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
30	15		30		105	6

Nosilec predmeta / Lecturer: Andrej Flogie, Srečko Glodež

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

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

Ni posebnih pogojev

Prerequisits:

No special prerequisites.

Vsebina:

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;

Content (Syllabus outline):

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

Temeljna literatura in viri / Readings:

- Aberšek, B., Tehnologija in obdelava gradiv, Didakta, Radovlica, 1995
- Flogie, A., Aberšek, B. Transdisciplinary approach of science, technology, engineering and mathematics education. Journal of Baltic science education. 2015, vol. 14, no. 6, str. 779-790. ISSN 1648-3898.
- Copeland, J.(1993/2007) Artificial Inteligence: A philosophical Introduction, Blackwell Publishing
- Bermúdez, J. J. (2010) Cognitive Science, Cambridge University Press, Cambridge
- Aberšek, B., Borstner, B., Bregant, J. (2014) Cognitive educator at the edge of the Chaos, Cambridge Schoolar Press
- Okasha, S. Filozofija znanosti, Založba Krtina, Ljubljana, 2008

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;	**Knowledge and understanding:** • general knowledge and rules for selecting materials and suitable production technologies; • knowledges for effective planning;

• poznavanje splošnih kriterijev za izbiro gradiv in ustreznih tehnologij; • poznavanje metod in smernic za tehnološki razvoj izdelka; • 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.*	• knowledge of general criteria for selecting materials and adequate production technologies; • knowledge, methods and guidelines for technological product development; • 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:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt):		Type (examination, oral, coursework, project):
• diskusije v e - forumu,	**20 %**	• discussion in electronic forums,
• seminarske naloga,	**40 %**	• seminar works,
• pisni izpit,	**20 %**	• written examination,
• ustni izpit.	**20 %**	• oral examination.

Reference nosilca / Lecturer's references:

- Flogie, A. Načrtovanje in optimiranje procesov s posebnim poudarkom na vzdrževanju tehničnih sistemov. Maribor: Fakulteta za strojništvo, 2011
- Flogie, A., Aberšek, B. Transdisciplinary approach of science, technology, engineering and mathematics education. Journal of Baltic science education. 2015, vol. 14, no. 6, str. 779-790. ISSN 1648-3898.
- Fiksl, M., Flogie, A., Aberšek, B. Innovative teaching/learning methods to improve science, technology and engineering classroom climate and interest. Journal of Baltic science education. 2017, vol. 16, no. 6, str. 1009-1019, tabele. ISSN 1648-3898

- Cencelj, Z., Kordigel Aberšek, M., Aberšek, Boris, Flogie, A. Role and meaning of functional science, technological and engineering literacy in problem-based learning. Journal of Baltic science education. 2019,