Subject code	Credits
MAT1021	6

Course title in Lithuanian

MATEMATIKA 1

Course title in English

MATHEMATICS 1

Short course annotation in Lithuanian (up to 500 characters)

Dalyko tikslas – supažindinti su tiesinės algebros, analizinės geometrijos ir matematinės analizės pagrindais: matricos, determinanto sąvokomis, jų savybėmis, tiesinių lygčių sistemų sprendimo metodais, vektoriais ir veiksmais su jais; ir su matematinės analizės pagrindais: skaičių sekos ribos, vieno ir kelių kintamųjų funkcijos ribos, išvestinės sąvokomis ir jų taikymais.

Short course annotation in English (up to 500 characters)

The main objectives of the course – to present some fundamentals of linear algebra and mathematical analysis. Teaching methods are lectures and practical works. The content of the course: Matrixes and determinants; solving systems of linear equations; limit of function; continuity of function; derivative of function; differential; applications of derivatives; Taylor formula of function; function of several variables.

Prerequisites for entering the course

High school mathematics knowledge.

Course aim

Course aim is to provide understanding of linear algebra, analytical geometry and fundamentals of mathematical analysis.

Content

No	Content (topics)
1.	Matrix definition and operations. Determinant. Inverse matrix.
2.	Solving of linear equations systems.
3.	Vectors, linear operations with vectors.
4.	Scalar, vector and parallelepipedal products.
5.	Main classes of functions. Limit of function.
6.	Continuous functions.
7.	Derivatives and differential of a function.
8.	Higher-order derivatives.
9.	L'Hôpital's rule.
10.	Extrema of a function. Function graphing.
11.	Functions of several variables, their limits.
12.	Partial derivatives of functions of several variables.
13.	Gradient.
14.	Extrema of functions of several variables.

Distribution of workload for students (contact and independent work hours)

Lectures	**45 hours**
Practical work	**30 hours**
Individual students work	**85 hours**
Total:	**160 hours**

Structure of cumulative score and value of its constituent parts

Final written exam (50%), mid-term written exam (25%), assessments of practical work (25%).

Recommended reference materials

No.	Publication year	Authors of publication and title	Publishing house	Number of copies in		
				University library	*Self-study rooms*	*Other libraries*
Basic materials						
1.	2008	Pekarskas V. Diferencialinis	Technologija	I-25, II-22	I-6, II-6	

		ir integralinis skaičiavimas I ir II dalys. (Differential and Integral Calculus, I, II)				
2.	2005	Pekarskas V. Trumpas matematikos kursas. (Short Course of Mathematics)	Technologija	20	1	
3	2005	Kavaliauskas A. Aukštosios matematikos uždavinynas. (Tasks of Calculus)		2	1	
Supplementary materials						
1.	2006	N.Janušauskaitė, R.Markauskas, A.Pekarskienė, V.Sabatauskienė. Tiesinė algebra ir diferencialinis skaičiavimas. (Linear Algebra and Differential Calculus)				
2.	2001	Z.Furmonavičienė, S.Janušauskaitė, A.Marčiukaitienė, D.Prišmantienė, N.Ratkienė. Tiesinė algebra ir matematinė analizė (uždavinių sprendimas). (Linear Algebra and Mathematical Analysis (Solutions of problems))				

Course programme designed by

Assoc. prof. Sigita Pečiulytė