University of Gdańsk

Subject card

Subject name and code	Differential equations, PG_00100979		
Field of study	Mathematics		
Date of commencement of studies	October 2023	Academic year of realisation of subject	2025/2026
Education level	Bachelor's studies	Subject group	
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	3	Language of instruction	Polish
Semester of study	5	ECTS credits	5.0
Learning profile	academic	Assessment form	exam
Conducting unit	Institute of Mathematics -> Faculty of Mathematics, Physics and Informatics -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	dr hab. Tomasz Człapiński, prof. UG	
	Teachers	dr Danuta Jaruszewska-Walczak dr hab. Tomasz Człapiński, prof. UG	

Lesson types

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	0.0	0.0	60

Subject objectives

The student learns the basics of the theory of ordinary differential equations.

Learning outcomes

Course outcome	Subject outcome	Method of verification

Subject contents

1. Linear differential equations, equations with separable variables, other elementarily integrable equations.
2. Existence and uniqueness of the solution of the initial value problem.
3. Arzela-Ascoli theorem and Peano's theorem on the existence of solutions.
4. Theory of linear systems, systems with constant coefficients.
5. N-th order linear equations, equations with constant coefficients.
6. Boundary value problems for second-order linear equations.
7. Basic concepts and theorems on the stability of linear systems.
8. Euler's method for initial value problems.

Prerequisites and co-requisites

Mathematical Analysis 1,2,3

Linear Algebra

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
observation of the student's attitude	51.0%	0.0%
exam	51.0%	50.0%
test	51.0%	45.0%
activty	51.0%	5.0%

Recommended reading	Basic literature	1. J. Muszyński, A. D. Myszkis, Równania różniczkowe zwyczajne,PWN. 2. J. Ombach, Wyklady z równań różniczkowych, Wydawnictwo UJ. 3. Z. Kamont, Równania różniczkowe zwyczajne, Wydawnictwo UG. 4. A. Pelczar, J. Szarski, Wstęp do teorii równań różniczkowych, PWN
	Supplementary literature	none
	eResources addresses	
Example issues/ example questions/ tasks being completed	not included	
Work placement	Not applicable	

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