



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: Diplomski seminar
Course title: Diploma seminar

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Fizika Physics		3	6

Vrsta predmeta / Course type

obvezni

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Lab. vaje Laboratory work	Terenske vaje Field work	Samost. delo Individ. work	ECTS
5	30				325	12

Nosilec predmeta / Lecturer:

Nataša Vaupotič

Jeziki / Predavanja / Lectures:

slovenski/slovene

Languages:

Vaje / Tutorial:

slovenski/slovene

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Pred predstavitvijo zaključnega seminarja naj ima študent opravljene vse druge obveznosti na študijskem programu Fizika.

Prerequisites:

Before the concluding seminar is presented the student should have accomplished all other obligations at the study programme Physics.

Vsebina:

Osnove strokovnega pisanja. Sestava članka, seminarja, diplome. Pisanje enačb, sklicevanje, citiranje, vnašanje slik. Iskanje virov in njihovo vrednotenje. Brskanje po bazah, pregled znanstvenih revij, ki so dostopne v mreži računalnikov UM. Priprava multimedijske predstavitve strokovnega ali znanstvenoraziskovalnega dela. Osnove znanstvenoraziskovalnega dela: določitev problema, pregled in vrednotenje obstoječe literature, načrtovanje samostojnega

Content (Syllabus outline):

Fundamentals of scientific writing. Composition of a scientific paper, seminar, thesis. Writing of equations, citations, referencing, figures. Searching for sources and their evaluation. Searching the scientific bases, scientific journals that are on-line in the University computer web. Preparation of the multimedia projection of the scientific work. Introduction to the scientific research: selection of a problem, survey and evaluation of the existing literature, planning of the individual experimental or theoretical

eksperimentalnega ali teoretičnega dela.
Vrednotenje rezultatov, prikaz in analiza.
Elementi dispozicije zaključnega dela.

Priprava elektronske predstavitve kot podpora ustni predstavitvi in nujni elementi predstavitve v obliki plakata.

Vsebina kratkega seminarja:

Vsak študent napiše krajši seminar iz teme, ki jo izbere sam ali pa jo določi nosilec. Pri pisanju strogo upošteva pravila strokovnega pisanja in pripravi predstavitev v elektronski obliki.

Zaključni seminar:

Študent izbere temo, ki jo poglobljeno preuči. Vsebina se lahko navezuje na delo, ki ga opravi npr. v okviru izbirnega predmeta ali strokovnega usposabljanja. Pripravi in predstavi dispozicijo zaključnega seminarja. Priporočena dolžina zaključnega seminarja je okoli 20 strani. Željeno je, da je predstavitev seminarja je zadnje dejanje študija na 1. stopnji, t.j. študent ga predstavi, ko je opravil vse preostale obveznosti po programu. Študent izdelava plakat, na katerem predstavi vsebino zaključnega seminarja, ustno predstavitev pa podpre z ustrezno uporabo IKT.

research. Evaluation of the results, their presentation and analysis.

Elements of a disposition of a thesis.

How to prepare an ICT support to oral presentation and the elements of poster presentation.

Short seminar:

Each student writes a seminar on a topic of his/her own choice or a topic assigned by the lecturer. The rules for scientific writing should be obeyed strictly. The electronic multimedia presentation is prepared.

Concluding seminar:

Each student chooses the topic of the seminar, which can be a part of the work within the scope of another subject or the practical work. Each student prepares and presents a disposition of the concluding seminar. The recommended length of the seminar is approximately 20 pages. It will be encouraged that the presentation of the seminar is the last act of the study, i.e. the student presents the seminar when all the rest of the exams in the study program are passed. Each student prepares a poster presenting the topic of the concluding seminar. Oral presentation should be supported by a proper use of ICT.

Temeljni literatura in viri / Readings:

1. R. A. Day, B. Gastel, How to write and publish a scientific paper, Greenwood Press, 2006.
2. Znanstveni in strokovni članki v znanstvenih in strokovnih revijah / Scientific and technical papers in scientific and technical journals
3. Učbeniki s področja seminarja / textbooks on the topic chosen for the semina

Cilji in kompetence:

Študenti usvojijo strokovno pisanje, iskanje virov, načrtovanje raziskovalnega dela, vrednotenje, prikaz in analizo rezultatov.

Objectives and competences:

Students achieve scientific writing, search for sources, planning of the research work, evaluation, presentation and analysis of the results.

Predvideni študijski rezultati:

Znanje in razumevanje:

Znajo napisati strokovni članek. Znajo načrtovati, izvesti, vrednotiti in predstaviti preprostejšo raziskavo.

Intended learning outcomes:

Knowledge and understanding:

They can write a scientific/technical paper. They can plan, carry out, evaluate and present a simple scientific research.

Prenesljive/ključne spretnosti in drugi atributi:
Strokovna in informacijska pismenost.

Transferable/Key Skills and other attributes:
Scientific and informational literacy.

Metode poučevanja in učenja:

Predavanja
Seminar
Vodeno raziskovalno delo

Learning and teaching methods:

Lectures
Seminar
Guided research work

Načini ocenjevanja:

Delež (v %) /
Weight (in %)

Assessment:

Način (pisni izpit, ustno izpraševanje, naloge, projekt)	Delež (v %) / Weight (in %)	Type (examination, oral, coursework, project):
Krajši seminar	10	Short seminar
Zaključni seminar	90	Concluding seminar

Reference nosilca / Lecturer's references:

1. GÓRECKA, Ewa, VAUPOTIČ, Nataša, ZEP, Anna, POCIECHA, Damian. From sponges to nanotubes : a change of nanocrystal morphology for acute-angle bent-core molecules. *Angewandte Chemie*, ISSN 1521-3773. [Online ed.], 2016, vol. 55, no. 40, str. 12238-12242, doi: [10.1002/anie.201604915](https://doi.org/10.1002/anie.201604915). [COBISS.SI-ID [29763367](https://www.cobiss.si/id/29763367)].
2. VAUPOTIČ, Nataša, CURK, Samo, OSIPOV, Mikhail, ČEPIČ, Mojca, TAKEZOE, Hideo, GÓRECKA, Ewa. Short-range smectic fluctuations and the flexoelectric model of modulated nematic liquid crystal. *Physical review. E, Statistical, nonlinear, and soft matter physics*, ISSN 1539-3755, 2016, vol. 93, no. 2, str. 022704-1-022704-5, doi: [10.1103/PhysRevE.93.022704](https://doi.org/10.1103/PhysRevE.93.022704). [COBISS.SI-ID [29301799](https://www.cobiss.si/id/29301799)].
3. GÓRECKA, Ewa, VAUPOTIČ, Nataša, ZEP, Anna, POCIECHA, Damian, YOSHIOKA, Jun, YAMAMOTO, Jun, TAKEZOE, Hideo. A twist-bend nematic (N_{sub}(TB)) phase of chiral materials : Ewa Gorecka ... [et al.]. *Angewandte Chemie*, ISSN 1433-7851. [Print ed.], 2015, vol. 54, no. 35, str. 10155-10159, doi: [10.1002/anie.201502440](https://doi.org/10.1002/anie.201502440). [COBISS.SI-ID [28844839](https://www.cobiss.si/id/28844839)].
4. VOGRIN, Martin, VAUPOTIČ, Nataša, WOJCIK, M. M., MIECZKOWSKI, Jozef, MADRAK, Karolina, POCIECHA, Damian, GÓRECKA, Ewa. Thermotropic cubic and tetragonal phases made of rod-like molecules. *PCCP. Physical chemistry chemical physics*, ISSN 1463-9076, 2014, vol. 16, issue 30, str. 16067-16074, doi: [10.1039/C4CP01641F](https://doi.org/10.1039/C4CP01641F). [COBISS.SI-ID [27813671](https://www.cobiss.si/id/27813671)].
5. LESKOVAR, Kristina, ČEPIČ, Mojca, VAUPOTIČ, Nataša. Effect of a bias electric field on the structure and dielectric response of the ferroelectric smectic-A liquid crystal in thin planar cells. *Physical review. E, Statistical, nonlinear, and soft matter physics*, ISSN 1539-3755, 2014, vol. 89, no. 1, str. 012501-1-012501-9, doi: [10.1103/PhysRevE.89.012501](https://doi.org/10.1103/PhysRevE.89.012501). [COBISS.SI-ID [27378983](https://www.cobiss.si/id/27378983)].
6. VAUPOTIČ, Nataša, ČEPIČ, Mojca, OSIPOV, Mihail A., GÓRECKA, Ewa. Flexoelectricity in chiral nematic liquid crystals as a driving mechanism for the twist-bend and splay-bend modulated phases. *Physical review. E, Statistical, nonlinear, and soft matter physics*, ISSN 1539-3755, 2014, vol. 89, no. 3, 030501-1-030501-5, doi: [10.1103/PhysRevE.89.030501](https://doi.org/10.1103/PhysRevE.89.030501). [COBISS.SI-ID [27591975](https://www.cobiss.si/id/27591975)].