

Mathematics

Syllabus, 2023-24 autumn semester
For students of engineering

1. Course data

Name of course:	Mathematics I.
Course number:	BAI0064
Place and time of classes:	wednesdays D7 12:00–13:30 and D5 14:00–15:30
Lecturer:	Gábor Marcell Molnár, ✉ molnar.gabor@nye.hu
Office hours:	11:00-11:45 on tuesdays, office B. 241 (A corridor).

2. Requirements

Active participation in classes is mandatory. Two in-class tests are taking place scheduled for week 8 and week 14. Based on these two tests a grade will be offered. In case of rejection (or failure) of the offered grade one may take an exam. The exams are based on all the topics covered in the semester.

The grade system for the course is the following:

Excellent (5):	86–100%
Good (4):	71–85%
Fair (3):	56–70%
Sufficient (2):	40–55%
Fail (1):	0–39%

3. Thematics

Combinatorial concepts. Permutation, combination, variation. The concept of a complex number. Algebraic and trigonometric form. Complex numbers (addition, subtraction, multiplication, division, square root) operations. Vectoralgebra. Operations with vectors. Scalar and mixed multiplication of vectors. Matrix salculation. Matrix addition, subtraction, multiplication. Base transformation variant I. and II. Linear programming. Standard and modified normal LP problem. Real number sequences. Monotony and boundedness of sequences. Limits of sequences. Theorems for sequences. Operations with sequences. Series. Convergence of series. Convergence criterias. Absolute and conditional convergence. Operations with series. Geometric series.

4. Recommended readings

1. Joel Hass, Christopher Heil, Maurice Weir: Thomas' Calculus
2. Sheldon Axler – Linear Algebra Done Right
3. Walter Rudin: Principles of Mathematical Analysis
4. Charles C. Pugh: Real Mathematical Analsisys

5. Other expectations

In every other regard, this syllabus is not covering, the Code of Studies and Examination of University of Nyíregyháza and Student Disciplinary and Compensation Rules shall apply.
<https://english.nye.hu/en/node/44>

september 4, 2023.

Gábor Marcell Molnár