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| **UČNI NAČRT PREDMETA / COURSE SYLLABUS** | | | | | | | | | | | | | | | | | |
| **Predmet:** | | | Interdisciplinarni projekti | | | | | | | | | | | | | | |
| **Course title:** | | | Interdisciplinary projects | | | | | | | | | | | | | | |
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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 | | | | | Vse smeri | | | | | | | | 2 | | 1 | | |
| 2nd cycle masters study programme in Electrical Engineering | | | | | All study fields | | | | | | | | 2 | | 1 | | |
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| **Vrsta predmeta / Course type** | | | | | | | | | | | | Izbirni-splošni /elective general | | | | | |
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| **Univerzitetna koda predmeta / University course code:** | | | | | | | | | | | | 64318 | | | | | |
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| **Predavanja**  **Lectures** | **Seminar**  **Seminar** | | | **Vaje**  **Tutorial** | | | **Klinične vaje**  **work** | | | | **Druge oblike študija** | | | **Samost. delo**  **Individ. work** | |  | **ECTS** |
| 30 |  | | | 60 | | |  | | | |  | | | 90 | |  | 6 |
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| **Nosilec predmeta / Lecturer:** | | | | | Andrej Kos, Janez Bešter, Boštjan Likar, Damijan Miklavčič | | | | | | | | | | | | |
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| **Jeziki /**  **Languages:** | | **Predavanja / Lectures:** | | | | slovenski / Slovenian  angleški / English | | | | | | | | | | | |
| **Vaje / Tutorial:** | | | | slovenski / Slovenian  angleški / English | | | | | | | | | | | |
| **Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:** | | | | | | | | |  | **Prerequisits:** | | | | | | | |
| Predmet je namenjen študentkam in študentom študijskih programov ne glede na stopnjo in vsebino njihovega matičnega programa. | | | | | | | | |  | Course is intended for students of study programs regardless of the level and topic of their parent program. | | | | | | | |
| **Vsebina:** | | | | | | | |  | | **Content (Syllabus outline):** | | | | | | | |
| Interdisciplinarni projekt temelji na soustvarjanju študentov, podjetij, institucij in visokošolskih ustanov. Podjetja ali institucije razpišejo projektne naloge, ki jih rešujejo multidisciplinarne skupine študentov pod mentorstvom podjetij ali institucij ter učiteljev in asistentov. Cilj projektne naloge je, da skupina študentov projektno nalogo reši in po možnosti izdela delujoč prototip. Za izvedbo projektne naloge ima skupina študentov na voljo omejen čas. Skupinam študentom je na voljo skupen prostor, kjer je možna izmenjava kreativnih idej med študenti in predstavniki podjetij in institucij ter učitelji.  Izvedba projektne naloge:   1. oblikovanje skupine študentov, 2. podrobnejša seznanitev s projektnim problemom, 3. konzultacije z mentorjem iz podjetja ali institucije in na fakulteti, 4. razvojno kreativno skupinsko delo na reševanju problema, 5. predstavitve vmesnih idejnih rešitev problema na fakulteti in v podjetju ali instituciji, 6. možna realizacija rešitve problema (izdelava prototipa izdelka), 7. končna predstavitev rešitve projektne naloge. | | | | | | | |  | | Interdisciplinary project encourages co-creation of students, companies, institutions and universities. Companies or institutions propose real problems, which are being solved by multidisciplinary teams of students, working under supervision of companies or institutions and professors and assistants. The aim of the project is to generally solve the project problem and, if feasible, prepare a working prototype. Student teams have limited time to achieve this goal. A common working space is available to student teams, where they can exchange creative ideas with other students, business and institutions representatives and professors.  Project work stages:   1. formation of student groups, 2. detailed comprehension of the project problem, 3. consultations with the supervisor from the company or institution and the faculty, 4. creative team work on solving the problem, 5. presentation of interim basic solutions to the faculty and the company or institution, 6. possibility of the actual realization of the solution to the problem (product prototype) 7. final presentation of the project problem solution. | | | | | | | |

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| **Temeljna literatura in viri / Readings:** | | | | | |
| 1. K. Ulrich, S. Eppinger, Product Design and Development, McGraw-Hill, 2011 2. S. Berkun, Making Things Happen: Mastering Project Management, O'Reilly Media, Revised edition, 2008 3. E. Ries, The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses, Viking, 2011 4. C. Heath, D. Heath, Made to Stick: Why Some Ideas Survive and Others Die, Random House, 2007 5. O. Klaff, Pitch Anything: An Innovative Method for Presenting, Persuading, and Winning the Deal, McGraw-Hill, 2011 | | | | | |
| **Cilji in kompetence:** | |  | | **Objectives and competences:** | |
| Cilj predmeta je usposobiti študente za kreativno delo v multidisciplinarnih skupinah za reševanje kompleksnih projektnih problemov.  Kompetence, ki jih bodo pridobili študetje so kombiniranje in praktična uporaba posameznih že pridobljenih specifičnih strokovnih kompetenc in njihova ustrezna komplementarna uporaba v okviru skupinskega dela. | |  | | The objective of the course is to train students to work creatively in multidisciplinary teams to solve complex project problems.  The competences students will gain are practical application of different already acquired specific professional competencies and their complementary application within group work. | |
| **Predvideni študijski rezultati:** | | |  | **Intended learning outcomes:** | |
| Znanje in razumevanje: poznavanje dinamike dela v multidisciplinarni skupini, razumevanje osnovnih principov projektnega dela, sposobnost povezovanja različnih znanj in postopkov za učinkovito reševanje projektnih problemov.  Prenosljive/ključne spretnosti in drugi atributi: usposobljenost za samostojno reševanje problemov v interdisciplinarni in multikulturni skupini, komunikacija v multidiscplinarni in multikulturni projektni skupini, sposobnosti predstavitve rešitev in idej javnosti, vrednotenje potencialne uspešnosti idejne rešitve. | | |  | Knowledge and understanding: knowledge of work dynamics in multidisciplinary teams, understanding of fundamental principles of project work, understanding relationships between different skills and procedures for solutions of project problems.  Transferable/key skills and other attributes: competence for solving problems in an multidisciplinary and multicultural team, communication in multidisciplinary and multicultural project team, ability to present solutions and ideas to the public, evaluation of the potential success of a basic solution. | |
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| **Metode poučevanja in učenja:** | | |  | **Learning and teaching methods:** | |
| Študenti so vključeni v različne delavnice s področja podjetništva, projektnega vodenja, oblikovanja, agilnega razvoja. Študenti sodelujejo z mentorji iz podjetja in s fakultete. Tekom projektnega dela morajo študentje na skupnih dogodkih javno predstaviti svoje delo. Med izvajanjem projekta morajo študenti voditi evidenco projekta, ki vsebuje vse informacije o projektu. | | |  | Students are involved in a variety of workshops on entrepreneurship, project management, design, agile development. Students consult with supervisors from the company and the faculty. Students have to join public events to present their work during the project duration. Students have to keep the project record, which contains all the information about the project. | |
| **Načini ocenjevanja:** | Delež (v %) /  Weight (in %) | | | | **Assessment:** |
| Način: ocena projektnega dela.  Ocene od 1 do vključno 5 so negativne, ocene od vključno 6 do 10 so pozitivne.  Ocena sprotnih predstavitev dela (brez prosojnic, 3 minutna in 5 minutna).  Ocena evidence projekta.  Ocena končne rešitve in predstavitve projektne naloge | 40 %  30 %  30 % | | | | Type: project work evaluation.  Negative grades: from 1 to 5, positive grades: from 6 to 10.  Assessment of the ongoing project results presentation (no-slide-pitch, 3 minutes pitch and 5 minutes pitch).  Assessment of the project record.  Assessment of the final solution and presentation of project work |
| **Reference nosilcev / Lecturers' references:** | | | | | |
| 1. KOS, Andrej, SEDLAR, Urban, PUSTIŠEK, Matevž. Research and innovation in ICT. V: 7th ICT Innovations 2015, Ohrid, Macedonia, October 1-4, 2015. LOSHKOVSKA, Suzana (ur.), KOCESKI, Saso (ur.). ICT innovations 2015: emerging technologies for better living, (Advances in intelligent systems and computing, ISSN 2194-5357, 399). Cham [etc.]: Springer, cop. 2015, str. 1-10. 2. KOS, Andrej (intervjuvanec). Prenos znanstvenih in raziskovalnih dosežkov IKT v industrijski razvoj. Finance, ISSN 1318-1548, 25. apr. 2012, št. 80, str. 13. 3. MIKLAVČIČ, Damijan, MIR, Lluis Maria. Electroporation device : patent no. US 7625729 B2, date Dec. 1. 2009: application no. 10/517,038, PTC filed Jun. 10, 2003. [S. l.]: United States Patent and Trademark Office, 2009. 4. LIKAR, Bojan, POSEL, Robert, KALAGASIDIS, Andreas, BEŠTER, Janez, KOS, Andrej, VOLK, Mojca, SEDLAR, Urban, MALI, Luka, STERLE, Janez. Method for cognitive 4G neighborhood selection : US8213942 (B2), 2012-07-03. Alexandria: United States Patent and Trademark Office, 2012. 5. MIKLAVČIČ, Damijan. Objavljanje rezultatov raziskav - pisanje člankov. Elektrotehniški vestnik, ISSN 0013-5852. [Slovenska tiskana izd.], 2010, letn. 77, št. 1, str. 75-84. | | | | | |