

| UČNI NAČRT PREDMETA / COURSE SYLLABUS | | | | | | |
|--|---|--------------------------------|---------------------------------------|------------------------------------|---|-------------|
| Predmet: | Proseminar A | | | | | |
| Course title: | Introductory seminar A | | | | | |
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| Študijski program in stopnja Study programme and level | Študijska smer Study field | | Letnik Academic year | | Semester Semester | |
| Enoviti magistrski študijski program Pedagoška matematika | ni smeri | | 1 | | prvi in drugi | |
| Integrated Master's study programme Pedagogical Mathematics | none | | 1 | | first and second | |
| Vrsta predmeta / Course type | | | | | | |
| | | | | izbirni | | |
| Univerzitetna koda predmeta / University course code: M0506 | | | | | | |
| 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: | | |
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| Vsebina: | | | | Content (Syllabus outline): | | |
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| <p>Elementarne funkcije: pregled (polinomi, racionalne, algebraične, eksponentne in logaritemske, kotne in krožne, hiperbolične in area funkcije), lastnosti, računanje, risanje grafov, reševanje enačb in neenačb.</p> <p>Analitična geometrija v ravnini: premice, stožnice, medsebojne lege, polarne koordinate.</p> <p>Linearna algebra: vektorji v ravnini in prostoru, računske operacije, majhni sistemi enačb in neenačb.</p> <p>Kompleksna števila: računanje, reševanje enačb in sistemov enačb, polarni zapis.</p> <p>Algebra polinomov: računanje s polinomi, realna in kompleksna faktorizacija, parcialni ulomki.</p> | <p>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.</p> <p>Analytic geometry in the plane: a straight line, conic sections, mutual position, polar coordinates.</p> <p>Linear algebra: vectors in plane and space, computational operations, small systems of linear equations and inequalities.</p> <p>Complex numbers: arithmetic, solving equations and systems of equations, polar form.</p> <p>Algebra of polynomials: computation with polynomials, real and complex factorization, partial fractions.</p> |
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Temeljni literatura in viri / Readings:

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| <p>Srednješolski učbeniki matematike.</p> <p>K. Cvetko Vah, D. Dolžan: Učbenik za proseminar, Učbeniki in priročniki 19, DMFA založništvo, Ljubljana, 2014.</p> <p>A. Cedilnik: Matematični priročnik, 2. izdaja, Didakta, Radovljica, 1997.</p> |
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Cilji in kompetence:

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| <p>"Študent ponovi, utrdi in nadgradi vsebine iz srednješolske matematike, ki so potrebne za normalno sodelovanje pri drugih predmetih 1. letnika.</p> |
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Objectives and competences:

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| <p>Student revises, consolidates and upgrades the contents of high school mathematics, which are necessary for following the courses in the first year.</p> |
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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:

Predavanja, skupinsko in seminarsko delo

Learning and teaching methods:

Lectures, group and seminar work

Delež (v %) /

Weight (in %)

Načini ocenjevanja:

izpit ali dva kolokvija namesto izpita

Ocene: 6-10 pozitivno, 5 negativno (v skladu s Statutom UL)

100%

Assessment:

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]