| Title **Calculus** | Code **1010341511010340706** |
|---|---|
| Field **Mathematics** | Year / Semester **1 / 1** |
| Specialty **-** | Course **core** |
| Hours Lectures: **4**   Classes: **4**   Laboratory: **-**   Projects / seminars: **-** | Number of credits **12** |
| | Language **polish** |

**Lecturer:**

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**Faculty:**

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**Status of the course in the study program:**

Basic course for Mathematics on Faculty of Electrical Engineering.

**Assumptions and objectives of the course:**

A thorough familiarity with the differential and integral calculus in a scale that is necessary to study Mathematics. Getting the competence in applying of the gained knowledge to theoretical problems as well as practical in other subjects ? physics, chemistry, technology and economy.

**Contents of the course (course description):**

Construction of real and complex numbers. Sequences and series. Elementary functions and their properties. Continuous functions and their properties. Function sequences and series. Pointwise convergence and uniform convergence. The derivative of a function of Real and complex variable. Properties of derivatives. Mean Valued Theorems. Investigation of functions. De L?Hospital rule and its application. Taylor formula and
expansion of functions into power series. Elementary complex functions. Partial derivatives and their applications to searching of extreme of functions of several variables. Theorem on inverse function and theorem on involved functions.

**Introductory courses and the required pre-knowledge:**

Basic knowledge of mathematics from secondary school.

**Courses form and teaching methods:**

Lectures containing theorems with their proofs. All mathematical problems illustrated by examples and counterexamples. Practical exercises on seminars.

**Form and terms of complete the course - requirements and assessment methods:**

Two tests and final exam.

**Basic Bibliography:**

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**Additional Bibliography:**

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