

MATHEMATICAL ANALYSIS

(course title)

COURSE SYLLABUS ABSTRACT

6-05-0612-03 Information management systems

(speciality code and name)

Automated information processing systems

(concentration)

| | STUDY MODE | | |
|---|------------|-----------|----------------------------------|
| | full-time | part-time | part-time (shortened program) |
| Year | 1 | 1 | 1 |
| Semester | 1,2 | 1,2 | 1 |
| Lectures, hours | 68 | 14 | 6 |
| Practical classes (seminars), hours | 84 | 16 | 8 |
| In-class test (semester, hours) | | 2, 2 ч. | 1, 2 ч. |
| Pass/fail, semester | 1 | 1 | |
| Exam, semester | 2 | 2 | 1 |
| Contact hours | 152 | 32 | 16 |
| Independent study, hours | 208 | 328 | 200 |
| Total course duration in hours / credit units | 360/10 | | 216/6 |

1. Course outline

Introduction to mathematical analysis. Complex numbers. Polynomials. Differential calculus of functions of one variable. Differential calculus of functions of several variables. Integral calculus of functions of one variable. Integral calculus of functions of several variables. Differential equations and systems. Numerical and functional series.

2. Course learning outcomes

Upon completion of the course, students will be expected to

know: the main provisions of the mathematical analysis of functions of one and several variables; complex numbers, elements of the theory of functions of a complex variable; fundamentals of the theory of series and ordinary differential equations;

be able to: differentiate and integrate functions; solve the simplest differential equations integrable in quadratures; expand functions into power series; apply the operations of differential and integral calculus to solve specific problems;

to possess a skill: analytical and numerical solution of algebraic and ordinary differential equations; creative analytical thinking.

3. Competencies

BPC-2. Apply the methods of differential and integral calculus, the apparatus of the theory of power and functional series in the construction and study of mathematical models of applied problems.

4. Requirements and forms of midcourse evaluation and summative assessment

Intermediate certification - two computer tests in each semester, credit in the 1st semester, exam in the 2nd semester. Each of the computer tests is estimated from 0 to 30 points. The minimum credit score for each test is 18. The credit and exam are assessed from 0 to 40 points. The minimum score for passing a test or exam is 15. The final grade is determined in accordance with the table.

| Mark | Passed | Not passed |
|--------|--------|------------|
| Points | 51-100 | 0-50 |

| Mark | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|------|---|
| Points | 100-94 | 93-87 | 86-80 | 79-72 | 71-65 | 64-58 | 57-51 | 50-41 | 40-17 | 16-1 | 0 |