UČNI NAČRT PREDMETA / SUBJECT SPECIFICATION	
Predmet:	Toksikologija
Subject Title:	Toxicology

Študijski program Study programme	Letnik Year	Semester Semester
Varstvo okolja in ekotehnologije	2	**2 ali 3**

Predavanja Lectures	Sem. vaje Tutorial	Lab. vaje Lab. work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
20	15	15		130	**6**

Nosilec predmeta / Lecturer: prof. dr. Bojan Sedmak / Bojan Sedmak, Ph.D, Full Prof.

Jeziki / SL Languages:	**Predavanja / Lectures:**	20
	Vaje / Tutorial:	30

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

Zaželjen je končan dodiplomski študij naravoslovne smeri.
Pozitivno ocenjen seminar je pogoj za pristop h končnemu izpitu.

Prerequisits:

It is desirable that the students have B.Sc. degree in natural science.
To access final assessment positive evaluation of the seminar is required.

Vsebina:

1 Uvod – (zgodovina, tipi toksičnih snovi).
2 Distribucija toksičnih snovi – (absorbcija, distribucija, metabolizem).
3 Odgovor na prisotnost toksinov.
4 Metabolizem toksičnih snovi – (tipi metabolnih sprememb, reakcije 1. faze, reakcije 2. faze, nadzor metabolizma, zastrupitev proti razstrupitvi.
5.Toksičnost zdravil.
6 Aditivi in kontaminanti.
7 Industrijska toksikologija.
8 Pesticidi.
9. Toksične snovi v gospodinjstvu.
10. Naravni produkti.
11 Biokemijski mehanizmi toksičnosti – primeri.

Content (Syllabus outline):

1. Introduction – (History, Types of toxic substances).
2. Disposition of toxic substances – (Absorption, Distribution, Metabolism).
3. Toxic responses to foreign compounds.
4. Metabolism of toxic compounds – (Types of metabolic change, Phase 1 reactions, Phase 2 reactions, Control of metabolism, Toxication vs. detoxication).
5. Drugs as toxins.
6. Food additives and contaminants.
7. Industrial toxicology.
8. Pesticides.
9. Household products.
10. Natural products.
11.Biochemical mechanisms of toxicity – specific examples.

Temeljni literatura in viri / Textbooks:

J.A. Timbrell (2002). Introduction to toxicology. CRC, 3rd Ed.

Izbrana poglavja / Selected chapters:
J.A. Timbrell (2003). Principles of Biochemical Toxicology. Taylor&Francis.
Casarett and Dull's Toxicology (2001). The basic Science of Poisons. (Ed. Klaasen C.D.), McGraw-Hill 6th Ed.

Cilji:

Objectives:

Študenti bodo seznanjeni z osnovami toksikologije Vpišite predmetne cilje v enem ali dveh stavkih, na katere se morajo logično navezovati študijski rezultati. Uporabljajte glagole v nedoločniku, npr. študente seznaniti (to acquaint), usposobiti (to qualify), spodbuditi pridobitev določenega znanja (to encourage the acquisition of), ipd.	To acquaint the students with basic toxicology and the biochemical mechanisms of toxicity. To qualify them to manage tasks, to identify and solve problems in the field of toxicology and to encourage them to undertake independent learning.

Predvideni študijski rezultati:	**Intended learning outcomes:**
<u>Znanje in razumevanje:</u> Po uspešnem zaključku kurza bo kandidat sposoben: - izkazati trdo poznavanje osnov toksikologije, - prepoznavati toksikološke probleme in jih reševati, - uporabiti primerna orodja za rešitev problema, - razumeti mehanizme toksičnosti in opredeliti možne ciljne organe, - bo seznanjen z biološko vlogo toksinov pri njihovi uporabi kot molekularna orodja, - pokazati sposobnost zbiranja in razvrščanja različnih zamisli in informacij s področja toksikologije.	Knowledge and Understanding: On successful completion of the course the candidate will: - be able to demonstrate a foundation of underpinning knowledge in basic toxicology, - to recognize toxicological problems and be able to understand and solve them, - to chose appropriate tools to solve the problem, - to understand the mechanisms of toxicity and define the possible target organs, - be acquainted with the biological role of toxins used as molecular tools, - be able demonstrate the ability to collect and categorize ideas and information in the field of toxicology.
<u>Prenesljive/ključne spretnosti in drugi atributi:</u> Sposobnost opravljanja lastne vloge, odgovornosti in razpolaganje s časom. Sposobnost neodvisnega učenja. Sposobnost pisne in ustne komunikacije. Sposobnost uporabe informacijskih tehnologij. Sposobnost skupinskega dela.	**<u>Transferable/Key Skills and other attributes:</u>** The management of own roles, responsibilities and time. The ability to undertake independent learning. Effective communication verbal and written. The ability to demonstrate competency in IT skills. The ability of working in team.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Poučevanje poteka v obliki: - predavanj, - seminarjev, - praktične vaje s pomočjo računalnika, - problemsko usmerjeno učenje.	Teaching methodologies are: - Lectures, - Seminars, - Computer assisted practical work, - Problem based learning (PBL).

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Sprotno delo (vključno seminar) **Preizkus znanja (pismen ali ustni)** Preverjanje znanja. Oceno sestavlja pisni oz. ustni izpit (50 % ocene) in ocena PBL (50 % ocene – rešitev problema, pisni izdelek, njegova predstavitev). Izpit opravi tisti kandidat, ki skupno iz vseh aktivnosti, ki se ocenjujejo zbere 60% ali več točk. Ocenjevalna lestvica je od 1 do 10 (negativno od 1 do 5, pozitivno od 6 do 10).	**50%** **50%**	**Coursework (seminar incl.)** **Examination (written or oral)** The assessment is through written or oral test 50% and PBL (seminar) 50%. The pass mark is 60%. A candidate will be deemed to have passed , where the averall mark of 60% or above (6 – 10), has been achieved taking all components of assessment into account.

Materialni pogoji za izvedbo predmeta :	Material conditions for subject realization:
Predavalnica z multimedijsko opremo in računalniška učilnica.	Classroom with the multimedia equipment. Computer classroom.

Obveznosti študentov:	Student's commitments:
Pisni ali ustni izpit, udeležba na seminarskih nalogah, projekti.	Written or oral examination, presence at coursework, projects.
Za pristop k izpitu je obvezna prisotnost na vajah, izdelana seminarska naloga in zagovor seminarskih nalog.	Access to the final assessment requires the presence at computer assisted practical work and positive assessment of the seminar.