

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Mathematics		Code 1011101311010340063
Field of study Engineering Management - Full-time studies -	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: 30 Classes: 15 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: Instytut Matematyki PP; email: office_@math.put.poznan.pl. tel. (0-prefiks-61) 6652 320 Wydział Elektryczny 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	Efficient calculating
3	Social competencies	Logical and scientific thinking
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 the basic knowledge on the character of managerial science and it's place in relations with contextual and ergological sciences. - [K1A_W01]		
2. knows methods and instruments for collecting data, processing and selecting it and for distributing information - [K1A_W11]		
3. knows methods and instruments of descriptive statistics, as well as their application in models of processes and phenomena occurring in organizations - [K1A_W12]		
4. knows methods and instruments for shaping processes that take place between actors of the market - [K1A_W13]		
Skills:		
1. is able to use own knowledge of mathematics in order to make simulations and then, make a logical concluding and interpret results - [K1A_U12]		
2. is able to use analytical and simulation methods in forming and solving engineer tasks - [K1A_U13]		
3. is able to solve engineer project tasks with use of mathematical rules - [K1A_U17, K1A_U18]		
Social competencies:		
1. understands the necessity of expanding own mathematical knowledge - [K1A_K01]		
2. is able to prepare and realize different engineer ventures individually and in a team - [K1A_K02, K1A_K07]		
Assessment methods of study outcomes		

Forming assessment: a) exercises: on basis of the current progress of the realization of topics evaluated during written b) lectures: on basis of responses to questions referring to topics from previous lectures, final assessment: a) exercises: on basis of the average from partial grades obtained for the forming assessment b) lectures: written exam. It is possible to enter the examination after passing exercises.		
Course description		
Function for one, two or many variables and their application in management. Account of vectors and matrixes, Sets of equations and irregularities - examples from the field of the management.		
Basic bibliography: 1. Folyńska, Z. Ratajczak, Z. Szafranski Matematyka dla studentów uczelni technicznych WPP Poznań 2000		
Additional bibliography: 1. W. Krywicki, L. Włodarski Analiza matematyczna w zadaniach PWN Warszawa 1999		
Result of average student's workload		
Activity	Time (working hours)	
1. lectures	30	
2. exercises	15	
3. consultations	15	
4. Preparation for exercise classes	15	
5. Preparation for the credit of lectures	15	
6. Preparation for the credit of exercise classes	16	
7. the credit of lectures	2	
8. the credit of exercise classes	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	110	4
Contact hours	64	2
Practical activities	48	2