Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

## UČNI NAČRT PREDMETA / COURSE SYLLABUS

| Predmet: | Doktorska disertacija |
|---|---|
| Course title: | Doctoral Dissertation |

| Študijski program in stopnja<br>Study programme and level | Študijska smer<br>Study field | Letnik<br>Academic year | Semester<br>Semester |
|---|---|---|---|
| FIZIKA, 3. stopnja | | 4. | 8. |
| PHYSICS, 3rd cycle | | 4. | 8. |

**Vrsta predmeta / Course type**

Obvezni za vse module

**Univerzitetna koda predmeta / University course code:**

| Predavanja<br>Lectures | Seminar<br>Seminar | Vaje<br>Tutorial | Lab. vaje<br>Laboratory work | Mentorstvo<br>Mentorship | Samost. delo<br>Individ. work | ECTS |
|---|---|---|---|---|---|---|
| | | | | 30 | 870 | 30 |

**Nosilec predmeta / Lecturer:**

Izbrani mentor/Chosen mentor

| Jeziki /<br>Languages: | Predavanja /<br>Lectures: | / |
|---|---|---|
| | Vaje / Tutorial: | / |

| **Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:** | **Prerequisits:** |
|---|---|
| Pred zagovorom doktorske disertacije mora:<br>- študent uspešno opraviti vse obveznosti programa<br>- biti prijava doktorske disertacije opravljena v skladu s pravilnikom visokošolskega zavoda<br>- študent izpolnjevati vse pogoje za zagovor doktorske disertacije, ki so zapisani v merilih Doktorske šole UM. | Before the defence of doctoral dissertation the following requirements have to be fulfilled:<br>- student has to finish successfully all obligations within the program,<br>- the application of doctoral dissertation has to be done according to the rules of the faculty,<br>- student has to fulfil all conditions fort the defence of doctoral dissertation determined by the Doctoral School of UM. |

| **Vsebina:** | **Content (Syllabus outline):** |
|---|---|
| Izdelava doktorske disertacije z naslednjo okvirno vsebino: | Student works out the doctoral thesis with the following rough structure: |

| | |
|---|---|
| - Izvleček doktorske disertacije v slovenskem in angleškem jeziku in ključne besede | - Abstract of the doctoral thesis in Slovenian and English language and key words |
| - Kazalo vsebine, slik, tabel, prilog | - Table of contents, figures, tables, supplements |
| - Uvod | - Introduction |
| - Materiali in metode | - Materials and methods |
| - Rezultati | - Results |
| - Diskusija | - Discussion |
| - Sklep | - Conclusions |
| - Literatura in viri | - Bibliography |
| - Priloge (po potrebi) | - Supplements (if needed) |
| Pred zagovorom doktorske disertacije študent odpošlje osnutek članka (manuskript), ki temelji na znanstvenih spoznanjih doktorske disertacije, znanstveni reviji, indeksirani v SCI, pri čemer mora biti študent prvi ali vodilni avtor članka. | Before the defence of the doctoral thesis, the student submits a manuscript, which is based on his/her scientific results of the doctoral thesis, to a scientific journal, indexed in SCI, whereby he/she must be the first or the leading author of the article. |

**Temeljni literatura in viri / Readings:**

1) Katz, M. J., 2007: From research to manuscript. A guide to scientific writting. Springer, 152 str.

2) Ren, Z.: Navodila za pripravo podiplomskega dela, Maribor : Fakulteta za strojništvo, 2004.

3) Meloy, J. M.: Writing the qualitative dissertation : understanding by doing, Mahwah (New Jersey), London : L. Erlbaum, Associates, cop. 2002.

4) Day, R. A., Gastel, B. How to write and publish a scientific paper 6th ed., Cambridge University Press, Cambridge 2006

| **Cilji in kompetence:** | **Objectives and competences:** |
|---|---|
| Doktorska disertacija je pisni dokument, s katerim študent dokaže vrhunsko sposobnost uporabe teoretičnih znanj in v praksi pridobljenih izkušenj za rešitev problema, ki si ga je izbral s prijavo teme doktorskega dela. V doktorski disertaciji študent pokaže sposobnost izbire in uporabe metod dela v fiziki, uporabe domače in tuje strokovne literature ter dodatnih virov za potrebe rešitve izbranega problema. | The doctoral thesis is a written document by means of which the student proves his top-level ability to use the theoretical knowledge and his experiences achieved in the practical work to resolve the selected problem. In his doctoral thesis, the student presents the ability to choose and use appropriate methods in physics, to use literature and additional sources in order to solve the chosen problem. |

**Predvideni študijski rezultati:**      **Intended learning outcomes:**

| Znanje in razumevanje: | Knowledge and understanding: |
|---|---|
| Globlje poznavanje širšega znanstvenega področja in vrhunsko razumevanje ožjih vsebin s področja doktorske disertacije. Poudarek je na aplikaciji pridobljenih vrhunskih teoretičnih in praktičnih znanj ter obvladovanju najrazličnejših metodologij znanstvenega dela. Študent je sposoben razvoja novih znanj iz specifičnega znanstvenega področja. | In-deep knowledge of broader scientific area and top-level understanding of special topics from the field of doctoral thesis. The emphasis is given to the application of the toplevel theoretical and practical knowledge obtained as well as to the complete acquaintance with different methodologies of scientific work. Student is capable to develop new knowledge of specific scientific area. |
| Prenesljive/ključne spretnosti in drugi atributi: | Transferable/Key Skills and other attributes: |
| Obvladanje dokumentiranja in prezentacije znanstvenih izsledkov, obvladanje reševanja znanstvenih problemov, suverenost v predstavitvah ključnih spoznanj in spretnost argumentiranja. | Proficiency in documenting and presenting the scientific results, proficiency in solving scientific problems, sovereignty in presentations and discussions about the results of research. |

| **Metode poučevanja in učenja:** | **Learning and teaching methods:** |
|---|---|
| Mentor preverja vsebino in strukturo disertacije ter usmerja kandidata pri predstavitvi disertacije (razgovor, delo s tekstom). Individualizirano poučevanje. Raziskovalno poučevanje. | The supervisor controls the contents and the structure of the thesis and directs the candidate in preparation of the defence of doctoral thesis (discussion, work with text). Individualization in teaching. Inquiry based learning. |

| **Načini ocenjevanja:** | Delež (v %) / Weight (in %) | **Assessment:** |
|---|---|---|
| Način (pisni izpit, ustno izpraševanje, naloge, projekt)<br><br>• Doktorska disertacija<br>• Zagovor in ubranitev doktorske disertacije<br><br>Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno.<br><br>Pozitivna ocena doktorske disertacije je pogoj za pristop k zagovoru in ubranitvi doktorske disertacije.<br>**Se oceni z opravil / ni opravil.** | 75 %<br><br>25 % | Type (examination, oral, coursework, project):<br><br>• Doctoral thesis<br>• Presentation and defence of doctoral thesis<br><br>Each of the mentioned commitments must be assessed with a passing grade.<br><br>Positive grade of doctoral thesis is prerequisite for access to presentation and defense of doctoral thesis.<br>**Pass / fail evaluation.** |

**Reference nosilca / Lecturer's references:**

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