Univerza v Mariboru

Fakulteta za naravoslovje in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Osnove šolske ergonomije
Course title:	Fundamental School Ergonomics

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Izobraževalna tehnika		2	Poletni
Educational Design		2	Summer

Vrsta predmeta / Course type izbirni / elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
15	15				60	3

Nosilec predmeta / Lecturer: Red. prof. dr. Samo Fošnarič

Jeziki / Languages:	**Predavanja / Lectures:**	slovenski / Slovene
	Vaje / Tutorial:	

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Ni posebnih pogojev.	No special prerequisites.

Vsebina: **Content (Syllabus outline):**

- Ergonomsko – ekološke obremenitve pri pouku
- Antropometrija šolskih otrok,
- Učenčevo toplotno delovno okolje,
- Termoregulacija,
- Univerzalni toplotni indeksi, Zaščita predtoplotnimi obremenitvami,
- Učenčevo svetlobno delovno okolje
- Otroci, delo v šoli in hrup,
- Vpliv hrupa na nekatere človeške dejavnike,
- Nekateri bioenergetski dejavniki učenčevega organizma,
- Dimenzijsko načrtovanje delovnih mest pri praktičnem pouku,
- Ergonomski testi in ocenjevalne metode (OWAS, RULA,…)

Seminar:

Seminar dopolnjuje vsebino predavanj z izvedbo ene ocenjevalne metode delovnega mesta v neposredni pedagoški praksi .

- *Ergonomics-ecological pressures at lessons,*
- *Antropometrics of school children,*
- *Children thermal environment,*
- *Thermoregulation,*
- *Universal thermal index, Protection from thermalpressures.*
- *Children lighting environment,*
- *Children, school work and noise,*
- *Influence of noise on some human factors,*
- *Bioenergetics factors of human body,*
- *Dimensional planning of working places at practical work in school,*
- *Ergonomics tests, methods and analysis of working places. (OWAS, RULA,….)*

Seminar:

Seminar work supplements the lectures with the with the implementation of one job evaluation method in direct pedagogical practice.

Temeljni literatura in viri / Readings:

- BALANTIČ Z., POLAJNAR A. in JEVŠNIK S. (2016):Ergonomija v teoriji in praksi. Nacionalni inštitut za javno zdravje, Ljubljana.
- FOŠNARIČ, S. (2001): Učenci in šolsko delovno okolje (Nekateri uporabni vidiki ergonomije v vzgoji in izobraževanju), PeF, Maribor
- LUEDER, R. and BERG RICE, J.V., (2007). Ergonomics for Children: Designing Products and Places forToddlers to Teens. Taylor & Francis; 1 edition. London.
- SUŠNIK J. (1992): Ergonomska fiziologija. Didakta. Radovljica.

Cilji in kompetence:

Študentje bodo:

- znali pojasniti preprostejše raziskovalne rezultate na področju ergonomije v šoli;
- ponazorili in interpretirali določene kvantitativne ter kvalitativne raziskovalne podatke iz področja predmeta,
- uporabili pridobljena znanja v novih situacijah raziskovanja znotraj ergonomije;

Objectives and competences:

The objective of this course is to acquaint students with fundamental ergonomics and regulation of school interier and exterier, where we consider physiological aspects of children.

Students will:

- able to explain simpler research results in the field of ergonomics in school;
- illustrate and interpret certain quantitative and qualitative research data from the subject area,
- use acquired knowledge in new research situations within ergonomics;

• analizirali, klasificirali in primerjali študijske vire in druge elemente iz pridobljenih baz podatkov na edukacijskem področju s poudarkom na ergonomiji. Študentje bodo pridobili: • . • kompetence usmerjene v razvoj sposobnosti uporabe raziskovalnih virov; • kompetence usmerjene v razvoj sposobnosti reševanja problemov pri vrednotenju praktičnega dela učencev iz vidika uporabe ergonomskih testov. • kompetence usmerjene v razvoj sposobnosti reševanja ergonomskih problemov v šoli z namenom razvijanja IKT in računske pismenosti.	• analyzed, classified and compared study resources and other elements from acquired databases in the field of education with an emphasis on ergonomics. Students will acquire: • competences aimed at developing the ability to use research resources; • competences aimed at developing the ability to solve problems in the evaluation of students' practical work from the point of view of the use of ergonomic tests. • competences aimed at developing the ability to solve ergonomic problems at school with the aim of developing ICT and computational literacy.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: Po zaključku tega predmeta bo študent sposoben: • izkazati znanje in razumevanje izbranih rezultatov, ki jih ponujajo mednarodne raziskave in so namenjeni izboljšanju učnih praks; • pokazati sposobnost kritičnega vrednotenja znanstvenih virov (periodike in monografij); • izkazati znanje in razumevanje ergonomije kot znanstvene discipline; • pokazati sposobnost kritičnega vrednotenja metod pasivnega ergonomskega raziskovanja; • pokazati sposobnost samostojnega načrtovanja in organizacije različnih raziskovalnih strategij pouka s poudarkom na ergonomiji; • izkazati razumevanje uporabe informacijsko komunikacijske tehnologije, vključno s socialnimi omrežji; • izkazati znanje in razumevanje dejavnikov procesnega in učno ciljnega pristopa poučevanja relacije: »Učenje – ergonomija«; • identificirati in rešiti probleme povezane z uporabo raziskovalnih ergonomskih prijemov na	Knowledge and understanding: After completing this course, the student will be able to: • demonstrate knowledge and understanding of selected results offered by international research and aimed at improving teaching practices; • demonstrate the ability to critically evaluate scientific sources (periodicals and monographs); • demonstrate knowledge and understanding of ergonomics as a scientific discipline; • demonstrate the ability to critically evaluate methods of passive ergonomic research; • demonstrate the ability to independently plan and organize various teaching research strategies with an emphasis on ergonomics; • demonstrate an understanding of the use of information and communication technology, including social networks; • demonstrate knowledge and understanding of the factors of the process and learning target approach to teaching the relationship: "Learning - ergonomics"; • to identify and solve problems related to the use of research ergonomic techniques in the

pedagoškem področju in jih smiselno uporabiti tudi na drugih področjih.	pedagogical field and to apply them sensibly in other fields as well.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• visokošolsko predavanje, • metoda razgovora, • metoda raziskovanja, • metoda primera, • metoda reševanja problemov, • kooperativno učenje, individualno učenje, • e-učenje.	• higher education lesson, • method of conversation, • method of research, • case study, • problem solving; • cooperative learning, individual learning. • e-learning.

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

Reference nosilca / Lecturer's references:

- FOŠNARIČ, Samo, LOZINŠEK, Petra, DOLENC, Kosta. Production of practical products in the subjects of environmental studies and science and technology before and after the closure of primary schools due to the COVID 19 pandemic. V: CELEC, Robert (ur.). *Nutrition, physical activity and health in the field of education*. Hamburg: Dr. Kovač, 2022. Str. 7-31, ilustr. Schriftenreihe EUB, Bd. 207. ISBN 978-3-339-13060-0, ISBN 978-3-339-13061-7. ISSN 0945-487X. [COBISS.SI-ID 120701699]
- FOŠNARIČ, Samo, RIZMAN HERGA, Nataša, KANDRIČ, Irena. Objective and subjective perception of the school environment soundscape. V: CELEC, Robert (ur.). *Studies of environmental issues through the prism of integration into the wider environment*. Hamburg: Verlag Dr. Kovač, 2022. Str. 35-50, ilustr., tabele. Erziehung - Unterricht - Bildung, Bd. 205. ISBN 978-3-339-12782-2, ISBN 978-3-339-12783-9. ISSN 0945-487X. [COBISS.SI-ID 100888323]
- FOŠNARIČ, Samo, LOZINŠEK, Petra, DOLENC, Kosta. Production of practical products in the subjects of environmental studies and science and technology before and after the closure of primary schools due to the COVID 19 pandemic. V: CELEC, Robert (ur.). *Nutrition, physical activity and health in the field of education*. Hamburg: Dr. Kovač, 2022. Str. 7-31, ilustr. Schriftenreihe EUB, Bd. 207. ISBN 978-3-339-13060-0, ISBN 978-3-339-13061-7. ISSN 0945-487X. [COBISS.SI-ID 120701699]

- MATEJEK, Črtomir, FOŠNARIČ, Samo, PLANINŠEC, Jurij, REPNIK, Robert. *Some aspects of health in the educational process : water, ergonomy and physical activity as important factors of students' health*. Hamburg: Dr. Kovač, 2019. VIII, 125 str., ilustr. Didaktik in Forschung und Praxis, Bd 102. ISBN 978-3-339-11100-5. ISSN 1616-5586. [COBISS.SI-ID 24637960]