

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Selected topics in Mathematics		Code 1010601221010344271
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 2
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: 3 Classes: 1 Laboratory: - Project/seminars: -		No. of credits 4
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 technical sciences		ECTS distribution (number and %) 4 100%
Responsible for subject / lecturer: dr Maria Iwińska email: maria.iwinska@put.poznan.pl tel. (61) 6652349 Wydział Elektryczny ul. Piotrowo 3A, 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student has a knowledge of combinatorics and probability calculus at the secondary school level. Student has a basic knowledge of Mathematics 1.
2	Skills	Student is able to think logically. Student is able to use a calculator.
3	Social competencies	Student understands the necessity of learning and usefulness of acquired knowledge.
Assumptions and objectives of the course: The aim of this course is to introduce students to selected topics of probability theory, mathematical statistics and mathematical analysis. Students acquire skills to apply probabilistic and statistical methods to solve technical problems.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student knows the basic probability distributions. - [K1A_W01] 2. Student knows the basic methods of statistical inference. - [K1A_W01] 3. Student knows the tests for convergence of series. - [K1A_W01]		
Skills:		
1. Student is able to apply theoretical probability distributions. - [K1A_U01] 2. Student is able to apply the methods of mathematical statistics in engineering practice. - [K1A_U01] 3. Student is able to determine whether the series converges or diverges. - [K1A_U01]		
Social competencies:		
1. Student rozumie celowość prowadzonych badań statystycznych. - [K1A_K01] 2. Student understands the usefulness of statistical methods. - [K1A_K01]		
Assessment methods of study outcomes		
Written exam. Classes-written test (1 or 2).		
Course description		

Probability system. Conditional probability. Univariate probability distributions. Basic concepts of descriptive statistics. Estimation. Confidence intervals. Hypothesis verification. Bivariate probability distributions. Correlation analysis. Regression analysis. Series of real numbers.		
Basic bibliography: 1. Bobrowski D., Maćkowiak-Łybacka K., Wybrane metody wnioskowania statystycznego, Wydawnictwo Politechniki Poznańskiej, Poznań. 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. Gewert M., Skoczylas Z., Analiza matematyczna 2. Definicje, twierdzenia, wzory, Oficyna Wydawnicza GiS, Wrocław. 5. Gewert M., Skoczylas Z., Analiza matematyczna 2. Przykłady i zadania, Oficyna Wydawnicza GiS, Wrocław.		
Additional bibliography: 1. Bobrowski D., Probabilistyka w zastosowaniach technicznych, WNT, Warszawa, 1986. 2. Krysicki W., Bartos J., Dyczka W., Królikowska K., Wasilewski M., Rachunek prawdopodobieństwa i statystyka matematyczna w zadaniach, część I i II, PWN, Warszawa 3. Plucińska A., Pluciński E., Probabilistyka, WNT, Warszawa. 4. Krysicki W., Włodarski L., Analiza matematyczna w zadaniach, część I, PWN, Warszawa.		
Result of average student's workload		
Activity	Time (working hours)	
1. Preparation for the lectures	5	
2. Participation in the lectures	45	
3. Consolidation of the lectures content	5	
4. Consultation for the lectures	2	
5. Preparation for the exam	10	
6. Participation in the exam	1	
7. Preparation for the classes	5	
8. Participation in the classes	15	
9. Consolidation of the classes content	6	
10. Consultation for the classes	2	
11. Preparation for the test	4	
12. Participation in the completion of the test	1	
Student's workload		
Source of workload	hours	ECTS
Total workload	101	4
Contact hours	66	3
Practical activities	0	0