



UČNI NAČRT PREDMETA / SUBJECT SPECIFICATION

Predmet:	Seminar iz moderne fizike
Subject Title:	Seminar in Modern Physics

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Enopredmetna izobraževalna fizika Single major Educational Physics		2	3

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Labor work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
	30				90	4

Nosilec predmeta / Lecturer:

Jeziki / Predavanja / Lecture:
Languages: Vaje / Tutorial:

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

Osnove moderne fizike in statistične termodinamike, osnove strokovnega pisanja

Prerequisites:

Knowledge of Modern Physics and Statistical Thermodynamics; basics of scientific writing

Vsebina:

Vsak študent izbere temo s področja moderne fizike. Temu podrobno preuči, pripravi eksperimentalne poskuse, ki jih podpre tudi z računalniškimi simulacijami. Vsaka tema mora biti prikazana tudi na nivoju, ki je primeren za osnovno in srednjo šolo.

Temo predstavi v obliki:

- seminarja, kjer pri pisanju strogo upošteva pravila strokovnega pisanja;
- plakata/posterja, v obliki primerni za objavo na strokovni konferenci;
- multimedijskega eksperimentalnega predavanja, po katerem samostojno odgovarja na vprašanja poslušalcev.

Content (Syllabus outline):

Each student selects a topic from modern physics. The topic is thoroughly studied. Experiments have to be prepared and their interpretation should be supported by computer simulations. Each topic should be presented in a way which is appropriate for the elementary and secondary school.

The topic is presented as:

- a written seminar, in which the rules for scientific writing are strictly obeyed;
- poster in the form which is acceptable at the topical meetings;
- multimedia lecture which includes presentation of experiments; after the lecture the questions from the audience should be answered

Temeljni literatura in viri / Textbooks:

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

Cilji:

Študenti poglobijo znanje s področja moderne fizike in prenos znanja na nivo, ki je primeren za poučevanje v osnovni in srednji šoli.

Objectives:

Students deepen their knowledge in the field of Modern Physics and the transfer of knowledge to the level, which is appropriate for teaching in the elementary and secondary school.

Predvideni študijski rezultati:

Znanje in razumevanje:

Poglobljeno znanje tem s področja moderne fizike. Znajo napisati strokovni članek. Znajo načrtovati, izvesti, vrednotiti in predstaviti eksperimente na različnih nivojih izobraževanja. Znajo uporabiti računalnik kot podporo pri poučevanju.

Prenesljive/ključne spretnosti in drugi atributi:

Strokovna in informacijska pismenost. Podajanje znanja za različne razvojne stopnje.

Intended learning outcomes:

Knowledge and Understanding:

Deeper knowledge of topics in Modern Physics. They can write a scientific/technical paper. They can plan, carry out, evaluate and present experiments at different levels of education. They can use computer animation as a support in teaching.

Transferable/Key Skills and other attributes:

Scientific and informational literacy. Knowledge communication at different development stages.

Metode poučevanja in učenja:

Seminar
Vodeno eksperimentalno delo
Problemsko učenje

Learning and teaching methods:

Seminar
Guided experimental work
Problem based learning

Načini ocenjevanja:

a) Pisni izdelek – seminar
b) plakat
c) multimedijsko podprto eksperimentalno predavanje

Delež (v %) /
Weight (in %)

a) 40 %
b) 30 %
c) 30 %

Assessment:

a) written work – Seminar
b) poster
c) multimedia experimental lecture