POLITEHNICA University of Bucharest (**UPB**)
Faculty of Industrial Engineering and Robotics (**IIR**)
Study Programme: Industrial Engineering (**IE**)
Form of study: Licence (Bachelor)

COURSE SPECIFICATION

Course title:	Probability and Statistics	*Semester:*	3
Course code:	UPB.06.F.03.O.003	*Credits (ECTS):*	5

Course structure	Lecture	Seminar	Laboratory	Project	Total hours
Number of hours per week	2	2			4
Number of hours per semester	28	28			56

Lecturer	Lecture	Seminar / Laboratory / Project
Name, academic degree	Pitea Ariana, Professor	Pitea Ariana, Professor
Contact (email, location)	apitea@mathem.pub.ro arianapitea@yahoo.com Department of Mathematics & Informatics R412	apitea@mathem.pub.ro arianapitea@yahoo.comDepartment of Mathematics & Informatics

Course description:

By the use of methods specific to the probability theory and statistics, there can be modeled real world phenomena, such as in engineering, game theory, information theory. A good comprehension of these phenomena necessarily imposes a solid background knowledge of the basic notions of the probability theory and statistics. The course refers to notions connected with the conditional probability, applications to reliability, the total probability formula, discrete and continuous random variables, numerical characteristics of random variables, random vectors, marginal densities, functions of random variables, sequences of random variables, graphical methods of presenting data, data analysis, the estimation of parameters, approximation methods in statistics. A special attention is given to association of knowledge, principles and methods of the technical sciences in the field with graphical representations in order to solve specific tasks.

Seminar / Laboratory / Project description:

The problems approached during the seminar are carefully selected, according to the material presented at the course.The use of examples enables us to illustrate the real world applications of one specific notion in various fields, raising the students interest towards the notions we study. Calculations, proofs and applications are used to solve industrial engineering specific tasks based on knowledge of fundamental sciences.

Intended learning outcomes:

The course has the following purposes:
- the formation of the capacities of handling the concepts, by presenting them in direct relation with other sciences;
- the completion of the students knowledge with theoretical and applicative notions, intended to ensure the fundamentals for the understanding of the engineering courses;

- the opening of new ways, which will guide the student to mathematical and engineering studies, which will allow his later professional integration;
- the drawing of the young people to the individual studying through the offer of open problems and through the indication of adequate bibliographies;
- the stimulation of students who are interested in reaching performance through their training for professional contests and for scientific students conferences;
- the students who will study our topics will be able to understand applied models from reliability, queuing theory, random walk, data transmission, numerical simulation, physics and much more.

Assessment method:	% of the final grade	Minimal requirements for award of credits
Written exam	40%	50% from the requirements for the maximum grade
Report / project		
Homework		
Laboratory		
Other	60%	50% from the requirements for the maximum grade

References:

[1]   Ariana Pitea & Mihai Postolache: *Basic Concepts of Probability & Statistics*, Editura Fair Partners, Bucureşti, 2012.

[2]   Mihai Postolache (coordonator), Ariana Pitea, D. Cioroboiu: Statistică. O introducere elementară cu aplicaţii, Ed. Fair Partners, 2009.

Prerequisites:	Co-requisites *(courses to be taken in parallel as a condition for enrolment):*
Mathematics 1,2	

Additional relevant information:

Date:
Professional degree, Surname, Name: Professor, Pitea Ariana