
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	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
ÖK4	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
ÖK5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
ÖK6	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0
ÖK7	0	0	0	0	5	0	0	0	0	0	0	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							