Univerza v Mariboru

Fakulteta za naravoslovje in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Analiza in razvoj kurikuluma**
Course title:	**Analysis and development of curriculum**

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

Vrsta predmeta / Course type	Izbirni iz nabora Fizikalno – didaktični predmeti za modul Izobraževalna fizika 2, 3
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	**5**				**290**	**10**

Nosilec predmeta / Lecturer:	**Robert Repnik**
Jeziki / Languages: Predavanja / Lectures:	slovenski/Slovenian
Vaje / Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Ni pogojev.	None.

Vsebina:	**Content (Syllabus outline):**
1. Teoretični temelji zasnove kurikula. 2. Spoznavanje kognitivno problematičnih konceptov in metod za njih vpeljavo na področju izobraževanja fizike in naravoslovja. 3. Analiza in primerjava obstoječih domačih in ujih kurikulov s področja fizike in naravoslovja. 4. Simulacije kurikularnih tem, tudi z upoštevanjem časovnih oziroma	1. Theoretical foundations of projecting curriculum. 2. Conception of cognitively problematic concepts and methods for enrolement in the field of physics and science education. 3. Analysis and comparison of existing home and foreign curricula from the field of physics and life sciences. 4. Simulations of curricular themes by

organizacijskih omejitev. 5. Proces in postopki v razvoju kurikuluma 6. Razvoj kurikula s področja fizike in naravoslovja skozi čas, v Sloveniji in mednarodna primerjava	considering temporal and organisational limitations. 5. The process and procedures in curriculum development 6. Curriculum development in the field of physics and natural science through time, Slovenia and international comparison

Temeljni literatura in viri / Readings:

1) Gerlič: Metodika in metodologija pouka fizike. Maribor: PEF Maribor, 1984.
2) Gerlič: Didaktika pouka fizike v osnovni šoli. PEF MB, 1992
3) Potrjeni kurikulumi fizike in naravoslovnih predmetov
4) Strokovni in znanstveni članki v revijah / Articles published in professional and scientific journals.
5) Spletne strani Oddelka za fiziko in projekta Razvoj naravoslovnih kompetenc
6) Murray Print, Curriculum Development and design, 2nd Ed., 1993, ISBN 1863733620, SRM Production Services Sdn Bhd, Malaysia.

Cilji in kompetence:	**Objectives and competences:**
• Poznavanje in razumevanje konceptov pomembnih za konstrukcijo in razvoj kurikuluma. • Poznavanje problematičnih vsebin. • Poznavanje obstoječih kurikulumov. • Poznavanje poti do kurikularnih sprememb.	• Knowledge and understanding of the concepts that are important for construction and development of curriculum • Knowledge of problematic topics. • Knowledge of existing curricula. • Knowledge of the procedures necessary for enforcement of curricular modifications.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • Usvojiti metode za kvalitativno analizo kurikulumov. • Poznavanje obstoječih kurikulumov in obstoječih medpredmetnih povezav. • Sposobnost formiranja predlogov in obdelave novih vsebin v kurikulumih.	Knowledge and understanding: • To gain the methods for qualitative analysis of curriculum • Knowledge of existing curricula and interdisciplinary connections • The ability to form proposals and handling of novel topics in curricula

Prenesljive/ključne spretnosti in drugi atributi:	Transferable/Key Skills and other attributes:
• Sposobnost recenziranja kurikulumov iz sorodnih naravoslovno tehniških področij. • Iskanje in ustvarjanje medpredmetnih povezav v sorodnih naravoslovno-tehničnih kurikulih.	• The ability to revise the curricula from the related field from natural sciences and technology • Finding and creating interdisciplinary connections in related curricula from natural sciences and technology

Metode poučevanja in učenja:	**Learning and teaching methods:**
• Predavanja • Seminar	• Lectures • Seminar

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt)		Type (examination, oral, coursework, project):
• ustni izpit • seminarska naloga	**60%** **40%**	• Oral exam • Seminar work

Reference nosilca / Lecturer's references:

1. REPNIK, Robert, POPA-NITA, Vlad, KRALJ, Samo. Mixtures of nanoparticles and liquid crystal phases exhibiting topological defects. V: *Proceedings of the 14th International Topical Meeting Optics of Liquid Crystals (OLC 2011)*, (Molecular crystals and liquid crystals, ISSN 1542-1406, vol. 560, iss. 1). Philadelphia: Taylor and Francis, 2012, vol. 560, iss. 1, str. 115-122, ilustr. http://www.tandfonline.com/doi/full/10.1080/15421406.2012.663187, doi: 10.1080/15421406.2012.663187. [COBISS.SI-ID 19420936]
tipologija 1.08 -> 1.01

2. REPNIK, Robert, GRUBELNIK, Vladimir. ICT and competences connected with the subject Environmental education in primary school. *Literacy information and computer education journal*, ISSN 2040-2589, mar. 2011, vol. 2, iss. 1, str. 270-276. http://infonomics-society.org/LICEJ/ICT%20and%20Competences%20Connected%20with%20the%20Subject%20Environmental%20Education%20in%20Primary%20School.pdf. [COBISS.SI-ID 19407624]

3. PLOJ VIRTIČ, Mateja, REPNIK, Robert. Improving quality of the educational process by raising teachers' communication skills. V: LAMANAUSKAS, Vincentas (ur.). *Philosophy of mind and cognitive modelling in education - 2012*, (Problems of education in the 21st century, ISSN 1822-7864, vol. 46). Siauliai: Scientific Methodological Center Scientia Educologica, 2012, str. 109-115. [COBISS.SI-ID 19493128]

4. REPNIK, Robert, GERLIČ, Ivan, AMBROŽIČ, Milan. Prikaz spremembe lomnega količnika evakuiranega zraka z odmikom svetlobnega žarka v valjni geometriji = Demonstration of the change in the refractive index of evacuated air by the deflection of the light beam in cylindrical geometry. *Vakuumist*, ISSN 0351-9716, 2009, letn. 29, no. 4, str. 21-24. [COBISS.SI-ID

23360039]

5. REPNIK, Robert, RANJKESH SIAHKAL, Amid, ŠIMONKA, Vito, AMBROŽIČ, Milan, BRADAČ, Zlatko, KRALJ, Samo. Symmetry breaking in nematic liquid crystals: analogy with cosmology and magnetism. *Journal of physics, Condensed matter*, ISSN 0953-8984, 2013, vol. 25, no. 40, str. 404201-1-404201-10, doi: 10.1088/0953-8984/25/40/404201. [COBISS.SI-ID 20050952]