Course description

Department/Unit /	KMA / VKAN2			**Academic Year**	2023/2024
Title	Selec, Aspects of Applied Mathematics 2			**Type of completion**	Exam
Long Title	Selected Aspects of Applied Mathematics 2				
Accredited/Credits	Yes, 2 Cred.			**Type of completion**	Combined
Number of hours	Lecture 1 [Hours/Week] Tutorial 1 [Hours/Week]				
Occ/max	Status A	Status B	Status C	**Course credit prior to**	YES
Summer semester	0 / -	0 / -	0 / -	**Counted into average**	YES
Winter semester	0 / -	0 / -	0 / -	**Min. (B+C) students**	1
Timetable	Yes			**Repeated registration**	NO
Language of instruction	Czech			**Semester taught**	Summer semester
Optional course	Yes			**Internship duration**	0
Evaluation scale	1|2|3|4			**Ev. sc. – cred.**	S|N
No. of hours of on-premise					
Auto acc. of credit	No				
Periodicity	K				
Substituted course	None				
Preclusive courses	N/A				
Prerequisite courses	N/A				
Informally recommended courses	N/A				
Courses depending on this Course	N/A				

Course objectives:

This subject deals basically with the introduction to lineaer algebra.

Requirements on student

Credit: written test (required at least 50%). Student fulfill requirements for the credit after he /she consults his/her test with the lecturer and presents his/her index for signing the credit.

Exam: witten and oral part.

Content

1. Vector algebra - inner and vector product.
2. Applications of vector product in geometry.
3. Analytic geometry in 3D - lines, planes.
4. Matrix. Operations with matrices.
5. Systems of linear algebraic equations.
6. Linear vector space, linear dependence and independence.
7. Integral calculus, indefinite integral.
8. Techniques of integration, substitution, integration by parts.
9. Definite integral. Applications of integral calculus.
10. Differential equations of the 1st order. Methods of solution: separation of variables, variation of parameter.
11. Linear differential equations of the 1nd order, homogeneous, nonhomogeneous, with constant parameters.

Fields of study

Guarantors and lecturers

- **Guarantors:** RNDr. Milena Šebková (100%)

Literature

- **Recommended:** Delventhal, Katka Maria; Kissner, Alfred; Kulick, Malte. *Kompendium matematiky : vzorce a pravidla : četné příklady včetně řešení : od základních operací po vyšší matematiku*. V Praze : Euromedia Group - Knižní klub, 2004. ISBN 80-242-1227-7.
- **Recommended:** Dolanský, Petr. *Matematika pro distanční studium. 1*. Plzeň : Západočeská univerzita, 2000. ISBN 80-7082-643-6.
- **Recommended:** Vošický, Zdeněk. *Matematika v kostce : [pro střední školy]*. 1. vyd. Havlíčkův Brod : Fragment, 1996. ISBN 80-7200-012-8.

Time requirements

All forms of study

Activities	Time requirements for activity [h]
Preparation for formative assessments (2-20)	10
Preparation for comprehensive test (10-40)	10
Preparation for an examination (30-60)	30
Contact hours	26
Total:	**76**

assessment methods

Knowledge - knowledge achieved by taking this course are verified by the following means:

Combined exam

Test

Skills demonstration during practicum

prerequisite

Knowledge - students are expected to possess the following knowledge before the course commences to finish it successfully:

Students should be familiar with basic notions of mathematics to the extent of the course KMA/VKAN1.

teaching methods

Knowledge - the following training methods are used to achieve the required knowledge:

Interactive lecture

Practicum

Task-based study method

Self-study of literature

learning outcomes

Knowledge - knowledge resulting from the course:

Students are supposed to understand elementary theory of linear space (linear space of matrixes, etc.) as well as vectors and matrix algebra. They will be ready to solve systems of linear algebraic equations. The main objective is to develop basic skills int computing and to show various techniques for solving problems of integral calculus.

Course is included in study programmes: