

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Probabilistic methods and statistics		Code 1010331531010344954
Field of study Information Engineering	Profile of study (general academic, practical) (brak)	Year /Semester 2 / 3
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 30 Classes: 30 Laboratory: - Project/seminars: -		No. of credits 5
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art the sciences		ECTS distribution (number and %) 5 100%
Responsible for subject / lecturer: dr inż. Barbara Popowska email: barbara.popowska@put.poznan.pl tel. 61 665 2815 Wydział Elektryczny, Instytut Matematyki ul. Piotrowo 3A, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student knows basic notions in calculus, set theory and logic.
2	Skills	Student can operate a calculator, a computer and find and use proposed literature.
3	Social competencies	Student recognizes the necessity in deepening his knowledge. Student is conscious to operate in creative and rational way. Student is active during classes.
Assumptions and objectives of the course: to acquire basic statistical and probabilistic methods and develop the ability to use these methods to solve practical engineering problems.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student has a basic knowledge of probability theory, including the rights of probability useful to solve practical engineering problems. - [K_W01 +++]		
2. Student has a basic knowledge of descriptive and mathematical statistics useful to solve practical engineering problems. - [K_W01 +++]		
3. Student knows the basic techniques and tools used to solve simple engineering tasks using information technology and computer support. - [K_W01 +++]		
Skills:		
1. Student is able to interpret the information from literature, databases and other selected sources and to draw conclusions and formulate and justify opinions. - [K_K10 +]		
2. Student can use information and communication technology for the tasks of typical engineering activities. - [K_K10 +]		
3. Student is able to select and apply appropriate methods and tools and to use them effectively to solve tasks of mathematical statistics. - [K_K10 +]		
Social competencies:		
1. Student is able to argue the necessity of continuous learning. - [K_K01 +]		
2. Student is aware of their responsibility for their own work and is willing to obey the rules of collective work and to take responsibility for collaborative tasks. - [K_K01 +]		
3. Student can see cause and effect relationship in achieving the set of goals and rank alternative or competitive tasks. - [K_K02 +]		

Assessment methods of study outcomes		
-lecture abilities shown on a written exam in the theoretical and practical range, -classes assessment of acquired practical skills based on two writing works: half and final (with use teaching materials) permanent assessing, on every classes - awarding a bonus for ability of using newly found principles and methods.		
Course description		
The basic concepts of probability will be discussed i.e.: probability space, different definitions of the probability: axiomatic, geometric, classical, conditional, random variables one and two-dimensional and their probability distributions, elements of descriptive statistics, methods of statistical inference - estimation, hypothesis verification. Simple random sample. The review of basic statistics, their properties and applications in the parameter estimation and the statistical hypotheses testing for one and two populations.		
Basic bibliography:		
1. Krysicki W., Bartos J., Dyczka W., Królikowska K., Wasilewski M., Rachunek prawdopodobieństwa i statystyka matematyczna w zadaniach, cz. I, II. Wydawnictwo PWN, Warszawa 2. Bobrowski D., Łybacka K., Wybrane metody wnioskowania statystycznego. Wydawnictwo Politechniki Poznańskiej, Poznań 3. Bobrowski D., Probabilistyka w zastosowaniach technicznych. WNT, Warszawa 1986.		
Additional bibliography:		
1. Plucińska A., Pluciński E., Probabilistyka, Wydawnictwo WNT, Warszawa 2. Jasiulewicz H., Kordecki W., Rachunek prawdopodobieństwa i statystyka matematyczna. Przykłady i zadania. Oficyna wydawnicza GiS, Wrocław 3. Kordecki W., Rachunek prawdopodobieństwa i statystyka matematyczna. Definicje, twierdzenia, wzory. Oficyna wydawnicza GiS, Wrocław 4. Krzyśko M., Wykłady z teorii prawdopodobieństwa. WNT, 2000. 5. Krzyśko M., Statystyka matematyczna. WN UAM, 1996.		
Result of average student's workload		
Activity	Time (working hours)	
1. Classes preparation	10	
2. Lectures and classes participation	60	
3. Homework preparation	10	
4. Tests preparation	20	
5. Exam preparation	20	
Student's workload		
Source of workload	hours	ECTS
Total workload	120	5
Contact hours	60	3
Practical activities	30	2