GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Maths II, PG_00050274		
Field of study	Mechanical Engineering		
Date of commencement of studies	October 2022	Academic year of realisation of subject	2022/2023
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study
Mode of study	Full-time studies	Mode of delivery	at the university
Year of study	1	Language of instruction	English
Semester of study	2	ECTS credits	6.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Mathematics Center -> Vice-Rector for Education		
Name and surname of lecturer (lecturers)	Subject supervisor	dr Stanisław Domachowski	
	Teachers	dr Stanisław Domachowski	

Lesson types and methods of instruction

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	30.0	30.0	0.0	0.0	0.0	60

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	60	8.0	82.0	150

Subject objectives

The aim of the subject is to obtain the student's competence in the use of the basic apparatus of mathematical analysis and linear algebra and the application of the acquired knowledge to solve simple theoretical and practical problems occurring in engineering fields.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U01	Student combines knowledge of mathematics with knowledge from other fields.	[SU2] Assessment of ability to analyse information
K6_W01	Student wymienia zastosowania geometryczne całek oznaczonych. Student lists geometrical applications of definite integrals. Student analyses analitycal geometry problems. Student examines functions of several variables, using the concept of a limit, continuity and derivatives . Student calculates double and triple integrals and explains the method of substitution in these integrals. Student uses double and triple integrals in geometrical problems.	[SW1] Assessment of factual knowledge

Subject contents

Indefinite integrals. Formula for the integration by parts, formula for the integration by substitution. Integration of rational functions. Integration of irrational functions of second degree. Integration of trigonometric functions. Geometric application of definite integrals. Improper integrals. Complex numbers. Matrices, system of linear equations. Vectors in three- dimensional space. The dot , and the cross product of vectors, their properties and applications. The scalar triple product of vectors, and its applications. Equations of a line and a plane in a space. Distance from a point to a plane. Angles between planes and lines. Limits and continuity of a function of several variables, partial derivatives, total differentia, extrema of functions of several variables, implicit functions.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
Final exam 90 minutes, 3 tests , active participation during classes	50.0%	100.0%

Recommended reading	Basic literature	M.Lial, J.Hornsby, D.Schneider College Algebra. F.Ayres, E.Mendelson Calculus, ,T.Jankowski Linear Algebra. https://openstax.org/ subjectshttps: //cnm.pg.edu.pl/mathematics/welcome
	Supplementary literature	Kazimierz Kuratowski, Introduction to calculus W. Kaplan, Advanced calculus
	eResources addresses	Adresy na platformie eNauczanie: WIMiO - DaPE - Maths II 2022/23 (S.Domachowski) - Moodle ID: 29017 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29017
Example issues/ example questions/ tasks being completed	1. Determine indefinite integrals of the following functions using the method of integration by parts or the method of substitution. 2. Find the area of the region bounded by y=…, y=… , x=… and x=. 3. Find the local extreme values of the function f(x,y)=x/(y+1)+8/x-y-1. 4. Find the equation of the plane tangent to the surface S at the point P. 5. Show that the points A, B, C, D do not lie on the plane. 6. Discuss the relative position of the line l and the plane S.	
Work placement	Not applicable	