

Subject name:		Engineering Mathematics I		
Subject code	Case status	Semester	Number of ECTS credits	Number of lessons (weekly)
PO1IM1	Required	And	8	2P+2V

Study programs for which it is organized: Polytechnics , about higher studies

Prerequisites for other subjects: None.

The idea of studying the subject: To develop students' ability to solve problems in the field of linear and vector algebra, as well as analytical geometry

Course study objectives: Acquiring knowledge about numerical methods in the field of linear algebra, vector calculus and analytical geometry . Independent solving of real problems using appropriate software (GeoGebra, Mathematica or some programming language).

Learning outcomes:

A student who successfully completes this subject will be able to:

1. Master theoretical and practical knowledge of numerical methods in the field of linear algebra, vector calculus and analytical geometry in space;
2. Understands and applies the basic concepts of matrix and vector algebra in solving problems;
3. Solves problems independently using appropriate software (Geogebra, Mathematica or some programming language);
4. Adopts techniques for proving basic statements and theorems .

Name and surname of teachers and associates: Prof. Dr. Kruna Ratković, MSc Ana Peković

Method of teaching and mastering the material: Lectures, exercises. Independent creation of tasks through project assignment and final exam. Consultations.

WORK PLAN

Sunday: Name of methodological units for lectures (P), calculation (V) and laboratory (L) exercises ; Planned form of knowledge test (Pz)

Preparation week		Getting to know, preparing and enrolling in the semester.
And Sunday	P/V/	Acquaintance with the subject and its rules; Introduction
II	P/V	Basic trigonometric functions, solving triangles;
III	P/V	Matrices, operations with matrices, matrix properties;
IV	P/V	Determinants, rank matrix, inverse matrix;
V	P/V	Systems of linear equations, matrix solution method, Kramer's rule;
VI	P/V	Systems of linear equations, Gauss elimination method;
VII	P/V	Vector algebra; operations with vectors, vectors in the coordinate system;
VIII	P/Pz	Colloquium
IX	P/V	Scalar, vector and mixed product;
X	P/V	Analytical geometry: lines in space;
XI	P/V	Analytical geometry: plane in space;
XII	P/V	Applications in technical sciences - analytical geometry
XIII	P/V	Applications in other sciences - project assignment
XIV	P/V/L	Visualization using mathematical software (Geogebra)
XV	P/V	Renewal of materials
XVI	Pz	Final exam.
XVII		Semester verification and grade entry
XVIII		Make-up exam deadline

Obligations of the student during classes: active participation in lectures and exercises; creation of project tasks .

Consultations by e-mail: YES

Student workload

Sunday	in the semester
8 credits x 40/30 = 10 hours 40 minutes	Total workload for the subject 8x30 = 240h
Structure:	Structure:
- 2 hours of lectures	Lessons and final exam: 10h40min x 16 weeks = 170h40min
- 2 hours of exercise	Necessary preparations before the beginning of the semester (administration, registration, certification): 10h40minx2=21h20min
- 6 hours 40 minutes of independent work, including consultations.	Additional work for preparing and passing the exam in the remedial period: 0-48 hours

Literature:

I. Slapničar: Mathematics 1, Faculty of Electrical Engineering, Mechanical Engineering and Shipbuilding, Split, 2002;

I. Slapničar, J. Barić, M. Ninčević: Mathematics 1 (collection of exercises), Faculty of Electrical Engineering, Mechanical Engineering and Shipbuilding, Split, 2008

Forms of knowledge testing and assessment:

Homework: 10% , project assignment: 20% , colloquium: 30% and exam: 40% .

Rating	A	B	C	D	E
Number of points	90-100	80-89	70-79	60-69	50-59