UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Organska sinteza
Course title:	Organic synthesis

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	**/**	**3**	**Zimski autumn**
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** **Lab. work**	**Druge oblike študija**	**Samost. delo** **Individ. work**	**ECTS**
15			**15**		**60**	**3**

Nosilec predmeta / Lecturer: Sebastijan Kovačič

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

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisits:**
Znanje iz splošne in organske kemije pridobljeno na predhodnih stopnjah študija.	Knowledge of general and organic chemistry acquired during previous study cycle. .

Vsebina:	**Content (Syllabus outline):**

• Načrtovanje organskih sintez s termičnimi metodami. Retrosintezna analiza – osnove: sintoni, sintezni ekvivalenti, konverzija funkcionalnih skupin (FGI), dodajanje funkcionalnih skupin (FGA), vrstni red transformacij, sprememba polarnosti, kemo-, stereo- in regioselektivnost, zaščitne skupine. Retrosintezna analiza – primeri osnovnih sinteznih metod v organski kemiji; - cepitve na aromatskih sistemih - cepitve ene skupine (RCO-X in RX cepitve) - cepitve ene skupine (C-C cepitve – alkohol) - cepitve ene skupine (C-C cepitve – ketoni) Seminarji: V okviru seminarjev bodo obdelani primeri sinteze nekaterih enostavnejših organskih spojin.	Planning of organic synthesis via thermal methods. Retrosynthetic analysis – basic: sintons, synthetic equivalents, functional gropu interconversion (FGI), functional group addition (FGA), changing the polarity, chemo-, stereo- and regioselectivity, protecting groups. Retrosynthetic analysis – basic cases of used synthetic methods in organic chemistry: - the disconnections on aromatic systems - one group disconnections (RCO-X and RX disconnections) - one group disconnections (C-C disconnections – alcohols) - one group disconnections (C-C disconnections – ketones) Seminars: The synthesis of selected organic compounds will be performed during seminars.

Temeljni literatura in viri / Readings:

- Warren S., Organic Synthesis: The Disconnection Approach, 2ne Ed., Wiley 2008, chapters 1-5, 8-15-
- Waren S., Wyatt P., Workbook for Organic Synthesis: The Disconnection Approach, Wiley, 2009.

Dopolnilna literatura:

J. Clayden, N. Graves, S., Warren: Organic Chemistry, 2nd Ed., Oxford University Press, 2012.

Cilji in kompetence:	**Objectives and competences:**
Spoznati metodo retrosintetske analize. Biti sposoben načrtovati sintezo organskih molekul iz preprostejših prekurzorjev.	To know: The method of retrosynthetic approach to organic synthesis. To be abble to plan the synthesis of organic molecules from less complex molecules.

Predvideni študijski rezultati:	**Intended learning outcomes:**
Študent bo sposoben: - Razložiti posamezne mehanizme organskih reakcij - Uporabiti metodo retrosintetske analize Načrtovati sintezo enostavnih ciljnih molekul**Prenesljive/ključne spretnosti in drugi atributi:**	Student will be able to: - Explain the mechanisms of organic reactions - Use the principles of retrosynthetic analysis Plan the synthesis of basic target molecules

Načrtovanje organskih sintez.	**Transferable/Key Skills and other attributes:** Planing of organic synthesis.

Metode poučevanja in učenja:	**Learning and teaching methods:**
Predavanja, laboratorijske vaje, seminar	Predavanja, laboratorijske vaje, seminar

Načini ocenjevanja:	Delež (v %) / Weight (in %)	**Assessment:**
Način (pisni izpit, ustno izpraševanje, naloge, projekt) Izpit je opravljen, če so pozitivno opravljene vse naslednje obveznosti: Pisni izpit Lab. vaje	 80 20	Type (examination, oral, coursework, project): Student passes the examination if s(he) successfully passed all the following obligations: Writtenexam Exp. course

Reference nosilca / Lecturer's references:

KOTNIK, Tomaž, ŽERJAV, Gregor, PINTAR, Albin, ŽAGAR, Ema, KOVAČIČ, Sebastijan. Azine- and imine-linked conjugated polyHIPEs through Schiff-base condensation reaction. Polymer chemistry. [DOI: 10.1039/d1py01467f.

STIERNET, Pierre, MAZAJ, Matjaž, **KOVAČIČ, Sebastijan**, DEBUIGNE, Antoine. Bifunctional imidazolium/amine polymer foams: one-pot synthesis and synergistic promotion of CO2 sorption. *Chemical engineering journal*. 2022, 38, 1385-8947. DOI: 10.1016/j.cej.2022.137012.

KOTNIK, Tomaž, ŽERJAV, Gregor, PINTAR, Albin, ŽAGAR, Ema, **KOVAČIČ, Sebastijan**. Azine- and imine-linked conjugated polyHIPEs through Schiff-base condensation reaction. *Polymer chemistry,* 2022, 13, 474-478.

KOTNIK, Tomaž, ŽERJAV, Gregor, PINTAR, Albin, ŽAGAR, Ema, **KOVAČIČ, Sebastijan**. Highly porous poly(arylene cyano-vinylene) beads derived through the Knoevenagel condensation of the oil-in-oil-in-oil double emulsion templates. *ACS macro letters*. 2021,10, 1248-1253.

JURJEVEC, Sarah, ŽERJAV, Gregor, PINTAR, Albin, ŽAGAR, Ema, **KOVAČIČ, Sebastijan**. Tunable poly(aryleneethynylene) networks prepared by emulsion templating for visible-light-driven photocatalysis. *Catalysis today*. 2021, 361, 146-151.

JURJEVEC, Sarah, DEBUIGNE, Antoine, ŽAGAR, Ema, **KOVAČIČ, Sebastijan**. An environmentally benign post-polymerization functionalization strategy towards unprecedented poly(vinylamine) polyHIPEs. *Polymer chemistry*. 2021, 12, 1155-1164.