

Course title: Probability and statistics

Course Basic Information	
Academic Unit:	Faculty of Civil Engineering
Course Name:	Probability and Statistics
Level:	Bachelor (BA)
Course Status:	Mandatory
Year of Study:	II (second)
Number of Hours per Week:	3
ECTS Credits:	3
Time /Venue:	Faculty of civil engineering
Course Teacher:	Abdullah Zejnullahu
Contact Details:	tel. 044-126-989, e-mail: abdullah.zejnullahu@uni-pr.edu
Course Description	<p>The subject concentrates on the achievement of knowledge from the field of Statistics and Probability theory which can be used to facilitate the knowledge from other subjects and can be applied in solving problems from the field of environmental engineering. It introduces concept of the sample space. Classical, Geometrical and Axiomatic definition of Probability. Proofs of the elementary formulas of probability, the formula of the total provability and the Bayes formula. Probability distribution laws. Some important Probability distribution laws which are used in environmental engineering are also introduced. Parameters of the random variable. Types of convergence. Elements of the Mathematical Statistics. A statistical analysis using algebraic and positional mean while applying indicators of absolute and relative variance. Application of well known statistical programs used in environmental engineering.</p>
Course Objectives:	To provide students with the knowledge from the Mathematical Statistics and probability which are necessary when implementing mathematical concepts in the field of engineering and the error theory.
Learning Outcomes:	<p>At the end of this course students will be able to use and to understand concepts of Mathematical Statistics with the aim to use this knowledge as an aide in other subjects which use mathematical statistics as well as to implement this knowledge in solving practical problems from the field of geodetic engineering and geodetic measurement.</p> <p>Upon completion of this course students will be able to:</p> <ul style="list-style-type: none"> - to understand the concept of event and the set, types of events and their interaction -to implement combinatory in the statistical theory and to evaluate the number of equally possible events - to define the classical, geometrical and axiomatic probability - to present the discrete and continues random variables - to implement some theoretical probability distributions

	- to implement knowledge from mathematical statistics, analysis method and the descriptive statistics in the possible researches.														
Student Workload (Consistent with the Learning Outcomes)															
Activity	Hours	Day/ Week	Total												
Lectures	2	1 -15	30												
Theory/ Lab Work	1	1 - 15	15												
Practical Work															
Contact Hours with Teacher /Consultations during Office Hours	2	1 - 4	8												
Field Work															
Colloquium, Seminars	4	2 - 2	4												
Homework															
Self-study Time (in the Library or at Home)	2	2 - 4	10												
Final Exam Preparation	4	1 - 4	4												
Evaluations (Tests, Quiz, Final exam)	2	1 - 2	4												
Projects, Presentations, etc.															
Total	17	15	75												
Teaching Methods:	Lectures, exercises during class using different materials, one project work in group of 2-3 students (independent work), individual homework														
Assessment Methods:	<table> <tr> <td>First assessment</td> <td>20%</td> </tr> <tr> <td>Second Assessment</td> <td>20%</td> </tr> <tr> <td>Activity during exercises</td> <td>10%</td> </tr> <tr> <td>Attendance</td> <td>10%</td> </tr> <tr> <td>Final Exam</td> <td>40%</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table>			First assessment	20%	Second Assessment	20%	Activity during exercises	10%	Attendance	10%	Final Exam	40%	Total	100%
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Attendance	10%														
Final Exam	40%														
Total	100%														
Literature															
Primary Literature:	<ol style="list-style-type: none"> 1. A.Zejnullahu ,F.Berisha –Matematika III,1997,Prishtinë 2. Sh. Leka – Teoria e probabilitetit dhe statistika matematike,1998,Tiranë. 3. Marilyn K. Pelosi, Theresa M. Sandifer- Elementary statistics, 2003, USA 4. William Navidi- Statistics for Engineers and Scientists, 2006 USA 														
Additional Literature:	<ol style="list-style-type: none"> 1. Ll.Puka – Probabilitetit ,1998,Tiranë. 2. S. Bushati – Ushtrime të zgjidhura të probabilitetit dhe statistikës,1999,Tiranë. 3. W.Feller –An introduction to probability theory and its application,1970,New York 4. B. Ruseti – Teoria e probabilitetit dhe statistika matematike I dhe II,1975,Tiranë. 														

	5 .S.Elzar – Matematička statistika ,1968 ,Sarajevë
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Course Plan:		
Week	Title of the Lecture	exercises
Week 1:	SAMPLE SPACE	Solving tasks related to the unit being discussed
Week 2:	Classical, Geometrical and Axiomatic definition of Probability, basic theorems	
Week 3:	Probability distribution laws-Random variables	
Week 4:	Some distributions, Binomial (Bernouli), Puason's and Normal distribution	
Week 5:	Polynomial and Geometrical distribution	
Week 6:	Pascal's Distribution, Hyper geometrical. Exponential distribution, COUCHY, GAUSS,BETA and CHI-Squared distribution.	
Week 7:	Moments, generating function.	
Week 8:	The uniqueness theorem and the inversion.	
Week 9:	Convergence. Types of convergence	
Week 10:	Law of Large numbers (LLN)	
Week 11:	Markov chains	
Week 12:	Basic elements of mathematical Statistics	
Week 13:	Statistical analysis	
Week 14:	Approximate numbers and round-off error	
Week 15:	Approximate solutions of algebraic equations.	

Academic Policies and Rules of Civility:

We start and finish class on time.
 Tools used during class must be cleaned and stored away at the end of class.
 Mobile/smart phones, and other electronic devices (e.g. iPods) must be turned off (or on vibrate) and hidden from view during class time.
 Laptop and tablet computers are allowed for quiet use only; other activities such as checking personal e-mail or browsing the Internet are prohibited.