UČNI NAČRT PREDMETA / COURSE SYLLABUS			
Predmet:	Proseminar A		
Course title:	Introductory seminar A		

Študijski program in stopnja **Study programme and level**	**Študijska smer** **Study field**	**Letnik** **Academic year**	**Semester** **Semester**
Univerzitetni študijski program Matematika	ni smeri	1	prvi in drugi
First cycle academic study programme Mathematics	none	1	first and second

Vrsta predmeta / Course type	izbirni
Univerzitetna koda predmeta / University course code:	M0206

Predavanja **Lectures**	**Seminar** **Seminar**	**Vaje** **Tutorial**	**Klinične vaje** **work**	**Druge oblike študija**	**Samost. delo** **Individ. work**	**ECTS**
30		**60**			**30**	**4**

Nosilec predmeta / Lecturer:	prof. Jakob Cimprič, prof. Peter Šemrl

Jeziki / Languages:	**Predavanja / Lectures:**	slovenski/Slovene
	Vaje / Tutorial:	slovenski/Slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Vsebina:	**Content (Syllabus outline):**

Elementarne funkcije: pregled (polinomi, racionalne, algebraične, eksponentne in logaritemske, kotne in krožne, hiperbolične in area funkcije), lastnosti, računanje, risanje grafov, reševanje enačb in neenačb. Analitična geometrija v ravnini: premice, stožnice, medsebojne lege, polarne koordinate. Linearna algebra: vektorji v ravnini in prostoru, računske operacije, majhni sistemi enačb in neenačb. Kompleksna števila: računanje, reševanje enačb in sistemov enačb, polarni zapis. Algebra polinomov: računanje s polinomi, realna in kompleksna faktorizacija, parcialni ulomki.	Elementary functions: an overview (polynomials, rational, algebraic, exponential and logarithmic, trigonometric and inverse trigonometric, hyperbolic and inverse hyperbolic functions), properties, computation, graphing, solving equations and inequalities. Analytic geometry in the plane: a straight line, conic sections, mutual position, polar coordinates. Linear algebra: vectors in plane and space, computational operations, small systems of linear equations and inequalities. Complex numbers: arithmetic, solving equations and systems of equations, polar form. Algebra of polynomials: computation with polynomials, real and complex factorization, partial fractions.

Temeljni literatura in viri / Readings:

Srednješolski učbeniki matematike.

K. Cvetko Vah, D. Dolžan: Učbenik za proseminar, Učbeniki in priročniki 19, DMFA založništvo, Ljubljana, 2014.

A. Cedilnik: Matematični priročnik, 2. izdaja, Didakta, Radovljica, 1997.

Cilji in kompetence:	**Objectives and competences:**
''Študent ponovi, utrdi in nadgradi vsebine iz srednješolske matematike, ki so potrebne za normalno sodelovanje pri drugih predmetih 1. letnika.	Student revises, consolidates and upgrades the contents of high school mathematics, which are necessary for following the courses in the first year.

Predvideni študijski rezultati:	**Intended learning outcomes:**

Znanje in razumevanje: Študent temeljito obvlada računanje z elementarnimi funkcijami, reševanje enačb in neenačb, računanje s kompleksnimi števili in osnove ravninske geometrije. Uporaba: Predmet je predpriprava za Analizo 1 in Algebro 1. Refleksija: Razumevanje pojmov elementarne matematike, ki so nujni za nadaljnji študij. Prenosljive spretnosti – niso vezane le na en predmet: Študent se nauči prebrati in razumeti matematično trditev, razločiti predpostavke od posledic in razumeti utemeljitev oziroma dokaz.	Knowledge and understanding: A thorough knowledge of calculus of elementary functions, solving equations and inequalities, calculating with complex numbers, and basic knowledge of plane geometry. Application: This is preparatory course for Analysis 1 and Algebra 1. Reflection: Understanding of basic mathematical concepts that are necessary for further studies. Transferable skills: Student learns to read and understand a mathematical statement, distinguish assumptions from conclusions, and understand the deduction or proof.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, skupinsko in seminarsko delo	Lectures, group and seminar work

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
izpit ali dva kolokvija namesto izpita Ocene: 6-10 pozitivno, 5 negativno (v skladu s Statutom UL)	100%	exam or two midterm tests Grading: 6-10 pass, 5 fail (according to the Statute of UL)

Reference nosilca / Lecturer's references:

Jakob Cimprič:

Peter Šemrl:

– ŠEMRL, Peter. Applying projective geometry to transformations on rank one idempotents.

Journal of functional analysis, ISSN 0022-1236, 2004, vol. 210, no. , str. 248-257 [COBISS.SI-ID 13012825]

– ŠEMRL, Peter. Comparability preserving maps on bounded observables. Integral equations and operator theory, ISSN 0378-620X, 2008, vol. 62, no. 3, str. 441-454 [COBISS.SI-ID 15005273]

– ŠEMRL, Peter. A characterization of normed spaces among metric spaces. Rocky Mountain journal of mathematics, ISSN 0035-7596, 2011, vol. 41, no. 1, str. 293-298 [COBISS.SI-ID 15865177]