



Univerza v Mariboru

Fakulteta za kemijo  
in kemijsko tehnologijo

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

<b>Predmet:</b>	Kemijska izobraževalna komunikacijska tehnologija
<b>Course title:</b>	Chemical education communication technology

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.	Zimski/ Autumn
Five-year master's degree program Subject Teacher			

**Vrsta predmeta / Course type**

**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
30	30				150	7

**Nosilec predmeta / Lecturer:**

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

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

Ni posebnih pogojev.

**Prerequisites:**

No special prerequisites.

**Vsebina:****Predavanja:**

Elektronski način poučevanja in učenja.  
Pri predmetu študentje spoznajo in usvojijo naslednja znanja in veščine:

- elektronsko okolje za komunikacijo študent/profesor. Poudarek bo na:
  - a) vnašanju besedila in sporočil,
  - b) nalaganja dokumentov v elektronski obliki,
  - c) pošiljanja rezultatov izpitov,
  - d) izdelavi banke za e-teste in
  - e) izvajanju e-testov.
- osnove izdelave elektronskih študijskih gradiv.

**Seminar:**

Izdelava seminarske naloge v obliki e-gradiva.

**Content (Syllabus outline):****Lectures:**

The electronic manner of teaching and learning.  
At the course students adopt the following knowledge and skills:

- electronic environment for communication student/lecturer. The emphasis will be:
  - a) how to input the text and messages,
  - b) how to load documents on the portal,
  - c) how to send exam results,
  - d) how to prepare the bank with questions for e-test,
  - e) how to execute e-tests.
- the basis of preparation the electronic study material.

**Seminar:**

Elaboration of the seminary work as electronic study material.

**Temeljni študijski viri / Textbooks:**

- M. Krajnc, Elektronsko poučevanje in učenje, študijsko gradivo pri predmetu KIKT, (elektronska verzija), 2016
- Navodila za učno poučevalno okolje Moodle, dostopna na: <https://estudij.um.si/> Priporočena dodatna literatura:
- Essentials of Chemical Education, Springer-Verlag, Berlin Heidelberg, 2012
- Jimoyiannis, Research on e-Learning and ICT in Education, Springer New York Dordrecht Heidelberg London, 2012
- M. Gupta-Bhowon idr., Chemistry Education in the ICT Age, Springer, 2009

**Cilji:**

Osvojiti moderne tehnologije, ki izboljšajo in olajšajo delo v izobraževalnem procesu.

**Objectives:**

adopt the technologies which improve and ease work in educational process.

**Predvideni študijski rezultati:****Znanje in razumevanje:**

razumevanje in uporaba elektronskih tehnologij za učinkovitejši študij.

**Intended learning outcomes:****Knowledge and understanding:**

understanding and use of electronic technologies for efficient study.

**Transferable/Key Skills and other attributes:**

qualification of transferring the knowledge how

**Prenesljive/ključne spretnosti in drugi atributi:**

sposobnost prenašanja znanja dela z modernimi učnimi tehnologijami.

to work with modern learning technologies.

**Metode poučevanja in učenja:**

- elektronski način poučevanja in učenja,  
- seminarsko delo,  
- mentorski način poučevanja.

**Learning and teaching methods:**

- electronic manner of teaching and learning,  
- seminar work,  
- mentoring manner of teaching.

**Načini ocenjevanja:**

Delež (v %) /  
Weight (in %)

**Assessment:**

Pri predmetu je predvideno tudi elektronsko preverjanje znanja. Uspešno izveden elektronski test je enakovreden ustnemu izpraševanju. Izpit je opravljen, če so pozitivno opravljene naslednje obveznosti:

- ustno izpraševanje,  
- izdelana seminarska naloga,  
- predstavitev seminarske naloge

**40**  
**40**  
**20**

The electronic examination is also expected at the course. If student successfully passes e-test, then the oral part of the final exam is done. Student passes the examination if s(he) successfully passed the following obligations:

- oral examination,  
- elaboration of seminary work,  
- presentation of seminary work.

**Materialni pogoji za izvedbo predmeta :**

- predavalnica z multimedijskimi pripomočki,  
- računalniška učilnica.

**Material conditions for subject realization:**

- lecture room with multimedia facilities,  
- computer room.

**Obveznosti študentov:**

- ustni/elektronski izpit,  
- izdelana seminarska naloga.

**Students' commitments:**

- oral/electronic exam,  
- completed seminary work

**Reference nosilca / Lecturer's references:**

- NEMET, Andreja, ISAFIADE, Adeniyi, KLEMEŠ, Jiri, KRAVANJA, Zdravko. Two-step MILP/MINLP approach for the synthesis of large-scale HENS. *Chemical Engineering Science*, ISSN 0009-2509. [Print ed.], April 2019, vol. 197, str. 432-448, doi: [10.1016/j.ces.2018.06.036](https://doi.org/10.1016/j.ces.2018.06.036). [COBISS.SI-ID [21528598](https://www.cobiss.si/id/21528598)],
- SRINIVASAN, Rajagopalan, SRINIVASAN, Babji, IQBAL, M Umar, NEMET, Andreja, KRAVANJA, Zdravko. Recent developments towards enhancing process safety : inherent safety and cognitive engineering. *Computers & chemical engineering*, ISSN 0098-1354. [Print ed.], 2 Sept. 2019, vol. 128, str. 364-383, doi: [10.1016/j.compchemeng.2019.05.034](https://doi.org/10.1016/j.compchemeng.2019.05.034). [COBISS.SI-ID [22374934](https://www.cobiss.si/id/22374934)],

- NEMET, Andreja, KLEMEŠ, Jiri, KRAVANJA, Zdravko. Process synthesis with simultaneous consideration of inherent safety-inherent risk footprint. *Frontiers of Chemical Science and Engineering*, ISSN 2095-0179, Dec. 2018, vol. 12, iss. 4, str. 645-762, doi: [10.1007/s11705-018-1779-7](https://doi.org/10.1007/s11705-018-1779-7). [COBISS.SI-ID [21999126](#)],
- NEMET, Andreja, KLEMEŠ, Jiri, KRAVANJA, Zdravko. GHG emissions reduction by improving efficiency of utilities' transport and use and cross-sectorial energy integration. *Chemical engineering transactions*, ISSN 2283-9216. [Online ed.], 2018, vol. 63, str. 19-24, doi: [10.3303/CET1863004](https://doi.org/10.3303/CET1863004). [COBISS.SI-ID [21402390](#)],
- NEMET, Andreja, KLEMEŠ, Jiri, KRAVANJA, Zdravko. Potential of cross-sector energy integration for gas emission mitigation. *Chemical engineering transactions*, ISSN 2283-9216. [Online ed.], 2019, vol. 72, str. 115-120, doi: [10.3303/CET1972020](https://doi.org/10.3303/CET1972020). [COBISS.SI-ID [22127382](#)]