# POZNAN UNIVERSITY OF TECHNOLOGY



EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

# **COURSE DESCRIPTION CARD - SYLLABUS**

Course name	
Mathematics [S1Log2>MAT2]	

dr Grzegorz Grzegorczyk grzegorz.grzegorczyk@put.poznan.pl		dr Grzegorz Grzegorczyk grzegorz.grzegorczyk@put.poznan.pl dr inż. Robert Salamon robert.salamon@put.poznan.pl		
Coordinators		Lecturers		
Number of credit points 4,00				
Tutorials 30	Projects/seminars 0	S		
Number of hours Lecture 15	Laboratory classe	es	Other (e.g. online) 0	
Form of study full-time		Requirements compulsory		
Level of study first-cycle		Course offered in Polish		
Area of study (specialization)		Profile of study general academic	;	
Course Field of study Logistics		Year/Semester 1/2		

# Prerequisites

The basic knowledge obtained in the first semester. The ability to think logically. The ability to describe simple mathematical problems.

# Course objective

The acquisition and consolidation of examples of basic mathematical concepts and acquire the ability to use the mathematical apparatus

#### Course-related learning outcomes

#### Knowledge:

1. Student knows the basic issues of mathematics and statistics in the study of the structure of economic and logistic phenomena [P6S\_WG\_04]

#### Skills:

1. Student is able to use appropriate experimental and measurement techniques to solve a problem in mathematics and statistics, including computer simulation in the field of logistics and its detailed issues and supply chain management [P6S\_UW\_03]

2. Student is able to select appropriate tools and methods to solve a problem within mathematics and use them effectively [P6S\_UO\_02]

#### Social competences:

1. Student is aware of initiating activities related to the formulation and transfer of information and cooperation in the society in the area of logistics [P6S\_KO\_02]

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: Knowledge acquired as part of the lecture is verified on the basis of a 90-minute "zero exam" on the 15th lecture. Students can also proceed to the exam during the exam session. Exam includes material from both semesters.

Tutorials: Skills acquired on tutorials are verified on the basis of two 75-minutes tests, which are realized on 7th and 14th meetings.

## Programme content

Lecture: Integral calculus of functions of one variable. Ordinary differential equations -introduction. Tutorials: practical tasks.

## **Course topics**

Lecture: Integral calculus of functions of one variable: indefinite integral, definite integral, applications of definite integral, improper integral and numerical series. Ordinary differential equations - introduction.

Tutorials: practical tasks.

#### **Teaching methods**

Lecture: oral presentation with examples and formulas, which are presented using a visualizer. Tutorials: presentation of exemplary tasks on the blackboard and individual solving of similar examples by students - practical exercises.

#### Bibliography

Basic:

1. Foltyńska I., Szafrański Z., Ratajczak Z, Matematyka, część I i II, Wydawnictwo Politechniki Poznańskiej, Poznań 2004.

Additional:

1. Krysicki W., Włodarski L., Analiza matematyczna w zadaniach 1, Wydawnictwo Naukowe PWN, Warszawa, 2013.

2. Leja F., Rachunek różniczkowy i całkowy, Państwowe Wydawnictwo Naukowe, Warszawa, 1978.

#### Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,00
Classes requiring direct contact with the teacher	47	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	53	2,00