NAME OF THE COURSE	Organic Chemistry II					
Code	PMC006	Year of study	2nd undergraduate study			
Course teacher	Dr Renata Odžak, Associate Professor	Credits (ECTS)	6.0			
Associate teachers		Type of instruction (number of hours)	L	S	E	F
			45	15		
Status of the course	obligatory	Percentage of application of e-learning	20%			

COURSE DESCRIPTION	
Course objectives	Knowledge of basic groups of organic compounds, their structure, terminology, physical properties, preparation and chemical reactions.
Course enrolment requirements and entry competences required for the course	Passed Exam from General Chemistry I and have Competences Obtained from General Chemistry II.
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	After completing the course, the students will be able to: 1. Analyze and interpret the reactions of hydrolysis and derivative synthesis carboxylic acids. 2. Explain the polyalities. 3. Compare the stability and reactivity of cyclic hydrocarbons and aromatic compounds. 4. Conclude the influence of substituents on electrophilic aromatic substitution. 5. Identify the amino acids and display the characteristic titration curve. 6. Divide carbohydrates with respect to the functional group and to the number Carbon atoms. 7. Explain the cyclization of glucose and fructose and the formation of glycoside linkages. 8. Apply acquired knowledge of heterocyclic and aromatic compounds.
Course content broken down in detail by weekly class schedule (syllabus)	Lectures and seminar 1. Carboxylic acid derivatives: esters, amides, anhydrides, acyl halides, nitrile - chemical structure, nomenclature. (3 hours) 2. Carboxylic acid derivatives: esters, amides, anhydrides - preparations and hydrolysis, reduction and interconversion reactions (3 hours) 3. Organometallic reagents, Grignard reagent, Claisen condensation (3 hours) 4. IR spectroscopy (molecular vibrations, spectral recording, characteristic absorptions of carbonyl compounds and C-N bonds, interpretation of the IR spectrum (3 hours) 5. Cyclic compounds (C3-C6), nomenclature, ring tension, characteristic reactions, conformations of mono- and disubstituted cyclohexane's (3 hours) 6. Epoxides (nomenclature, synthesis, opening of epoxides, reactions with Grignard reagent (3 hours) 7. Aromatic compounds: structure of benzene and the concept of aromaticity, characteristic reactions, electrophilic aromatic substitution (3 hours) 8. Benzene derivatives: electrophilic substitution and its orientation on monosubstituted benzene (3 hours) 9. Heterocyclic compounds and conjugated and unconjugated dienes, stability, addition reactions (3 hours) 10. Carbohydrates: monosaccharides - glucose, fructose, disaccharides, glyosidic bond, oxidation (3 hours) 11. Cyclization of carbohydrates, synthesis and hydrolysis of glyosidic bonds, polysaccharides - starch (3 hours) 12. Cellulose, glycogen, chitin (2 hours) 13. Amino acids: structure and stereochemistry, acid-base properties, classification by properties, zwitter ion, isolelectric point, electrophoresis (3 hours)

	14. Lipids: complex and simple, triglycerides, saponification of fats and oils, phospholipids, steroids, terpenes (4 hours) Seminars follow the topics of the lecture, with a minimum of one lesson for each topic.
Format of instruction	☒ lectures ☒ seminars and workshops ☐ exercises ☐ *on line* in entirety ☐ partial e-learning ☐ field work ☐ independent assignments ☐ multimedia ☐ laboratory ☐ work with mentor ☐ (other)
Student responsibilities	

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*						
	Class attendance	2.0	Research		Practical training	
	Experimental work		Report		(Other)	
	Essay		Seminar essay		(Other)	
	Tests	1.5	Oral exam	2.5	(Other)	
	Written exam		Project		(Other)	

Grading and evaluating student work in class and at the final exam	For the passing grade, it is necessary to solve 50% of each partial exam. Passing grade on a written exam is a condition for passing an oral part of an exam.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	L. G. Wade, Organska kemija, 7. izdanje, ŠK, 2017.		5

Optional literature (at the time of submission of study programme proposal)	S.H. Pine, J.B. Hendrickson, D.J. Cram, G.S. Hammond; Organska kemija, Školska knjiga, Zagreb 1994.
Quality assurance methods that ensure the acquisition of exit competences	Consultations, partial examinations, student survey for subject and teacher evaluation, attendance attendance records, partial and final exam performance.
Other (as the proposer wishes to add)	