GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Mathematics II, PG_00050253		
Field of study	Management and Production Engineering, Management and Production Engineering		
Date of commencement of studies	October 2020	Academic year of realisation of subject	2020/2021
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	Polish
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 inż. Magdalena Łapińska	
	Teachers	dr inż. Magdalena Łapińska	

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

Adresy na platformie eNauczanie:
WM - ZiIP - Matematyka 2 2020/2021 (M.Łapińska) - Moodle ID: 11551
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=11551

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	9.0	81.0	150

Subject objectives

The aim of this subject is to obtain the student's competence in the range of using the basic methods of mathematical analysis. Furthermore, the student is able to use this knowledge to solve simple theoretical and practical problems that can be found in the field of engineering.

Learning outcomes

Course outcome	Subject outcome	Method of verification
K6_U05	Student combines knowledge of mathematics with knowledge from other fields. Student is able to process the acquired information, analyze and interpret it, draw conclusions and reason opinions.	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools
K6_W01	Student recognizes the importance of skillful use of basic mathematical apparatus in terms of study in the future. Student uses methods of mathematical description of phenomena in the physical and mechanical processes.	[SW1] Assessment of factual knowledge
K6_K03	Student understands the need of lifelong learning. Student is able to inspire others and organize their learning process.	[SK4] Assessment of communication skills, including language correctness

Subject contents

Complex numbers. Elements of linear algebra, systems of linear equations. Basic definitions and properties of vectors. Scalar product, vector their properties and applications. Mixed product and its applications. Equations of a straight line and a plane in space. The distance of the point from the plane. Angle between planes and straight lines. Limit and continuity of functions of several variables, partial derivatives, absolute difference, extremes of functions of many variables, functions entangled. Double integral after rectangle and normal area, exchange of variables in double integrals, use of double integrals. Triple integral, application of triple integrals.

Prerequisites and co-requisites

No recomendations

<table>
<tr><td>Assessment methods and criteria</td><td colspan="2"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>written exam , 120 minutes</td><td>50.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td>G.M. Fichtenholz, Rachunek różniczkowy i całkowy,Tom 1, Wydawnictwo Naukowe PWN, Warszawa 2002 , B.Wikieł, Matematyka, Podstawy z elementami matematyki wyższej, Wydawnictwo Politechniki Gdańskiej Gdańsk 2009, K.Jankowska, J.Jankowski, Zbiór zadań z matematyki, Wydawnictwo Politechniki Gdańskiej Gdańsk 2003, W. Krysicki, L. Włodarski „Analiza matematyczna w zadaniach” część I, PWN, Warszawa 1986.</td></tr>
<tr><td>Supplementary literature</td><td>• Gewert M., Skoczylas Z., "Analiza matematyczna 2. Definicje, twierdzenia, wzory", Oficyna Wydawnicza GiS
• Jurlewicz T., Skoczylas Z., "Algebra i geometria analityczna. Definicje, twierdzenia, wzory", Oficyna Wydawnicza GiS
• Kajetanowicz P., Wierzejewski J., ,,Algebra z geometrią analityczną", Wydawnictwo Naukowe PWN
• W.Żakowski, W.Kołodziej , Matematyka część 2 Analiza Matematyczna, Wydawnictwa Naukowo- Techniczne, Warszawa 12003
• W. Krysicki, L. Włodarski „Analiza matematyczna w zadaniach” PWN, Warszawa 1986 W. Stankiewicz „Zadania z matematyki dla wyższych uczelni technicznych”, PWN, Warszawa 1980
• K. Jankowska, T.Jankowski, Funkcje wielu zmiennych, Całki wielokrotne, Geometria analityczna</td></tr>
<tr><td>eResources addresses</td><td>WM - ZiIP - Matematyka 2 2020/2021 (M.Łapińska) - Moodle ID: 11551
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=11551</td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="2">1. Calculation of double integrals

2. Calculation of triple integrals

3. Solving matrix equations.

4. Searching for the determinant value.</td></tr>
<tr><td>Work placement</td><td colspan="2">Not applicable</td></tr>
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