UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	**Osnove tehnike in tehnologije**
Course title:	**Base for science and technology**

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Enovit magistrski študijski program Predmetni učitelj 2. stopnje	/	1	Zimski/ Winter 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	Vaje Tutorial	Lab. vaje Laboratory work	Terenske vaje Field work	Samost. delo Individ. work	ECTS
15	5		55		105	6

Nosilec predmeta / Lecturer: Andrej Flogie

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

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

Vsebina:	Content (Syllabus outline):
Predavanja: • Filozofija in etika tehnologije; • kratka zgodovina časa in tehnološkega prostora – od kamnite sekire do humanoidnih robotov in potovanj v vesolje; • osnove znanosti in tehnologij ; • razvoj proizvodnih tehnologij in njihov vpliv na spremembe človeka v družbi; • načrtovanje, priprava in upravljanje življenaj in proizvodnje v njem; • gradiva: življenjski krog gradiv s poudarkom na reciklaži in varstvu okolja;	Lectures: • Phylosophy and ethic of technology; • short history of time and technological space – from stone ax to humanod robots and space travel; • base of science and technologies; • development of production technologies and their influence on the changes of human behaviour and human society. • planning and management of life and production in it; • materials: life cycle of materials, recycling and environment protection;

Vaje in seminar: • Ogled različnih sodobnih računalniško podprtih tehnologij (CAD/CAM tehnologij) ; • seminar aplikativno dopolnjuje vsebino predavanj z reševanjem praktičnih problemov.	Tutorials and seminar: • Excursion in different contemporary computer supported technologies (CAD/CAM technologies robots); • seminar work supplements the lectures .

Temeljna literatura in viri / Readings:

- Aberšek, B. (1995) Tehnologija in obdelava gradiv, Didakta, Radovlica.
- Flogie, A., Aberšek, B. (2015) Transdisciplinary approach of science, technology, engineering and mathematics education. Journal of Baltic science education. Vol. 14, no. 6, str. 779-790. ISSN 1648-3898.
- Aberšek, B., Borstner, B., Bregant, J. (2014) Cognitive educator at the edge of the Chaos, Cambridge Schoolar Press.
- Okasha, S. (2008) Filozofija znanosti, Založba Krtina, Ljubljana.

Cilji in kompetence:	**Objectives and competences:**
• Analizirati znanstveni in tehnološki napredek skozi čas in njegov vpliv na razvoj družbe; • podati teoretično znanje s področja vrednotenja in izbire posameznih gradiv in tehnologij; • podati teoretično znanje s področja vrednotenja in izbire obdelovalnih tehnologij; • prikazati praktično uporabo predhodno pridobljenih teoretičnih znanj na praktičnih primerih; • spodbujanje študentov k kreativnemu in samostojnemu razmišljanju.	• To analyse science and technological development and their influence on the society through the time; • to provide theoretical knowledge from area of assessment and selection of contemporary materials and production technologies; • to provide theoretical knowledge about selecting appropriate technologies for product development; • to demonstrate practical use of previously accumulated theoretical knowledge on the practical examples. • to encourage the students to creative and independent thinking.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Znanje in razumevanje: • poznavanje splošnih napotkov in pravil za izbiro gradiv in ustreznih obdelovalnih tehnologij; • poznavanje načinov za učinkovito načrtovanje; • poznavanje splošnih kriterijev za izbiro gradiv in ustreznih tehnologij; • poznavanje metod in smernic za tehnološki razvoj izdelka;	**Knowledge and understanding:** • general knowledge and rules for selecting materials and suitable production technologies; • knowledges for effective planning; • knowledge of general criteria for selecting materials and adequate production technologies; • knowledge, methods and guidelines for technological product development;

• razumevanje sovisnosti različnih znanj in postopkov pri reševanje praktičnih problemov. **Prenesljive/ključne spretnosti in drugi atributi:** • *uporaba informacijske tehnologije: uporaba orodij za izdelavo in oblikovanje;* • *reševanje problemov: ocenjevanje obstoječih in lastnih tehnoloških rešitev;* • *kombinirana analiza in uporaba različnih znanj za reševanje praktičnih problemov;* • *načrtovanje tehnologije za izdelavo izdelka z uporabo sodobnih metod.*	• understanding of relationships between different skills and procedures for5 solving practical problems. **Transferable/Key Skills and other attributes:** • use of information technology: use of tools for creating and designing technological process; • problem solving: evaluation of existing and proper program solutions; • combined analyse and use of different skills for solution of practical problems; • design of technological process using advanced approaches.

Metode poučevanja in učenja:	**Learning and teaching methods:**
• frontalna predavanja, skupinsko delo; • izdelava seminarske naloge, • diskusije v elektronskem forumu, e-učenje.	• frontal lectures, work in groups; • seminar work, • discussions in e-forum, e-learning

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
• ustni izpit • seminarska naloga	**60%** **40%**	• oral exam • seminar paper

Reference nosilca / Lecturer's references:

- Flogie, A., Barle Lakota, A., Aberšek, B. (2018) The psychosocial and cognitive influence of ICT on competences of STEM students. *Journal of Baltic science education*., vol. 17, no. 2, str. 267-276, tabele. ISSN 1648-3898. [COBISS.SI-ID 23819528].
- Aberšek, B., Flogie, A. (2022) *Human awareness, energy and environmental attitudes*. Cham: Springer, XVIII, 241 str., ilustr. ISBN 978-3-031-05870-7, ISBN 978-3-031-05871-4. DOI: 10.1007/978-3-031-05871-4. [COBISS.SI-ID 115083779]
- Lipovec, A., Flogie, A. (2023) Empowering future teachers : unveiling their attitudes and knowledge about AI in Slovenian K-12 education. V: *12th Mediterranean Conference on Embedded Computing (MECO), 6-10 June 2023*. 2023 12th Mediterranean Conference on Embedded Computing (MECO), 6-10 June 2023, Budva, Montenegro. ISBN 979-8-3503-2291-0. DOI: 10.1109/MECO58584.2023.10155010. [COBISS.SI-ID 159824131]
- Klemenčič, E., Flogie, A., Repnik, R. (2022) Science education in Slovenia. V: HUANG, Ronghuai (ur.). *Science education in countries along the belt & road : future insights and new requirements*. Singapore: Springer, cop. Str. 471-485. ISBN 978-981-16-6954-5, DOI: 10.1007/978-981-16-6955-2_28. [COBISS.SI-ID 104126979].

- Plavec, K., Kerneža, M., Aberšek, B., Flogie, A. (2019) Management of evaluation and assessment processes in lower secondary schools in Slovenia. *International journal of management in education*. Vol. 13, no. 3, str. 218-233. ISSN 1750-385X. [COBISS.SI-ID 24459528],