## MATHEMATICAL ANALYSIS

## COURSE SYLLABUS ABSTRACT OF HIGHER EDUCATION INSTITUTION

Specialty 1-53 0102 Automated information processing systems

|  | Study mode |  |  |
| :--- | :---: | :---: | :---: |
|  | Full-time | Part-time | Part-time <br> (shortened program) |
| Year | 1 | 1 | 1 |
| Semester | 1,2 | 1,2 | 1 |
| Lectures, hours | 84 | 20 | 10 |
| Practical (seminar) <br> classes, hours | 102 | 18 | 10 |
| In-class test (semester, <br> hours) | 1 | $1,2(4 \mathrm{~h})$. | $1(2 \mathrm{~h})$. |
| Test, semester | 2 | 1 |  |
| Exam, semester | 186 | 2 | 1 |
| Contact hours | 150 | 292 | 22 |
| Independent study, <br> hours |  | $336 / 9$ | 314 |
| Total course duration in <br> hours / credit units |  |  |  |

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.

As a result of learning the academic discipline, the student must:

- know: basic provisions of 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;
- possess: methods of analytical and numerical solution of algebraic and ordinary differential equations; creative analytical thinking skills..

3. Competencies.

UK-12 Possess the skills of creative analytical thinking.
BOD-1 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 attestation - two computer tests in each semester, current attestation - test, exam. Each of the computer tests is estimated from 0 to 30 points. The minimum credit score for each test is 18 . The test and the exam are scored from 0 to 40 points. The minimum score for passing the test and the exam is 15 . The final grade is determined in accordance with the table.

| Score | Passed | Not passed |
| :---: | :---: | :---: |
| Points | $51-100$ | $0-50$ |


| Score | 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 |

