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| **UČNI NAČRT PREDMETA / COURSE SYLLABUS** | | | | | | | | | | | | | | | | | |
| **Predmet:** | | | Seminar iz načrtovanja in razvoja programske opreme v telekomunikacijah | | | | | | | | | | | | | | |
| **Course title:** | | | Seminar on the design and development of software in telecommunications | | | | | | | | | | | | | | |
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| **Študijski program in stopnja**  **Study programme and level** | | | | | **Študijska smer**  **Study field** | | | | | | | | **Letnik**  **Academic year** | | **Semester**  **Semester** | | |
| Podiplomski magistrski študijski program druge stopnje Elektrotehnika | | | | | Informacijsko-komunikacijske tehnologije | | | | | | | | 2 | | 1 | | |
| 2nd cycle masters study programme in Electrical Engineering | | | | | Information and communications technologies | | | | | | | | 2 | | 1 | | |
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| **Vrsta predmeta / Course type** | | | | | | | | | | | | Obvezni-strokovni / Compulsory professional | | | | | |
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| **Univerzitetna koda predmeta / University course code:** | | | | | | | | | | | | 64300 | | | | | |
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| **Predavanja**  **Lectures** | **Seminar**  **Seminar** | | | **Vaje**  **Tutorial** | | | **Klinične vaje**  **work** | | | | **Druge oblike študija** | | | **Samost. delo**  **Individ. work** | |  | **ECTS** |
| 15 |  | | | 60 | | |  | | | |  | | | 75 | |  | 6 |
|  | | | | | | | | | | | | | | | | | |
| **Nosilec predmeta / Lecturer:** | | | | | Jaka Sodnik | | | | | | | | | | | | |
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| **Jeziki /**  **Languages:** | | **Predavanja / Lectures:** | | | | slovenski / Slovenian | | | | | | | | | | | |
| **Vaje / Tutorial:** | | | | slovenski / Slovenian | | | | | | | | | | | |
| **Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:** | | | | | | | | |  | **Prerequisites:** | | | | | | | |
| Vpis v letnik predmeta. | | | | | | | | |  | Enrolment in the year of the course | | | | | | | |
| **Vsebina:** | | | | | | | |  | | **Content (Syllabus outline):** | | | | | | | |
| Predavanja nudijo študentu pregled osnovnih pojmov in konceptov objektnega programiranja. Podani so temeljni principi in pravila načrtovanja in zasnove programske opreme v telekomunikacijah, pravila učinkovitega pisanja razumljive programske kode z ustrezno dokumentacijo, modularnega načina pisanja programske kode s sprotnim testiranjem posameznih modulov, mehanizmi sledenja verzijam programske kode, timski način dela, učinkovito testiranje in preverjanje robustnosti programske kode in iskanje ter odpravljanje napak.  V nadaljevanju študent s pomočjo mentorja izbere razvojni projekt znotraj področja, ki ga najbolj zanima: programska oprema za osebni računalnik, prenosno napravo, namensko multimedijsko napravo, mobilni telefon, razvoj napredne internetne aplikacije, itd. Študentski projekt je lahko del realnega industrijskega projekta za določeno podjetje in ustanovo. Prav tako je možno sodelovanje večjega števila študentov na skupnem projektu, pri čemer so točno določeni cilji in naloge posameznega študenta. Pri projektni nalogi študent po potrebi sam poglobi specifična znanja posameznega programskega okolja ali jezika.  Rezultate naloge študent predstavi in demonstrira mentorju in drugim študentom na izbrani smeri. | | | | | | | |  | | Lectures provide students with an overview of basic concepts in the field of object-oriented programming. Students learn about the basic principles and rules in software design and development in the field of telecommunications. This includes writing an effective and legible programming code, providing necessary documentation, modular application design through regular testing of individual modules, using version tracking mechanisms, methods of team work, effective testing and verification of software and debugging.  Each student supervised by a tutor selects a project within the field he or she finds interesting, e.g., desktop applications, mobile applications, multimedia applications, web applications etc. Projects may also be part of an actual industrial project for a specific company and institution. Collaboration of several students on a joint project is possible, provided that precise objectives and tasks are defined for each collaborating student. If necessary, each student is expected to individually extend his or her knowledge, for example by learning a programming language or environment specific to their projects.  Students present and demonstrate the results of their work to the tutors and other students. | | | | | | | |

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| **Temeljni literatura in viri / Readings:** | | | | | |
| 1. Steve McConnell, Code Complete: A Practical Handbook of Software Construction, 2004. 2. Priročniki za posamezne programske jezike (odvisno od izbranega projekta) 3. Specifikacija določene telekomunikacijske opreme in protokolov (odvisno od izbranega projekta) | | | | | |
| **Cilji in kompetence:** | |  | | **Objectives and competences:** | |
| Cilj predmeta je pridobitev praktičnih izkušenj in znanj s področja načrtovanja in razvoja programske opreme za različne telekomunikacijske sisteme. Poudarek je na samostojnem projektnem delu, ki vsebuje identifikacijo problema, načrtovanje rešitve, implementacijo, sledenje verzijam, pripravo dokumentacije, testiranje in razhroščevanje. | |  | | The aim of the course is to gain practical experience and knowledge in the field of software design and development for various telecommunication systems. The emphasis is put on individual project work, which includes the identification of the problem, designing and implementing the solution, version tracking, preparing the documentation, and product testing and debugging. | |
| **Predvideni študijski rezultati:** | | |  | **Intended learning outcomes:** | |
| Poznavanje osnovnih postopkov in konceptov pri načrtovanju in razvoju programske opreme v telekomunikacijah in sposobnost njihove uporabe v praksi.  Samostojna izdelava praktičnega izdelka (aplikacije) in predstavitev njegovega delovanja. | | |  | Knowledge of basic operations and concepts in designing and developing software in telecommunications and the ability of their application in practice.  An independent implementation of a product (application) and its presentation. | |
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| **Metode poučevanja in učenja:** | | |  | **Learning and teaching methods:** | |
| Predavanja, laboratorijske vaje s praktičnimi demonstracijami, mentorsko vodeno projektno delo | | |  | Lectures, lab work with practical demonstrations, work on individual projects under the mentorship | |
| **Načini ocenjevanja:** | Delež (v %) /  Weight (in %) | | | | **Assessment:** |
| Način: laboratorijske vaje in projekt.  Ocene od 1 do vključno 5 so negativne, ocene od vključno 6 do 10 so pozitivne.  Prispevki k oceni:  laboratorijske vaje in projekt | 100% | | | | Type: laboratory exercises and project.  Negative grades: from 1 to 5, positive grades: from 6 to 10.  Contributions to final grade:  laboratory exercises and project |
| **Reference nosilca / Lecturer's references:** | | | | | |
| 1. JAKUS, Grega, SODNIK, Jaka, TOMAŽIČ, Sašo. The architectural design of a system for interpreting multilingual web documents in E-speranto. Journal for universal computer science, ISSN 0948-6968, 2011, vol. 17, no. 3, str. 377-398.   2. TOMAŽIČ, Sašo, PAVLOVIĆ, Vesna, MILOVANOVIC, Jasna, SODNIK, Jaka, KOS, Anton, STANČIN, Sara, MILUTINOVIĆ, Veljko. Fast file existence checking in archiving systems. ACM transactions on storage, ISSN 1553-3077. [Print ed.], Jun. 2011, vol. 7, no. 1, str. 1-21.  4. SODNIK, Jaka, KOS, Andrej. Mobile web. Elektrotehniški vestnik, ISSN 2232-3228. [English print ed.], 2012, vol. 79, no. 5, str. 225-230.  5. SODNIK, Jaka, JEKOVEC, Matija, JAKUS, Grega, TOMAŽIČ, Sašo. The future of web. E-society journal, ISSN 2217-3269, Jul. 2011, vol. 2, no. 1, str. 27-38. | | | | | |