

<b>STUDY MODULE DESCRIPTION FORM</b>		
Name of the module/subject <b>Mathematics</b>		Code <b>1010104121010340004</b>
Field of study <b>Civil Engineering First-cycle Studies</b>	Profile of study (general academic, practical) <b>(brak)</b>	Year /Semester <b>1 / 2</b>
Elective path/specialty <b>-</b>	Subject offered in: <b>Polish</b>	Course (compulsory, elective) <b>obligatory</b>
Cycle of study: <b>First-cycle studies</b>	Form of study (full-time,part-time) <b>part-time</b>	
No. of hours Lecture: <b>32</b> Classes: <b>20</b> Laboratory: <b>-</b> Project/seminars: <b>-</b>		No. of credits <b>6</b>
Status of the course in the study program (Basic, major, other) <b>(brak)</b>		(university-wide, from another field) <b>(brak)</b>
Education areas and fields of science and art <b>technical sciences</b> <b>Technical sciences</b>		ECTS distribution (number and %) <b>6 100%</b> <b>6 100%</b>
<b>Responsible for subject / lecturer:</b> dr Marian Dondajewski email: marian.dondajewski@put.poznan.pl tel. 61665-2805 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		<b>Responsible for subject / lecturer:</b> dr Jan Milewski email: jan.milewski@put.poznan.pl tel. 61665-2341 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań
<b>Prerequisites in terms of knowledge, skills and social competencies:</b>		
1	<b>Knowledge</b>	Mathematical basic knowledge from High School (Advanced course) course and semester I of Mathematics
2	<b>Skills</b>	Ability of joining of facts, processing of information, reasoning, interpretations and ability for reflection
3	<b>Social competencies</b>	Awareness of requirement permanent education and consciousness of meaning of corporate work
<b>Assumptions and objectives of the course:</b> - Outfit in to ability connected to application of meanings and methods for mathematical analysis to description and analysis of phenomena and problems in technical sciences. - Deployment of ability connected with search of information given in not a simple way, -- Finding connection between different informations , concluding based on several premseds (abstract or involved).		
<b>Study outcomes and reference to the educational results for a field of study</b>		
<b>Knowledge:</b> 1. Student knows formulas, diagrams and properties of elementary functions - [K_W01] 2. Student knows the meaning of a limit of function - [K_W01] 3. Student knows: the meaning of derivative of a function and its geometric and physical interpretation, rules of derivations of functions, meaning of indefinite integral of function and basic method of integration and geometric interpretation of definite integral - [K_W01]		
<b>Skills:</b> 1. Student uses notation of limit for study of behavior of function on ends of domain intervals - [K_U01, K_U02] 2. Student analyses properties of functions with applications of differential calculus methods - [K_U02, K_U07] 3. Student apply integral calculus in engineering practice. - [K_U02, K_U07] 4. Student builds mathematical models of simple phenomena and processes in nature - [K_U09, K_U10]		
<b>Social competencies:</b> 1. Ability of works In a group - [K_K01, K_K03] 2. Ability for reflection and estimation of personal effecting - [K_K02, K_K06] 3. Sense of usefulness of mathematical competence in engineering practice - [K_K04]		

<b>Assessment methods of study outcomes</b>		
- Oral and written exams - Two written tests within semester, - CATs- Continuous Assessment Tests		
<b>Course description</b>		
1. Definite integral and its application : field of plane area, length of plane curve, field of lateral surface and volume of rotary space figure . 2. Elements of analytic geometry in R2 and R3. 3. Ordinary differential equations I and II order. 5. Partial derivatives and extremes of several variables functions .		
<b>Basic bibliography:</b>		
1. M. Gewert, Z. Skoczylas: Analiza I, Analiza II, Algebra liniowa, GiS, Wrocław, 2006. 2. I. Folyńska, Z. Ratajczak, Z. Szafranski: Matematyka dla studentów uczelni technicznych, Wydawnictwo Politechniki Poznańskiej, Poznań, 2000.		
<b>Additional bibliography:</b>		
1. W. Kryszcki, L. Włodarski, Analiza matematyczna w zadaniach cz.1, Wydawnictwo Naukowe PWN, Warszawa, 2010		
<b>Result of average student's workload</b>		
Activity	Time (working hours)	
1. Przygotowanie do ćwiczeń	40	
2. Przygotowanie do kolokwium	40	
3. Przygotowanie do egzaminu	30	
<b>Student's workload</b>		
Source of workload	hours	ECTS
Total workload	150	6
Contact hours	52	2
Practical activities	0	0