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| **UČNI NAČRT PREDMETA / COURSE SYLLABUS** | | | | | | | | | | | | | | | | | |
| **Predmet:** | | | Seminar iz mehatronike | | | | | | | | | | | | | | |
| **Course title:** | | | Seminar: Mechatronics | | | | | | | | | | | | | | |
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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 | | | | | Mehatronika | | | | | | | | 2 | | 1 | | |
| 2nd cycle masters study programme in Electrical Engineering | | | | | Mechatronics | | | | | | | | 2 | | 1 | | |
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| **Vrsta predmeta / Course type** | | | | | | | | | | | | Obvezni-strokovni / Compulsory professional | | | | | |
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| **Univerzitetna koda predmeta / University course code:** | | | | | | | | | | | | 64294 | | | | | |
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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:** | | | | | Danjel Vončina | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | |
| **Jeziki /**  **Languages:** | | **Predavanja / Lectures:** | | | | slovenski / Slovenian | | | | | | | | | | | |
| **Vaje / Tutorial:** | | | | slovenski / Slovenian | | | | | | | | | | | |
| **Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:** | | | | | | | | |  | **Prerequisits:** | | | | | | | |
| Vpis v letnik predmeta | | | | | | | | |  | Enrolment in the year of the course | | | | | | | |
| **Vsebina:** | | | | | | | |  | | **Content (Syllabus outline):** | | | | | | | |
| Projektiranje naprav v mehatroniki, zbiranje virov v knjižničnih zbirkah, v specializiranih bazah podatkov na medmrežju, zbiranje podatkov pri proizvajalcih komponent, določitev nalog projektnega tima in terminski načrt izvedbe nalog, izdelava idejnih rešitev z uporabo simulacijskih orodij, načrtovanje in izdelava vezij oz. naprav z uporabo standardnih razvojnih orodij, izdelava funkcionalnih prototipov naprav, ocena materialnih in izvedbenih stroškov projekta, analiza in optimizacija izdelavnih postopkov v procesu industrializacije naprav.  Uporaba orodij za predstavitev rezultatov. Pisna in ustna predstavitev rezultatov projektne naloge. | | | | | | | |  | | Design of electrical devices in the field of mechatronics. Collecting of references in library and specialized data bases in internet. Use of datasheets and application notes. Determination of tasks in the project group and time schedule. Use of simulation tools. Design of prototypes using standard development tools. Assessment of development costs. Optimisation of selected technology. Writing a report and oral presentation of the project results. | | | | | | | |

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| **Temeljni literatura in viri / Readings:** | | | | | |
| 1. Članki v domačih in mednarodnih revijah s področja industrijske elektronike, močnostne elektronike in mehatronike (npr. IEEE - Mechatronics, IEEE - Industrial Electronics, IEEE - Power Electronics.) 2. Učbeniki in ostala strokovna literatura 3. Papers in national and international scientific and professional publications in the field of industrial electronics, power electronics and mechatronics | | | | | |
| **Cilji in kompetence:** | |  | | **Objectives and competences:** | |
| Cilj seminarja je povezovanje in uporaba pridobljenih strokovnih znanj s področja mehatronike pri zasnovi, projektiranju in izvedbi električnih in elektronskih sklopov oz. naprav. | |  | | The main goal of a seminar is synthesis and use of the obtained knowledge in the field of mechatronics to design prototypes of electrical circuits and devices. | |
| **Predvideni študijski rezultati:** | | |  | **Intended learning outcomes:** | |
| Študent bo sposoben aktivno sodelovati v projektni skupini. | | |  | Student will be able to participate in in the project group | |
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| **Metode poučevanja in učenja:** | | |  | **Learning and teaching methods:** | |
| Predavanja, laboratorijske vaje | | |  | Lectures, laboratory work | |
| **Načini ocenjevanja:** | Delež (v %) /  Weight (in %) | | | | **Assessment:** |
| Laboratorijske vaje, izpit.  Ocenjevalna lestvica: Ocene od 1 do vključno 5 so negativne, ocene od 6 do 10 so pozitivne.  Pozitivna ocena laboratorijskih vaj je pogoj za pristop k izpitu.  Prispevki k oceni:  laboratorijske vaje  izpit | 30%  70% | | | | Type: laboratory exercises, exam.  Negative grades: from 1 to 5, positive grades: from 6 to 10.  Positive evaluation of laboratory exercises is a prerequisite for the exam.  Contributions to final grade:  laboratory exercises  exam |
| **Reference nosilca / Lecturer's references:** | | | | | |
| 1. MODRIJAN, Gorazd, PETKOVŠEK, Marko, ZAJEC, Peter, VONČINA, Danijel. Precision B-H analyser with low THD secondary induced voltage. IEEE transactions on industrial electronics, ISSN 0278-0046. [Print ed.], Jan. 2008, vol. 55, issue 1, str. 364-370. 2. PETKOVŠEK, Marko, KOSMATIN, Peter, ZEVNIK, Ciril, VONČINA, Danijel, ZAJEC, Peter. Measurement system for testing of bipolar plates for PEM electrolyzers = Merilni sistem za testiranje bipolarnih plošč PEM elektrolizne celice. Informacije MIDEM, ISSN 0352-9045, mar. 2012, letn. 42, št. 1, str. 60-67. 3. FLISAR, Uroš, VONČINA, Danijel, ZAJEC, Peter. Voltage sag independent operation of induction motor based on Z-source inverter. Compel, ISSN 0332-1649, 2012, vol. 31, no. 6, str. 1931-1944. 4. KOSMATIN, Peter, MILJAVEC, Damijan, VONČINA, Danijel. A novel control strategy for the switched reluctance generator. Przeglęad Elektrotechniczny, ISSN 0033-2097, 2012, rok 88, no. 7a, str. 49-53. 5. PETKOVŠEK, Marko, LEBAN, Aleš, NEMEC, Mitja, VONČINA, Danijel, ZAJEC, Peter. Series active power filter for high-voltage synchronous generators = Serijski aktivni močnostni filter za visokonapetostne sinhronske generatorje. Informacije MIDEM, ISSN 0352-9045, Dec. 2013, vol. 43, no. 4, str. 228-234. | | | | | |