UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2017/18)			
Predmet:	Didaktika matematike 2		
Course title:	Didactics of mathematics 2		

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 / compulsory
Univerzitetna koda predmeta / University course code:	M0584

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

Nosilec predmeta / Lecturer:	doc. dr. Damjan Kobal

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Vpis v letnik študija.	Enrolment in the programme.
Vsebina:	**Content (Syllabus outline):**

Kot priprava in refleksija na praktične izkušnje se obdela naslednje teme: Uporaba računalnika pri pouku matematike. Srednješolska matematika v luči motivacije, obremenjenosti in discipline. Poskus definicije dobrega učitelja matematike. Dobra razlaga, Umetnost retorike, Posvečanje bolj in manj nadarjenim dijakom, Ustvarjalnost in avtoriteta, Poskus definicije dobrega dijaka, Med pridnostjo in sposobnostjo, Kampanjsko delo. Domače naloge. Zakaj je matematika mnogim težka? Matematika med Piagetom in Vigotskim - Sokratova metoda. Sodobne učne metode med bistvom in politično korektnostjo, Demistifikacija definicije, izreka in dokaza, Vloga in pomen mature, Interna in eksterna merila uspeha, Kako razumno meriti razumevanje? Objektivno ocenjevanje med nujo in možnostjo. Konkretni primeri kot vir motivacije in razumevanja pri pouku matematike. Poenostavljanje: med nujo in motivacijo, Analiza učnih priprav. Ocenjevanje. Študije primerov. Reševanje problemov. Študije primerov.	As a preparation and reflection on practical experiences the following topics are processed: Using the computer in mathematics. High school mathematics in the light of motivation, overburdening and discipline. Attempt to define a good teacher of mathematics. A good explanation. Art of rhetoric. Devoting to more and less talented pupils. Creativity and authority, attempt to define a good student. Between diligence and hard work. Binge work. Homeworks. Why is math so hard for many? Mathematics between Piaget and Vygotsky - Socratic method. Modern teaching methods between teaching essence and political correctness. Demystifying the definition, theorem and proof. Role and significance of (high school) graduation. Internal and external success criteria. How to measure understanding? Objective assessment between the necessity and possibility. Concrete examples as a source of motivation and understanding in mathematics. Simplification: the urgency and motivation. Analysis of curricula. Grading. Case studies. Problem solving. Case studies.

Temeljni literatura in viri / Readings:

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

S. G. Krantz: How to Teach Mathematics, 2nd edition, AMS, Providence, 1999.

F. Pediček: Edukacija danes, Obzorja, Maribor, 1994.

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

Srednješolski učbeniki.

T. Brown: Mathematics Education and Language : Interpreting Hermeneutics and Post-Structuralism, 2nd edition, Springer, New York, 2001.

H. W. Heymann: Why Teach Mathematics : A Focus on General Education, Springer, New York, 2004.

Različni primeri problemov iz Slovenije in sveta (primeri matur, sprejemnih izpitov.…)

Cilji in kompetence:

Slušatelji spoznajo sodobne probleme poučevanja in različne oblike dela pri pouku matematike.

Objectives and competences:

Students learn about modern teaching problems and various forms of work in mathemaics teaching.

Predvideni študijski rezultati:

Poznavanje in razumevanje zapletenih odnosov matematičnega poučevanja.

Uporaba idej pri poučevanju.

Intended learning outcomes:

Knowing and understanding the complex relationships of teaching mathematics.

Using the ideas in the classroom.

Metode poučevanja in učenja:

predavanja, vaje, nastopi, diskusije, konzultacije

Learning and teaching methods:

Lectures, exercises, presentations, discussions, consultations

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Način: domače naloge, projektno delo, pisni in ustni izpit. Zahtevana ustrezna sposobnost (strokovne) komunikacije v slovenskem jeziku. ocene: 1-5 (negativno), 6-10 (pozitivno)	30 % 30 % 40 %	Type: homeworks, project work, written and oral exam. Adequate ability of professional communication in Slovenian is required. Grading: 6-10 pass, 1-5 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]