UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2017/18)			
Predmet:	Programska oprema pri pouku		
Course title:	Software in teaching		

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	2	prvi
Integrated Master's study programme Pedagogical Mathematics	none	2	first

Vrsta predmeta / Course type	obvezni / compulsory
Univerzitetna koda predmeta / University course code:	M0515

Predavanja **Lectures**	**Seminar** **Seminar**	**Vaje** **Tutorial**	**Klinične vaje** **work**	**Druge oblike študija**	**Samost. delo** **Individ. work**	**ECTS**
15	**15**	**45**			**135**	**7**

Nosilec predmeta / Lecturer:	prof. dr. Andrej Bauer

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. Opravljen predmet Računalniški praktikum.	Enrolment in the programme. Completed course Computer practical.

Vsebina:	**Content (Syllabus outline):**

Urejanje in oblilkovanje besedil, s poudarkom na urejanju matematičnega besedila, besedila s slikami, preizkusov znanja, zbirk nalog ipd. Zahtevnejša uporaba preglednic pri ocenjevanju testov, razporedu dela in razporedu učiteljskih obveznosti in pri analizi rezultatov. Matematična programska oprema: interaktivne geometrijske konstrukcije, uporaba simbolnega računanja pri pouku ter pri sestavljanju nalog, avtomatično generiranje nalog. Spletne storitve: spletna učilnica, iskanje in posredovanje gradiva na spletu, uporaba forumov in ostalih medijev za komuniciranje z dijaki. Multimedijska oprema: snemanje, obdelava in objava video lekcij s tablico, uporaba interaktivne table. Varnost: arhiviranje in kodiranje podatkov, skrb za varnostne kopije, uporaba sistemov za revizijo verzij.	Text processing and formatting, with emphasis on editing of mathematical texts, texts with pictures, tests, collections of exercises, etc. Advanced uses of spreadsheets for calculating grades, scheduling tasks and teache duties, analysis of results. Mathematical software: interactive geometric constructions, using symbolic computation in the classroom, using symbolic computation for creation of exercises, automatic generation of exercises. Web technologies: online classrooms, searching and publishing materials on the web, using forums and other media for communication with students. Multimedia: recording and editing video lectures with a pen tablet, using interactive blackboards. Security: archiving and encrypting data, taking care of backups, using revision control systems.

Temeljni literatura in viri / Readings:

Skripta in priročniki za trenutno uporabljane programske pakete kot so:

Microsoft Word, TeX, Acrobat/PDF, Microsoft Excel, Mathematica, Sage, GeoGebra, Pajek, R, ZIP, PGP, git, Dropbox, ….

Cilji in kompetence:	**Objectives and competences:**
Splošni cilj predmeta je komptetentna uporaba raznih vrst programske opreme in računalniške tehnologije pri pouku v razredu, kakor tudi izven razreda za dodatno podporo učenju, posredovanje gradiva in kot orodje pri pripravi lekcij in nalog. Konkretno bodo študenti znali ustvarjati visoko kvalitetne dokumente, uporabljati	The general objective of the course is to for the students to become competent users of various kinds of software and computer technologies so that they can use them as teachers in the classroom, outside the classroom for additional

matematično programsko opremo v razredu, kakor tudi pri pripravi lekcij in testov, sposobni bodo uporabljati spletne tehnologije za nadgradnjo študijskih aktivnosti v razredu in izven razreda, uporabljali bodo multimedijsko oprema za poučevanje na ustrezne načine.	support for learning, and as a tool for preparation of lectures and exercises. Specifically, the students will be able to produce high-quality documents, use mathematical software in the classroom as well as in their lecture and test preparations, use the web technologies to supplement students' activities in the classroom and outside of it, and to use multimedia equipment for teachiing in appropriate ways.
Predvideni študijski rezultati:	**Intended learning outcomes:**
Na tehnični ravni bodo slušatelji spoznali razne zvrsti programske opreme in računalniške tehnologije, ki je relevantna pri poučevanju matematike in sorodnih predmetov. Na višji ravni se bodo študenti naučili kako se računalniško tehnologijo uporablja pri poučevanju na produktiven in nemoteč način.	On the technical level the students will learn about various kinds of sofware and computer technologies that are relevant for teaching of mathematics and related subjects. On a higher level the students will learn how to incorporate the use of computer technology into teaching in unobtrusive and productive ways.
Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja in laboratorijske vaje. Predmet zahteva dostop do računalnika. izvajanje v računalniških učilnicah. Skupine so take, da ima vsak študent svoje delovno mesto. Poleg tega je potreben dostop do multimedijske opreme in spletnih tehnologij.	Lectures and lab exercises. The course requires access to computers in computer labs. Each students needs his own computer. Access to multimedia equipment and various web technologies is needed as well.

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
opravljene laboratorijske vaje, domače naloge in projektne naloge z zagovorom, testi ocene: 1-5 (negativno), 6-10 (pozitivno) (po Statutu UL)	100 %	completed lab exercise and homeworks, and class projects, exams ocene: 1-5 (negativno), 6-10 (pozitivno) (po Statutu UL)

Reference nosilca / Lecturer's references:

BAUER, Andrej, PRETNAR, Matija. An effect system for algebraic effects and handlers. Logical methods in computer science, ISSN 1860-5974, 2014, vol. 10, iss. 4, paper 9 (str. 1-29). http://arxiv.org/pdf/1306.6316. [COBISS.SI-ID 17191001]

LUKŠIČ, Primož, HORVAT, Boris, BAUER, Andrej, PISANSKI, Tomaž. Practical E-Learning for the Faculty of Mathematics and Physics at the University of Ljubljana. Interdisciplinary journal of knowledge & learning objects, ISSN 1552-2210, 2007, vol. 3, str. 73-83. [COBISS.SI-ID 14269529]

BAUER, Andrej, TAYLOR, Paul. The Dedekind reals in abstract Stone duality. Mathematical structures in computer science, ISSN 0960-1295, 2009, vol. 19, iss. 4, str. 757-838. [COBISS.SI-ID 15322201]

BAUER, Andrej. Uvod v programiranje v Javi. Ljubljana: [A. Bauer], 2008. 1 optični disk (CD-ROM). [COBISS.SI-ID 14629977]

BAUER, Andrej. Teorija programskih jezikov. Ljubljana: [A. Bauer], 2007. 100 str. [COBISS.SI-ID 14630489]