



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	E-učenje
Course title:	E-learning

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Enovit magistrski študijski program druge stopnje Predmetni učitelj	/	5	Poletni Summer
Five-year master's degree program Subject Teacher	/		

Vrsta predmeta / Course type

Izbirni / Elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
15	15		15		45	3

Nosilec predmeta / Lecturer:

Igor Pesek

Jeziki /

Languages:

Predavanja /

Lectures:

Vaje / Tutorial:

SLOVENSKO/SLOVENE

SLOVENSKO/SLOVENE

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

Vsaka izmed naštetih obveznosti v načinih ocenjevanja mora biti opravljena s pozitivno oceno.

Pozitivni oceni pri porfoliu in vajah so pogoj za pristop k pisnemu izpitu.

Vsebina:

- Zgodovinsko ozadje in trenutni trendi v e-učenju
- Koncepti in primeri dobrih praks uspešnega e-učenja
- Teorija in principi e-učenja

Prerequisites:

Each of the mentioned commitments must be assessed with a passing grade.

Passing grade of the Portfolio and coursework are required for taking the written exam.

Content (Syllabus outline):

- Historical background and current trends in elearning.
- Concepts and foundations of best practices for successful teaching with ICT.
- E-learning theory, principles,

- sistemi učnega okolja
- Kombinirano učenje
- Digitalni učni viri in uporaba pri pouku
- sistemi upravljanja učenja in spletna orodja
- uporaba umetne inteligence v izobraževanju

- Blended learning
- Digital learning materials and teaching with digital educational content
- learning management systems, and web-based technology tools.
- Uses of artificial intelligence in education

Temeljni literatura in viri / Readings:

- Gerlič. I, Sodobna informacijska tehnologija v izobraževanju. DZS, Ljubljana, 2000.
- Ruth C. Clark, Richard E. Mayer, E-learning and the science of instruction : proven guidelines for consumers and designers of multimedia learning, John Wiley & Sons, 2011
- William Kendall Horton, E-learning by design, John Wiley & Sons, 2006
- S. Carliner, P. Shank, The e-learning handbook : past promises, present challenges, John Wiley & Sons, 2008
- Ruth C. Clark und Richard E. Mayer, e-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning, Wiley, 2016
- Catlin R Tucker; Tiffany Wycoff; Jason T Green, Blended learning in action : a practical guide toward sustainable change, Thousand Oaks, 2017
- DigComp 2.2, dostopno na <https://www.zrss.si/wp-content/uploads/2023/08/DigComp-2-2-Okvir-digitalnih-kompetenc.pdf>
- DigCompEdu, dostopno na <https://www.zrss.si/pdf/digcompedu.pdf>
- European Commission: Directorate-General for Education, Youth, Sport and Culture, Blended learning for high quality and inclusive primary and secondary education – Handbook, Publications Office of the European Union, 2021, <https://data.europa.eu/doi/10.2766/237842>

Cilji in kompetence:

- seznaniti se s teoretičnimi izhodišči, učnimi tehnikami in tehnologijami,
- izbere in uporabi metode e-učenja v različnih učnih situacijah
- uporabljati in upravljati spletna učna okolja
- analizirati osnovne principe e-gradiv
- primerjati orodja za izdelavo e-gradiv
- ovrednotiti različne e-učbenike
- prepoznati koristne novejšje tehnologije s področja e-učenja
- seznaniti se z osnovnimi koncepti umetne inteligence in uporabe UI v izobraževanju

Objectives and competences:

- Basic introduction to online teaching and learning techniques and technologies.
- select and use of e-learning methods in a variety of learning settings;
- Use and manage online learning environments
- analyze principles of e-learning materials
- compare the authoring tools for preparation of e-learning materials
- evaluate different e-textbooks
- recognize useful new technologies and trends in e-learning
- basic introduction to Artificial intelligence and its uses in education

Predvideni študijski rezultati:

- Analizirati strokovno-teoretična izhodišča e-učenja in jih kritično ovrednotiti v kontekstu sodobnih izobraževalnih praks.

Intended learning outcomes:

- Analyse the theoretical foundations of e-learning and critically evaluate them within the context of contemporary educational practices.

• Ovrednotiti prednosti in slabosti uporabe e-izobraževanja glede na različne ciljne skupine, cilje izobraževanja in kontekste izvedbe. • Ustvariti kakovostna e-učna gradiva z uporabo pedagoških in tehnoloških načel ter jih prilagoditi različnim učnim ciljem in uporabnikom. • Načrtovati, izvajati in reflektirati pouk v spletnih učilnicah, ob tem pa uporabiti ustrezne metode in vrednotiti učinkovitost poučevanja. • Analizirati temeljne koncepte umetne inteligence in vrednotiti možnosti ter izzive njene uporabe v izobraževalnih procesih z vidika pedagoške smiselnosti, etike in učinkovitosti.	• Evaluate the advantages and disadvantages of e-education with regard to different target groups, educational objectives, and implementation contexts. • Create high-quality e-learning materials by applying pedagogical and technological principles, and adapt them to diverse learning goals and user needs. • Plan, implement, and reflect on teaching in virtual classrooms, while applying appropriate methods and assessing the effectiveness of instruction. • Analyse the fundamental concepts of artificial intelligence and evaluate the opportunities and challenges of its application in educational processes from the perspective of pedagogical relevance, ethics, and effectiveness.
Metode poučevanja in učenja:	Learning and teaching methods:
• Predavanja • Laboratorijske vaje • Individualno delo Poučevanje in učenje potekata z didaktično uporabo informacijsko-komunikacijske tehnologije.	• Predavanja • Laboratorijske vaje • Individualno delo Teaching and learning is done with didactical use of ICT.

Načini ocenjevanja:

Delež (v %) /

Assessment:

Weight (in %)

pisni izpit.	50 %,	written exam.
Portfolio	50 %	Portfolio

Reference nosilca / Lecturer's references:

1. VEBER, Matej, PESEK, Igor, ABERŠEK, Boris. Assessment of supporting visual learning technologies in the immersive VET cyber-physical learning model. *Education sciences*. 2023, vol. 13, iss. 6, [article no.] 608, 19 str., ilustr. ISSN 2227-7102. <https://www.mdpi.com/2227-7102/13/6/608>, Digitalna knjižnica Univerze v Mariboru – DKUM, DOI: 10.3390/educsci13060608, DOI: 20.500.12556/DKUM-87405. [COBISS.SI-ID 155720451]
2. VEBER, Matej, PESEK, Igor, ABERŠEK, Boris. Implementation of the modern immersive learning model CPLM. *Applied sciences*. 2022, vol. 12, iss. 6, 17 str. ISSN 2076-3417. [Digitalna knjižnica Univerze v Mariboru – DKUM](https://www.mdpi.com/2076-3417/12/6/17), DOI: 10.3390/app12063090. [COBISS.SI-ID 102763523]
3. FLOGIE, Andrej, ABERŠEK, Boris, KORDIGEL ABERŠEK, Metka, SÍK LÁNYI, Cecília, PESEK,

- Igor. Development and evaluation of intelligent serious games for children with learning difficulties : observational study. *JMIR serious games : Elektronski vir*. 2020, vol. 8, no. 2, str. 1-16, ilustr. ISSN 2291-9279. DOI: [10.2196/13190](https://doi.org/10.2196/13190). [COBISS.SI-ID [13487363](#)]
4. TOMIĆ, Maja Katarina, ABERŠEK, Boris, PESEK, Igor. GeoGebra as a spatial skills training tool among science, technology engineering and mathematics students. *Computer applications in engineering education*. [Online ed.]. 2019, vol. 27, iss. 6, str. 1506-1517. ISSN 1099-0542. DOI: [10.1002/cae.22165](https://doi.org/10.1002/cae.22165). [COBISS.SI-ID [24744712](#)]
3. WEIGEND, Michael, VANÍČEK, Jiří, PLUHÁR, Zsuzsa, PESEK, Igor. Computational thinking education through creative unplugged activities. *Olympiads in informatics*. 2019, vol. 13, str. 171-192. ISSN 1822-7732. DOI: [10.15388/oi.2019.11](https://doi.org/10.15388/oi.2019.11). [COBISS.SI-ID [24747016](#)]
4. FLOGIE, Andrej, ABERŠEK, Boris, PESEK, Igor. The impact of innovative learning environments on social competences of youth. *Research in learning technology*. 2019, vol. 27, str. 1-14. ISSN 2156-7069. DOI: [10.25304/rlt.v27.2214](https://doi.org/10.25304/rlt.v27.2214). [COBISS.SI-ID [24743944](#)]
5. ŠORGO, Andrej, DOJER, Brina, GOLOB, Nika, REPNIK, Robert, REPOLUSK, Samo, PESEK, Igor, PLOJ VRTIČ, Mateja, ŠPERNJAK, Andreja, ŠPUR, Natalija. Opinions about STEM content and classroom experiences as predictors of upper secondary school students' career aspirations to become researchers or teachers. *Journal of research in science teaching*. Dec. 2018, vol. 55, iss. 10, str. 1448-1468, ilustr. ISSN 0022-4308. DOI: [10.1002/tea.21462](https://doi.org/10.1002/tea.21462). [COBISS.SI-ID [23839240](#)]
6. MUSIL, Bojan, GARTNER, Smiljana, PESEK, Igor, KRAŠNA, Marjan. ICT competences assessment through ICT escape room. V: SKALA, Karolj (ur.). *MIPRO 2019 : 42nd International Convention, May 20-24, 2019, Opatija, Croatia : proceedings*. Rijeka: Croatian Society for Information and Communication Technology, Electronics and Microelectronics - MIPRO, 2019. Str. 730-734, ilustr. MIPRO ... (CD-ROM). ISSN 1847-3946.
7. REPNIK, Robert, ROBIČ, Dominik, PESEK, Igor. Physics learning in primary and secondary schools with computer games : an example - Angry birds. V: GRADINAROVA, Boyka (ur.). *E-learning : instructional design, organizational strategy and management*. Rijeka: InTech, 2015. Str. 203-225, ilustr. ISBN 978-953-51-2188-6.