UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Poslovanje s paketi z odprto kodo
Course title:	Open Source Software for Business

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Informatika v sodobni družbi, visokošolski strokovni študijski program prve stopnje	-	Drugi	Četrti
Informatics in Contemporary Society, first cycle Professional Study Programme	-	Second	Fourth

Vrsta predmeta / Course type Izbirni / Elective

Univerzitetna koda predmeta / University course code: 1-ISD-VS-IP-PPOK-2020-05-14

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	-	45	-	-	105	6

Nosilec predmeta / Lecturer: prof. dr. Srđan Škrbić

Jeziki / Languages:		
	Predavanja / Lectures:	Slovenski / Slovenian, Angleški / English
	Vaje / Tutorial:	Slovenski / Slovenian, Angleški / English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Študent/študentka mora pred pristopom k izpitu pripraviti in zagovarjati seminarsko nalogo.

Prerequisits:

Before taking an exam, student has to prepare and present a seminar paper.

Vsebina:

- Poslovna odprtokodna programska oprema - uvod v odprtokodno programsko opremo z aplikacijami v poslovanju
- Uvod v FLOSS (Free Libre Open Source Software) programsko opremo.
- Značilnosti in poslovni modeli FLOSS programske opreme.
- Odprtokodne rešitve v razvoju programske opreme - najsodobnejše odprtokodne tehnologije pri razvoju današnjih programskih rešitev:
  - Razvoj srednjega nivoja na Javi

Content (Syllabus outline):

- Open source software for business – introduction to open source software with the applications in business
- Introduction to FLOSS (Free Libre Open Source Software).
- Properties and business models of free libre open source software
- Open source solutions in software development - state-of-the-art open source technologies in the development of today's software solutions:

o Povezava s srednjim nivojem, ki temelji na Javi o Ponujanje funkcionalnosti srednjega nivoja, ki temelji na Javi, prek RESTful API-ja o Povezava z API-jem RESTful iz spletnga čelnega dela sistema (angl. Frontend) – JavaScript ogrodja • Študija primera: razvoj praktičnega programskega projekta z uporabo odprtokodne programske opreme	o Development of Java-based middle-tier o Connecting to a from a Java based middle tier o Offering functionality of Java-based middle tier, through RESTful API o Connecting to RESTful API from web frontend - JavaScript frameworks • Case study: Development of practical software project using open source software

Temeljni literatura in viri / Readings:

- Juneau, J. (2018). *Java EE 8 Recipes: A Problem-Solution Approach*. Apress.
- Heffelfinger, D. R. (2017). *Java EE 8 Application Development*. Packt Publishing.
- Haddad, I. (2019). *Recommended Open Source Compliance Practices for the Enterprise*. The Linux Foundation.
- Seshadri, S. (2018). *Angular: Up and Running*. O'Reilly.
- González-Barahona, J. M., Pascual, J. S. & Robles, G. (2009). *Introduction to Free Software*. GNU Free Documentation License, Creative Commons Attribute ShareAlike License. Pridobljeno iz http://ftacademy.org/materials/fsm/1.
- López Sánchez-Montañés, J., Belles Ramos, S., Baig Viñas, R. & Aulí Llinàs, F. (2008). *GNU/Linux Basic*. GNU Free Documentation License, Creative Commons Attribute ShareAlike License. Pridobljeno iz http://ftacademy.org/materials/fsm/13.
- Fogel, K. (2005-2013). *Producing Open Source Software: How to Run a Successful Free Software Project.* CreativeCommons Attribution-ShareAlike (3.0) license. Pridobljeno iz http://producingoss.com/en/index.html.
- Lessing, L. (2004). *Free culture, The Nature and Future of Creativity, How Big Media Uses Technology and the Law to Lock Down Culture and Control Creativity.* New York: The Penguin Press.
- St. Laurent, A. M.(2004). *Understanding Open Source and Free Software Licensing.*O'Reilly Media.

Dodatni spletni viri/ Additional resources:

- https://opensource.com/open-organization/resources/open-org-definition
- https://archiwum2016.opensourceday.com/images/konferencje/2013/prezentacje/Phil_Andrews_Red_Hat_Open_Source_2013.pdf.
- The GNU Project Free Software Definition. Pridobljeno iz http://www.gnu.org/philosophy/free-sw.html.
- The OSI Open Source Definition. Pridobljeno iz http://opensource.org/docs/osd.
- History from Karl Fogel's 'Producing OSS'. Pridobljeno iz http://producingoss.com/en/producingoss.html#history.
- Two articles by Eric Raymond. Pridobljeno iz http://www.catb.org/~esr/faqs/smart-questions.html
- http://www.opensource.org/docs/definition.php
- http://sl.libreoffice.org/
- http://www.coks.si

Cilji in kompetence:	**Objectives and competences:**
Cilj predmeta je študentom predstaviti osnovne ideje in principe na katerih temeljijo odprtokodne rešitve, ter jih seznaniti s področji uporabe in nekaterimi najpomembnejšimi orodji. *Predmet prispeva k razvoju naslednjih splošnih in predmetno-specifičnih kompetenc:* • usposobljenost za samostojno in avtonomno uporabo, nadzor in vzdrževanje informacijsko komunikacijske tehnologije v organizaciji • spsobnost zapisati problem v obliki algoritma in pretvorba algoritma v računalniški program z uporabo sodobnih programskih orodij, • razvoj (samo)kritične presoje • razumevanje in uporaba računalniških sistemov in arhitektur	The aim of the course is to present the basic ideas and principles which underlie open source solutions, and to acquaint them with the scope and some of the most important tools. *The instructional unit contributes to the development of the following general and subject-specific competences:* • competence for independent and autonomous use, monitoring and maintenance of information communication technology in an institution • ability to write down a problem in the form of an algorithm and the conversion of the algorithm into a computer programme with the use of modern software tools • development of (self)critical judgement • understanding and use of computer systems and architectures
Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: *Študent/študentka:* • se seznani s pojmi, nalogami in oblikami programske opreme odprte kode • razume osnovne principe, na katerih temelji programska oprema odprte kode • se nauči pravilno in samostojno uporabljati nekaj aktualnih odprto kodnih programskih orodij in tehnologij za implementacijo programskih rešitev	Knowledge and understanding: The student: • knows and understands the purpose and goals of FLOSS solutions • knows and understands basic principles of FLOSS • learns to use and adopt some of the actual open source solutions and technologies for implementation of software solutions
Metode poučevanja in učenja:	**Learning and teaching methods:**
• *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov) • *laboratorijske vaje* (delo na osebnem računalniku, spoznavanje različnih vrst odprtokodnih tehnologij, spoznavanje	• *lectures* with emphasis on students' activity (explanation, discussion, cases, problem solving) • *laboratory training* (work on a personal computer, getting acquainted with several kinds of open source technologies, learning to use

orodij za razvoj, uporaba različnih programerskih tehnik) • individualne in skupinske *konzultacije* (diskusija, dodatna razlaga, obravnava specifičnih vprašanj)	development tools and programming techniques) • individual and group *consultations (*discussion, additional explanation, specific issues)

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt): • ustni izpit • empirična seminarska naloga s poročili seminarskega dela in eksperimentalnih vaj ter predstavitev naloge	 50 50	Type (examination, oral, coursework, project): • oral exam • empiric seminary work and corresponding report(s) with an oral presentation

Reference nosilca / Lecturer's references:

- Zarko Bodroski, Nenad Vukmirovic, Srdjan Skrbic: Gaussian basis implementation of the charge patching method. Journal of Computational Physics, Volume 368, 2018, Pages 196-209
- Vladimir Loncar, Luis E. Young-S., Srdjan Skrbic, Paulsamy Muruganandam, Sadhan K. Adhikari, Antun Balaz: OpenMP, OpenMP/MPI, and CUDA/MPI C programs for solving the time-dependent dipolar Gross-Pitaevskii equation. Computer Physics Communications 209: 190-196 (2016)
- Loncar Vladimir, Balaz Antun, Bogojevic Aleksandar, Skrbic Srdjan, Muruganandam Paulsamy, Adhikari Sadhan: CUDA programs for solving the time-dependent dipolar Gross-Pitaevskii equation in an anisotropic trap, Computer Physics Communications, No. 200, pp. 406-410, 2016.
- Fodor Lidija, Skrbic Srdjan: A performance analysis of the R language and an assessment of the capabilities for its improvement, Proceedings of the 5th International Conference onInformation Society and Technology, pp. 449-454, 2015.
- Loncar Vladimir, Skrbic Srdjan, Balaz Antun: Parallelization of Minimum Spanning Tree Algorithms Using Distributed Memory Architectures, Transactions on Engineering Technologies, pp. 543-554, 2014.
- Loncar Vladimir, Skrbic Srdjan, Balaz Antun: Distributed Memory Parallel Algorithms for Minimum Spanning Trees, Proceedings of the World Congress on Engineering 2013, Vol II, pp. 1271-1275, 2013.
- Panic Goran, Rackovic Milos, Skrbic Srdjan: Fuzzy XML and prioritized fuzzy XQuery with implementation, Journal of Intelligent and Fuzzy Systems, Vol. 26, No. 1, pp. 303-316, 2014.
- Skrbic Srdjan, Rackovic Milos, Takaci Aleksandar: Prioritized fuzzy logic based information processing in relational databases, Knowledge-based Systems, Vol. 38, pp. 62-73, 2013.
- Skrbic Srdjan, Rackovic Milos, Takaci Aleksandar: Towards the Methodology for Development of Fuzzy Relational Database Applications, Computer Science and Information Systems, Vol 8, No 1, pp. 27-40, 2011.
- Perovic Aleksandar, Takaci Aleksandar, Skrbic Srdjan: Formalising PFSQL queries using LP1/2 fuzzy logic, Mathematical Structures in Computer Science, Vol 22, No 3, pp. 533-547, 2012

- Takaci Aleksandar, Skrbic Srdjan: Data Model of FRDB with Different Data Types and PFSQL, Handbook of Research on Fuzzy Information Processing in Databases, IGI Global, Hershey, PA, pp. 407-434, 2008.
- Skrbic Srdjan, Surla Dusan: Bibliographic records editor in XML native environment, Software: Practice and Experience, Vol 38, No 5, pp. 471-491, 2008.