STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Mathematics		**1011101111010340063**
Field of study	Profile of study (general academic, practical)	Year /Semester
Safety Engineering - Full-time studies - First-	**(brak)**	**1 / 1**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**Polish**	**obligatory**
Cycle of study:	Form of study (full-time,part-time)	
First-cycle studies	**full-time**	
No. of hours		No. of credits
Lecture: **15** Classes: **30** Laboratory: **-** Project/seminars: **-**		**5**
Status of the course in the study program (Basic, major, other)	(university-wide, from another field)	
(brak)	**(brak)**	
Education areas and fields of science and art		ECTS distribution (number and %)

Responsible for subject / lecturer:

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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

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.

Basic bibliography:

1. Foltyńska, Z. Ratajczak, Z. Szafrański, Matematyka dla studentów uczelni technicznych, WPP Poznań 2000
2. Foltyńska, Z. Ratajczak, Z. Szafrański, Matematyka dla studentów uczelni technicznych, WPP Poznań 2000
3. M. Gewert, Z. Skoczylas, Analiza matematyczna 1, Definicja, twierdzenia, wzory
4. M. Gewert, Z. Skoczylas, Analiza matematyczna 1, Przykłady i zadania
5. T. Jurlewicz, Z. Skoczylas, ALgebra liniowa 1, Definicja, twierdzenia, wzory
6. T. Jurlewicz, Z. Skoczylas, ALgebra liniowa 1, Przykłady i zadania

Additional bibliography:

1. W. Krysicki, L. Włodarski, Analiza matematyczna w zadaniach, PWN Warszawa 1999
2. W. Krysicki, L. Włodarski, Analiza matematyczna w zadaniach, t. I-II, PWN Warszawa 1999
3. W. Stankiewicz, Zadania z matematyki dla wyższych uczelni technicznych, t. I-II
4. M. Lassak, Matematyka dla studentów technicznych

Result of average student's workload

Activity	Time (working hours)
1. Lectures	15
2. Exercises	30
3. Consultations	12
4. Preparation for exercise classes	20
5. Preparion 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

Student's workload

Source of workload	hours	ECTS
Total workload	121	5
Contact hours	61	2
Practical activities	60	2