

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Mathematics		Code 1010324321010340025
Field of study Electrical Engineering	Profile of study (general academic, practical) general academic	Year /Semester 1 / 2
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) part-time	
No. of hours Lecture: 36 Classes: 26 Laboratory: - Project/seminars: -		No. of credits 6
Status of the course in the study program (Basic, major, other) basic		(university-wide, from another field) university-wide
Education areas and fields of science and art the sciences		ECTS distribution (number and %) 5 100%
Responsible for subject / lecturer: dr Alina Gleska email: alina.gleska@put.poznan.pl tel. 616652330 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	The basic knowledge of differential and integral calculus.
2	Skills	Students should be able to reformulate some formulas and equations, and to calculate derivatives and integrals.
3	Social competencies	Students should know the boundedness of their knowledge and understand the need of further education.
Assumptions and objectives of the course: The recognizing methods and applications of vector calculus, differential and integral calculus of functions of two and three variables. The getting to know applications of multiply integrals in mathematics and physics.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. To mean the idea of partial derivatives, to be able calculate extrema for functions of two variables - [K_W01+++] 2. To comprehend the concept of multiple integrals and know methods of calculation and applications - [K_W01+++]		
Skills:		
1. To calculate partial derivatives, extrema for functions of two variables - [K_U10+] 2. To calculate multiple integrals used in some technical problems - [K_U10+]		
Social competencies:		
1. Students understand the importance of effective using of mathematics in other areas of science. - [K_K01+]		
Assessment methods of study outcomes		
Lecture A written exam. Tutorials Short tests during the term (50%) and final test at the end of the term (50%) (additional points for activity).		
Course description		

<p>Applied methods of teaching: lectures on the blackboard; tutorials - solving problems on the blackboard and discussing solutions.</p> <p>Vectors, their coordinates and properties. Applications of vector calculus.</p> <p>Equations of straight lines and planes in three-dimensional space.</p> <p>Real-valued functions of several variables. Partial derivatives and the differential of f. Taylor's theorem. Local extreme points. Integrals of functions of several variables. Multiple integrals and their applications. Change of variables in multiple integrals.</p> <p>UPDATE: 2016/2017</p>		
<p>Basic bibliography:</p> <p>1. I. Folyńska, Z.Ratajczak, Z. Szafranski, Matematyka dla studentów uczelni technicznych część 2, Wydawnictwo PP Poznan2000</p> <p>2. I. Folyńska, Z.Ratajczak, Z. Szafranski, Matematyka dla studentów uczelni technicznych część 3, Wydawnictwo PP Poznan2000,</p>		
<p>Additional bibliography:</p> <p>1. Stankiewicz W. Zadania z matematyki dla wyższych uczelni technicznych PWN Warszawa 2003</p>		
<p>Result of average student's workload</p>		
<p>Activity</p>		<p>Time (working hours)</p>
<p>1. Lectures</p>		<p>36</p>
<p>2. Tutorials</p>		<p>26</p>
<p>3. Homeworks preparing for tutorials and exams</p>		<p>40</p>
<p>4. Meetings with the lecturer</p>		<p>4</p>
<p>Student's workload</p>		
<p>Source of workload</p>	<p>hours</p>	<p>ECTS</p>
<p>Total workload</p>	<p>106</p>	<p>6</p>
<p>Contact hours</p>	<p>62</p>	<p>4</p>
<p>Practical activities</p>	<p>26</p>	<p>2</p>