Level: bachelor

Course title: Analysis 2 (I122)

Status: obligatory

ECTS: 8

Requirements: Analysis 1

Learning objectives

Acquiring basic knowledge and skills in mathematical analysis of real functions of many real variables.

Learning outcomes

Acquiring the basic knowledge on the notions and methods of differential and integral calculus of real functions of many real variables.

Syllabus

Theoretical instruction

Real functions of many real variables and their limits. Partial derivatives and the total differential. Derivative of the composite function. Taylor's formula. Local minimum and maximum of a function.Vector field. Existence and uniqueness of function of potential. Curve integral of first and second kind. Double and triple integral. Cylindrical and spherical coordinate systems. Gauss-Green theorem. Theorem on implicit functions. Surface integral. Ostrogradsky formula. Stokes formula.

Practical instruction

Geometrical representation of functions of two variables in three-dimensional space and finding their domains. Calculation of the limits of functions of two real variables. Finding the partial derivatives of functions. Application of criteria for finding extreme values of functions. Application of Taylor formula in approximation of functions. Calculation of curve integral. Calculation of double and triple integrals and their applications. Application of Green Gauss theorem, Ostrogradsky formula and Stokes formula.

Weekly teaching load				Other: 0
Lectures: 3	Exercises: 3	Other forms of teaching: 0	Student research: 0	