

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Mathematics		Code 1011101211010340063
Field of study Safety Engineering - Full-time studies - First-	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
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: 15 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		ECTS distribution (number and %)
Responsible for subject / lecturer: dr hab. Małgorzata Migda email: malgorzata.migda@put.poznan.pl tel. +48 61 665 2359 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Basics of mathematics - secondary school level.
2	Skills	Logical and scientific thinking. Efficient calculating.
3	Social competencies	Understanding necessity of broadening ones competences, readiness to working and cooperating in team and taking responsibility for jointly realized task.
Assumptions and objectives of the course: The subject is aimed at introducing basic terms from the area of mathematics, giving skills and competences for solving fundamental mathematic topics and for using mathematics in management		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Has knowledge of selected aspects of higher mathematics - [T1A_W01]		
2. Application of mathematics to solve technical problems - [T1A_W01]		
Skills:		
1. Can use basic knowledge of mathematics as a tool in management - [T1A_U09]		
2. Can perform studies using mathematical apparatus - [T1A_U09]		
Social competencies:		
1. understands the necessity of expanding own mathematical knowledge - [T1A_K04]		
2. is able to prepare and realize different engineer ventures individually and in a team - [T1A_K04]		
Assessment methods of study outcomes		
Lecture: written test.		
Classes: evaluation of two written tests, two quiz and the direct activity during the classes.		
Course description		

<p>Elements of linear algebra: matrices, inverse matrix, row of matrix, systems of linear equations, Analytic geometry in space. Elementary functions (formulas, graphs, properties). Sequences, monotonic sequences, the limit of a sequence, the arithmetic of limits. Continuity, limits of functions, asymptote. Derivative and its geometric interpretation, monotonicity intervals, extrema, convexity and inflection points, L'Hospital's rule. Indefinite integral., methods of integration. Definite integral and its application.</p>		
<p>Basic bibliography: 1. I. Foltińska, Z. Ratajczak, Z. Szafranski, <i>Matematyka dla studentów uczelni technicznych</i>, WPP Poznań 2000. 2. T. Jurlewicz, Z. Skoczylas, <i>Algebra liniowa 1</i>, Oficyna Wydawnicza GiS, Wrocław 2007. 3. M. Gewert, Z. Skoczylas, <i>Analiza matematyczna 1</i>, Oficyna Wydawnicza GiS, Wrocław. 2011.</p>		
<p>Additional bibliography: 1. W. Kryszcki, L. Włodarski, <i>Analiza matematyczna w zadaniach</i>, PWN Warszawa 2011.</p>		
<p>Result of average student's workload</p>		
<p>Activity</p>		<p>Time (working hours)</p>
1. Lectures		15
2. Exercises		30
3. Consultations		12
4. Preparation for exercise classes		20
5. Preparation for tests		10
6. Preparation for the credit of lectures		10
7. Preparation for the credit of exercise classes		20
8. the credit of lectures		2
9. the credit of exercise classes		2
<p>Student's workload</p>		
<p>Source of workload</p>	<p>hours</p>	<p>ECTS</p>
Total workload	121	5
Contact hours	61	2
Practical activities	60	2