Univerza v Mariboru

Fakulteta za naravoslovje in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Aplikativna fizika**
Course title:	**Applicative Physics**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
FIZIKA, 3. stopnja		**1. ali 2.**	**1., 2. ali 4.**
PHYSICS, 3rd cycle		**1. or 2.**	**1., 2. or 4.**

Vrsta predmeta / Course type	Izbirni za vse module
Univerzitetna koda predmeta / University course code:	

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15					165	6

Nosilec predmeta / Lecturer:	Mitja Slavinec
Jeziki / Languages: Predavanja / Lectures:	slovenski/Slovenian
Vaje / Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Pogojev ni.	None.

Vsebina:	**Content (Syllabus outline):**
Na predavanjih so predstavljeni primeri aplikacij fizike na področjih inženirstva, medicine, farmacije itd. Predstavljena so orodja in tehnike za aplikacijo in vodenje fizikalnih projektov v praksi, finančna analiza projektov, izdelava načrta in oblikovanje, vodenje ter delo v skupini.	Various examples of physical application in engineering, medicine, pharmacy etc. are featured and others Management tools and technique, financial analysis of projects, plan preparation and team leading and teamwork are present at the lectures. The content of this course will be based on the selected physical application, interpretation of

Podrobneje so vsebine predavanj prilagojene izbrani fizikalni aplikaciji, razlagi fizikalnega ozadja in možnosti nadgradnje.	the physical background and the possibility of upgrading.

Temeljni literatura in viri / Readings:

1) G. S. Romine, Applied Physics: Concepts into Practice , Prentice-Hall, Inc , 2001.
2) D. Ewen, R. Nelson, N. Schurter, E. Gundersen, Applied Physics, Prentice Hall, 2005.
3) James P. Lewis, Fundamentals of Project Management, American Management Association, New York, ZDA, 2002.
4) Izbrana strokovna literatura v odvisnosti od tematike fizikalne aplikacije.

Cilji in kompetence:	**Objectives and competences:**
Študentje pridobijo sposobnost prenosa teoretičnega fizikalnega znanja v praktična znanja na različnih področjih in v fizikalnih aplikacijah ter praktična znanja za organizacijo, vodenje in izvedbo fizikalnih projektov.	Students gain the ability to transfer theoretical knowledge of physics into practical knowledge in various fields and physical applications and practical knowledge that is necessary for organization and managements of projects.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Po uspešno zaključeni učni enoti je študent zmožen: • združiti teoretična znanja in praktične spretnosti in jih implementirati v fizikalnih aplikacijah • načrtovati in oblikovati potek aplikacije fizikalnih projektov na praktičnem nivoju. • Prenesljive/ključne spretnosti in drugi atributi: Povezovanje teoretičnega znanja in prakse ter s tem razvoj fizikalnih aplikacij. Celosten pristop k aplikaciji fizikalnih projektov. Razvoj komunikacijskih spretnosti in spretnosti individualnega raziskovalnega dela.	Knowledge and understanding: On completion of this course the student gains ability to: • combine theoretical knowledge and practical skills and implement them in physical applicationsplan and construct the process of the application of physical projects on a practical level. Transferable/Key Skills and other attributes: Correlation between theoretical knowledge and practice and the development of physical applications. Gained global approach on application of physical projects. Development of communication skills and skills of individual research work.

Metode poučevanja in učenja:	**Learning and teaching methods:**

Predavanja in spoznavanje aplikativne uporabe fizikalnih znanj na izbranih področjih (razlaga, razgovor, študija primera, demonstracija) Raziskovalno učenje Individualizacija poučevanja	Lectures and application of physical knowledge in selected areas (explanation, discussion, case study, demonstration) Inquiry based learning Individualization in teaching

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Seminar (izdelek in predstavitev) Ustni zagovor Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno. Pozitivna ocena seminarja je pogoj za pristop k izpitu.	50 50	Seminar (work and presentation) Oral Exam Each of the mentioned commitments must be assessed with a passing grade. Positive grade of seminar is prerequisite for access to the exam

Reference nosilca / Lecturer's references:

WEI, Zhouchao, ZHU, Bin, YANG, Jing, PERC, Matjaž, SLAVINEC, Mitja. Bifurcation analysis of two disc dynamos with viscous friction and multiple time delays. Applied mathematics and computation, ISSN 0096-3003. [Print ed.], 2019, vol. 347, str. 265-281, doi: 10.1016/j.amc.2018.10.090. [COBISS.SI-ID 24361480]

FISTER, Iztok, IGLESIAS, Andres, GÁLVEZ, Akemi, DEL SER, Javier, OSABA, Eneko, FISTER, Iztok, PERC, Matjaž, SLAVINEC, Mitja. Novelty search for global optimization. Applied mathematics and computation, ISSN 0096-3003. [Print ed.], 2019, vol. 347, str. 865-881, doi: 10.1016/j.amc.2018.11.052. [COBISS.SI-ID 24211976],

KLEMENČIČ, Eva, ZAVEC PAVLINIČ, Daniela, SLAVINEC, Mitja. Modelling the impact of moisture on the thermal conductivity of cotton jersey. Fibres & textiles in Eastern Europe : an international magazine devoted to current problems of the textile industries in Central and Eastern Europe. 2021, vol. 29, iss. 2 (146), str. 61-65. ISSN 1230-3666. http://www.fibtex.lodz.pl/article2286.html, DOI: 10.5604/01.3001.0014.6083. [COBISS.SI-ID 60647427]