COURSE DESCRIPTION CARD - SYLLABUS

Course name
Mathematics [S1Arch1E>MAT]

Course

Field of study
Architecture

Year/Semester
1/1

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
30

Laboratory classes
0

Other (e.g. online)
0

Tutorials
15

Projects/seminars
0

Number of credit points

4,00

Coordinators

Lecturers

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Prerequisites

The basic knowledge obtained in high school. The ability to think logically. The ability to mathematical description of simple problems. The ability to work in groups

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:
Student knows and understands:
B.W4. mathematics, space geometry, statics, material strength, shaping, construction and dimensioning of structures, to the extent necessary to formulate and solve tasks in the field of architectural and urban design;

Skills:
Student can:

B.U3. use properly selected computer simulations, analyzes and information technologies, supporting architectural and urban design;

Social competences:
Student is capable of:
B.S2. reliable self-assessment, formulating constructive criticism regarding architectural and urban planning activities.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The series of lectures in mathematics is the theoretical foundation for other engineering subjects.
Lectures and exercises end with an independent tests.
Lectures: the exam takes place at the end of the semester.
Tutorials: knowledge is verified on the basis of a 75-minutes test, which is realized at the end of the semester.
There are two credit deadlines for each type of course, the second date being a make-up exam.
Assessment scale: 2,0; 3.0; 3.5; 4.0; 4.5; 5.0
Lecture:
Formative assessment:
periodic control of learning progress, active participation in classes
Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.
Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).
Summative assessment:
a final test or (if an exam is included in the curriculum) a written exam
Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.
Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Tutorials:
Formative assessment:
periodic control of learning progress (tests), active participation in classes
Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.
Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).
Summative assessment:
a final test
Accepted grading scale: 2,0; 3,0; 3,5; 4,0; 4,5; 5,0.
Percentage of grades: 0–50% - 2.0 (insufficient); 50-60% - 3.0 (sufficient); 60-70% - 3.5 (sufficient plus); 70-80% - 4.0 (good); 80-90% - 4.5 (good plus); 90-100% - 5.0 (very good).

Programme content

Elements of linear algebra:
- matrices and determinants,
- systems of linear equations,
- vectors, scalar and vector product,
- surface and straight line in space.

Functions of one variable:
- graphs of elementary and rational functions,
- function limits,
- inverse functions.

Differential calculus of one variable functions.
Integral calculus of one variable functions:
- indefinite integral,
- definite integral,
- application of the definite integral,
- improper integral and series of numbers.

Teaching methods

Lecture: oral presentation with examples and formulas, which are presented using a visualizer.
Tutorials: presentation of sample tasks on the board followed by independent solving of similar examples by students.

Bibliography

Basic
1. I. Foltyńska, Z. Ratajczak, Z. Szafrański, Matematyka dla studentów uczelni technicznych, cz. I i II, Wydawnictwo Politechniki Poznańskiej, 2002.

Additional
1. W. Żakowski, Matematyka, t. I, Wydawnictwa Naukowo-Techniczne, Warszawa, 2003.
2. F. Leja, 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	45	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	55	2,00