Tárgytematika / Course Description

Mathematics 2

GKNB_MSTA008

Tárgyfelelős neve /
Teacher's name: dr. Horváth Zoltán

Félév / Semester: 2020/21/2

Beszámolási forma /
Assesment: Vizsga

Tárgy heti óraszáma /
Teaching hours(week):   2/2/0

Tárgy féléves óraszáma /
Teaching hours(sem.):   0/0/0

OKTATÁS CÉLJA / AIM OF THE COURSE

The aim of the course is to introduce the basic notions and methods of calculus of one and two-variate functions, such as differentiation and its applications, methods of integrations and their applications. Moreover, the course provides a brief introduction to differential equations and linear algebra as well.of the course is to introduce the basic notions and methods of calculus of one and two-variate functions, such as differentiation and its applications, methods of integrations and their applications. Moreover, the course provides a brief introduction to differential equations and linear algebra as well.

TANTÁRGY TARTALMA / DESCRIPTION

Week 1: Implicit curves. Implicit differentiation. Tangent line and linearization.

Week 2: Parametric curves on the plane. Differentiation of parametric curves. Tangent line, linearization. Length of arches.

Week 3: Integration of rational functions, method of partial fractions.

Week 4: Integration by substitution

Week 5: Improper integrals

Week 6: Notion and classification of differential equations. Solution of separable differential equations. Solution of first order linear differential equations.

Week 7: Solution of first and second order linear differential equations with constant coefficients.

Week 8: Multivariate functions. Contour curves. Partial derivatives, gradient.

Week 9: Directional derivative of functions with two variables. Equation of tangent plane. Local extreme values of multivariate functions.

Week 10: Notion of double integral. Computation of double integrals over rectangular and normal domains. Determination of volume and center of mass applying double integrals.

Week 11: Notion of matrix. Operations on matrices. Notion of determinant and its computation.

Week 12: Solution of system of linear equations by Gauss elimination. Matrix inverse and its computation by Gauss-Jordan elimination.

Week 13: Linear transformations. Eigenvalues, eigenvectors.

Week 14: Summary.

SZÁMONKÉRÉSI ÉS ÉRTÉKELÉSI RENDSZERE / ASSESMENT'S METHOD

Conditions of the teacher's signature (indicating the fulfilment of the mid-term requirements of the course):

Altogether at least 50% score on the two mid-term tests (week 6 and week 12).

If the student fails to accomplish these requirements, she/he is allowed to write a full-term test on the last week (week 14) of the study period.

Students having signature are to take a written exam during the exam period.

Grading scale applied on the exam:

0% - 49%: fail (1)

50% - 62%: pass (2)

63% -74%: satisfactory/fair (3)

75% - 87%: good (4)

88% - 100%: very good/excellent (5)

KÖTELEZŐ IRODALOM / OBLIGATORY MATERIAL