

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Mathematics		Code 1010101111010340004
Field of study Civil Engineering First-cycle 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: 45 Classes: 30 Laboratory: - Project/seminars: -		No. of credits 7
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 %) 7 100%
Responsible for subject / lecturer: dr Jarosław Mikołajski email: jaroslaw.mikolajski@put.poznan.pl tel. +48 61 665 2712 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Mathematical knowledge from secondary school in the extended programmes.
2	Skills	Application of the knowledge to mathematical problems.
3	Social competencies	Inquisitiveness and perseverance.
Assumptions and objectives of the course: Giving of mathematical knowledge in the range of Course description, teaching of applications and preparing to further studies.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student has knowledge in the range of Course description. - [K_W01] 2. He knows rules of drawing on plane. - [K_W02] 3. He knows calculate mechanical quantities on plane. - [K_W04]		
Skills:		
1. Student can define simple mathematical models in technical sciences. - [K_U03] 2. He can calculate static moments and moments of inertia of sets on plane. - [K_U04] 3. He uses Internet to seek needed informations. - [K_U17]		
Social competencies:		
1. Student is able to work independently and in a team. - [K_K01] 2. He takes responsibility for his results. - [K_K02] 3. He can supplement his mathematical knowledge. - [K_K03]		
Assessment methods of study outcomes		
1. Sistematically, marks in solution of mathematical problems. 2. In the semester, two written tests on the basis of Classes. 3. After finishing the semester, building project using mathematical contents and written exam on the basis of Lectures.		

Course description		
1. Determinants and determinate systems of linear equations. 2. Types of explicit functions. 3. Limits of sequences and functions. Asymptotes of functions. 4. Differential calculus of functions of one variable. 5. Integral calculus of functions of one variable. 6. Implicit functions, functions in a parametric form and in polar coordinates. 7. Complex numbers. Sets on complex plane. 8. Calculus of matrices. 9. Calculus of vectors. Straight line in space. 10. Indeterminate and contradictory systems.		
Basic bibliography: 1. M. Mączyński, J. Muszyński, T. Traczyk, W. Żakowski, Matematyka - podręcznik podstawowy dla WST, PWN, t.I - Warszawa 1979, t.II - Warszawa 1981. 2. J. Mikołajski, Z. Sołtysiak, Zbiór zadań z matematyki dla studentów wyższych szkół technicznych, Wydawnictwo PWSZ w Kaliszu, cz.I - Kalisz 2009, cz.II - Kalisz 2010.		
Additional bibliography: 1. C.L. Mett, J. C. Smith, Calculus with applications, McGraw-Hill Book Company, New York ... 1985. 2. W. Żakowski, Ćwiczenia problemowe dla politechnik, Wydawnictwa Naukowo - Techniczne, Warszawa 1991.		
Result of average student's workload		
Activity	Time (working hours)	
1. Active participation in meetings (lectures and classes).	75	
2. Active participation in consultations with posing questions.	10	
3. Solving exercises designed for independent work.	40	
4. Independent studying theoretical questions (notions, algorithms, theorems, proofs).	10	
5. Preparing to get credits for the first semester.	40	
Student's workload		
Source of workload	hours	ECTS
Total workload	175	7
Contact hours	85	4
Practical activities	90	3