UČNI NAČRT PREDMETA / COURSE SYLLABUS			
Predmet:	Didaktika matematike 1		
Course title:	Didactics of mathematics 1		

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	3 ali 4	drugi
Integrated Master's study programme Pedagogical Mathematics	none	3 or 4	second

Vrsta predmeta / Course type	obvezni
Univerzitetna koda predmeta / University course code:	M0583

Predavanja **Lectures**	**Seminar** **Seminar**	**Vaje** **Tutorial**	**Klinične vaje** **work**	**Druge oblike študija**	**Samost. delo** **Individ. work**	**ECTS**
60		**30**			**90**	**6**

Nosilec predmeta / Lecturer:	Damjan Kobal

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):**

Pregled srednješolske matematike. Osnove logike in teorije množic, Osnovne številske množice, Linearna funkcija in enačba, Geometrija v ravnini in prostoru, Potence in koreni, Kvadratna funkcija, Kompleksna števila, Eksponentna in logaritemska funkcija, Ploščine, površine in prostornine, Kotne funkcije, Polinomi, racionalne funkcije, stožnice, Kombinatorika, verjetnostni račun in statistika, Zaporedja in diferencialni račun. Pregled učnih načrtov in izpitnih katalogov. Analiza učbenikov. Izdelava učnih priprav. Ciklično študentje predstavljajo posamezne vsebine in analizirajo dobro prakso nastopov.	Review of high school mathematics syllabus. Foundations of logic and set theory. Basic number sets. Linear function and equation. Geometry in plane and space. Powers and roots. Quadratic function. Complex numbers. Exponent and logarithm function. Area, surface and volume. Trigonometric functions. Polinoms, rational functions, conics. Combinatorics, probability and statistics. Sequences and differential calculus. Review of curricula and examination catalogs. Analysis of textbooks. Preparation of curricula. Cyclically students present different contents and analyze good practice in performances.

Temeljni literatura in viri / Readings:

Srednješolski učbeniki in programi.

H. Freudenthal: Mathematics as an Educational Task, Springer, Berlin, 1972.

G. Polya: Mathematics and Plausible Reasoning, Princeton Univ. Press, Princeton, 1990.

Cilji in kompetence:	**Objectives and competences:**
Slušatelji se seznanijo s srednješolskimi učnimi programi, učbeniki in katalogi zaključnih izpitov. Natančno je predelana srednješolska snov in v obliki nastopov pred vrstniki študenti spoznajo pomembne vidike pri razlagi matematičnih vsebin in se vadijo v javnem nastopanju.	Students are introduced to high school teaching programs, textbooks and catalogs of final exams. High school material is studied in detail in form of performances before the peers. Students learn important aspects of interpretation of mathematical contents and practice in public speaking.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Poglobljeno poznavanje in razumevanje srednješolske matematike s poudarki dobre razlage. Uporaba pri praktičnem poučevanju.	In-depth knowledge and understanding of high school mathematics with emphasis on a good explanation. Application in practical teaching.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Nastopi, diskusije, analiza, konzultacije	Performances, discussions, analysis, consultations

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način: domače naloge, projektno delo, nastopi, udeležba v analizi, pisni in/ali ustni izpit (srednješolska snov), priprave, zagovor priprav. Zahtevana ustrezna sposobnost (strokovne) komunikacije v slovenskem jeziku. Ocene: 5 (negativno), 6-10 (pozitivno)	100%	homework, project work, performances, participation in analysis, preparations, written and/or oral exam (high school syllabus), preparations, preparations' defense. Adequate ability of professional communication in Slovenian is required. Grading: 6-10 pass, 5 fail.

Reference nosilca / Lecturer's references:

KOBAL, Damjan. Technology and simple math ideas inspire teaching. V: ICME - 12 : the 12th International Congress on Mathematical Education, July 8-15, 2012, COEX, Seul, Korea. Cheongju: Korea National University of Education, 2012, 7 str. [COBISS.SI-ID 17151577]

KOBAL, Damjan, et al. Integrating algebra and geometry with complex numbers. V: International Seminar in Mathematics Education 2011. Park City: Park City Mathematics Institute - Institute for Advanced Study, cop. 2013, 9 str. [COBISS.SI-ID 17152345]

KOBAL, Damjan. Iluzija objektivnosti ali objektivnost odgovornosti. Obzornik za matematiko in fiziko, ISSN 0473-7466, 2007, letn. 54, št. 1, str. 18-28. [COBISS.SI-ID 14302297]

KOBAL, Damjan. Inner product space and circle power. Publicationes mathematicae, ISSN 0033-

3883, 2012, vol. 81, fasc. 1-2, str. 1-9. [COBISS.SI-ID 16336473]

KOBAL, Damjan. Bijections preserving invertibility of differences of matrices on H [sub] n. Acta mathematica Sinica, English series, ISSN 1439-8516, 2008, vol. 24, no. 10, str. 1651-1654. [COBISS.SI-ID 15588441]

KOBAL, Damjan. Preserving diagonalisability on upper triangular matrices. Linear and Multilinear Algebra, ISSN 0308-1087, 2006, vol. 54, no. 3, str. 189-194. [COBISS.SI-ID 13971801]