



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Mathematics [S1IZarz1E>MAT2]

### Course

Field of study

Engineering Management

Year/Semester

1/2

Area of study (specialization)

–

Profile of study

general academic

Level of study

first-cycle

Course offered in

English

Form of study

full-time

Requirements

compulsory

### Number of hours

Lecture

15

Laboratory classes

0

Other

0

Tutorials

30

Projects/seminars

0

### Number of credit points

5,00

### Coordinators

dr Grzegorz Grzegorzcyk

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### Lecturers

### 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:

The student names and describes methods and tools for data collection, processing, selection, and distribution of information [P6S\_WG\_08].

The student names and describes methods and tools of descriptive statistics and their application to modeling processes and phenomena occurring in organizations [P6S\_WG\_09].

The student names and describes research methodology and methods and tools for modeling processes occurring between market participants [P6S\_WG\_10].

The student names and describes basic methods, techniques, tools, and materials used in solving simple

engineering tasks in mechanical engineering [P6S\_WG\_16].

#### Skills:

The student conducts experiments, including measurements and computer simulations, interprets the results, and draws conclusions [P6S\_UW\_09].

The student uses analytical, simulation, and experimental methods to formulate and solve engineering tasks [P6S\_UW\_10].

The student identifies design tasks and solves simple design tasks in mechanical engineering [P6S\_UW\_14].

The student applies typical methods for solving simple problems in engineering activities [P6S\_UW\_15].

#### Social competences:

The student prepares and implements business ventures based on conducted calculations [P6S\_KO\_03].

### Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture: The knowledge acquired during the lecture is verified on the basis of a 90-minute zero exam at the last meeting or similar in the exam session. The exam covers material from both semesters. The final grade also includes students' activity during the classes. Passing threshold: 50% of the points.

Classes: The knowledge acquired during the exercises is verified during two, 75-minute tests carried out in 7 and 14 classes. Passing threshold: 50% of the points.

### Programme content

Integral calculus of functions of one variable.

Ordinary differential equations - introduction.

### Course topics

Integral calculus of functions of one variable:

- indefinite integral,
- definite integral,
- applications of definite integral,
- improper integral and numerical series.

Ordinary differential equations - introduction.

### 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:

Podstawka, M. (2017). *Finanse, Instytucje, Instrumenty, Podmioty, Rynki, Regulacje*. PWN  
Foltyńska, Szafranski, Ratajczak, *Matematyka cz I, cz II*, Wydawnictwo Politechniki Poznańskiej, Poznań 2004

#### Additional:

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

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

### Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,00
Classes requiring direct contact with the teacher	50	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	75	3,00