



**OPIS PREDMETA / SUBJECT SPECIFICATION**

<b>Predmet:</b>	Inovativni projekti
<b>Subject Title:</b>	Innovative projects

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
FIZIKA/PHYSICS		2	1

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Lab. work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
30	20				250	10

Nosilec predmeta / Lecturer:

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

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

Jih ni.

None.

**Vsebina:**

**Contents (Syllabus outline):**

- Analiza klasičnega in sodobnega poučevanja fizike.
- Sodobne smeri v didaktiki pouka fizike – inovativne učne metode in oblike.
- Domači in mednarodni projekti raziskav poučevanja fizike.
- Inovacije in pouk fizike. Analiza in metodologija inovativnih projektov.
- Planiranje in strokovno ter didaktično ovrednotenje uporabe inovativnih projektov za pouk fizike.
- Eksperimentalni izvedbeni projekt.

- Analysis of classical and modern principles of physics education.
- Contemporary directions in didactics of physics – innovative educational methods and forms.
- Native and international projects of research in physics education.
- Innovations in physics education. Analysis and methodology of innovation projects.
- Planning as well as professional and didactical evaluation of use of innovative projects for physics education.
- Practical experimental project.

**Temeljni študijski viri / Textbooks:**

- Beiser: Concepts of Modern Physics. New York: Mc Graw-Hill, 1987.
- Campbell, A., McNamara, O., Gilroy, P. (2004). Practitioner Research and Professional Development in Education. London: Paul Chapman Publishing.
- Gerlič: Metodika in metodologija pouka fizike. Maribor: PEF Maribor, 1984.
- Gerlič: Didaktika pouka fizike v osnovni šoli. PEF MB, 1992.
- Gerlič, Udir: Problemski pouk fizike v osnovni šoli. Zavod RS za šolstvo, Ljubljana, 2006.
- Gerlič: Sodobna informacijska tehnologija v izobraževanju. DZS, Ljubljana, 2000.
- Lankshear, C., Knobel, M. (2006). A Handbook for Teacher Research. Glasgow, Open University Press.
- Resnick, D. Halliday: Fundamentals of Physics. London: Wiley and Sons, 1993
- Strnad. O poučevanju fizike. Sigma-DMFA, Ljubljana 2006.
- Učbeniki, priročniki, napotki za projektno delo slovenskih in tujih založb.

- Revije: Physics Teacher, Physics Education, Technology&Learning, Computers&Education, Educational Technilogy in slovenske fizikalne, računalniške ter didaktične revije.

**Cilji:**

**Objectives:**

Študent/ka:

- Pridobi dodatno znanje in poglobi obstoječe znanje o inovativnih projektih izobraževalne fizike za izboljšanje kakovosti učenja in poučevanja fizike v osnovnih in srednjih šolah ter na univerzi.
- se usposobi za samostojno razvojno-raziskovalno delo na področju inovativnih projektov.

A student:

- Gains additional knowledge and deepens the existing one about innovative projects in physics education for improvement of physics teaching and physics education quality in primary and secondary schools and universities.
- is qualified for advanced independent development and research work on the field of innovation projects.

**Predvideni študijski rezultati:**

**Intended learning outcomes:**

Znanje in razumevanje:

- Poglobljeno poznavanje in razumevanje didaktike fizike.
- Poglobljeno znanje in razumevanje raziskovanja fizikalno-didaktičnih procesov
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Knowledge and Understanding:

- Deeper knowledge and understanding of the didactics of physics.
- Deeper knowledge and understanding of research processes in didactics of physics.

Prenesljive/ključne spretnosti in drugi atributi:

- Sposobnost kritične uporabe znanstvenih in strokovnih spoznanj s področja didaktike fizike.
- Sposobnost samostojnega raziskovanja v didaktiki fizike.
- Spretnosti v prezentaciji, izražanju in objavi raziskovalnega dela.

Transferable/Key Skills and other attributes:

- The ability of critical use and application of scientific and professional findings from the field of didactics of physics.
- The ability of independent research in didactics of physics.
- Writing and presentation skills and skills in publication of research work.

**Metode poučevanja in učenja:**

- predavanja
- obravnava študijskih primerov z diskusijo,
- projektno delo
- multimedijška predstavitev

**Learning and teaching methods:**

- interactive lectures
- case studies discussion,
- project work,
- multimedia presentation.

**Načini ocenjevanja:**

Delež (v %) /  
Weight (in %)

**Assessment:**

- Projektna naloga
- Ustni izpit

**40**  
**60**

- Project
- Oral examination

**Materialni pogoji za izvedbo predmeta :**

- Predavalnica z eksperimentalno in avdio-vizualno opremo ter opremo za informacijsko-komunikacijsko tehnologijo (IKT)
- Študijska literatura in programska oprema za informacijsko-komunikacijsko tehnologijo (IKT).

**Material conditions for subject realization**

- A lecture room with experimental and audio-visula equipment and equipment for Information and Communication Technologies (ICT)
- Study literature and software for Information and Communication Technologies (ICT).

**Obveznosti študentov:**

*(pisni, ustni izpit, naloge, projekti)*

- Ustni izpit
- Projektna naloga

**Students' commitments:**

*(written, oral examination, coursework, projects):*

- Oral examination
- Project assignment