NAME OF THE COURSE	Isolation of phytonutrients					
Code	PPC310 (79378)	Year of study	3rd ungratuated study 2nd gratuated study			
Course teacher	Dr Renata Odžak, Associate Professor	Credits (ECTS)	2			
Associate teachers	---------	Type of instruction (number of hours)	L	S	E	F
			15	0	15	
Status of the course	Elective	Percentage of application of e-learning	20%			

COURSE DESCRIPTION

Course objectives	Students will acquire knowledge of different types of natural compounds like phytonutrients, their structural characteristics and biological activity and will acquire laboratory techniques in the isolation and identification of the same.
Course enrolment requirements and entry competences required for the course	laid The basic of Chemistry 1 and 2, the attended Organic Chemistry and Analytical Methods
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	After they have passed the course the student will be able to : - describe and classify different groups of compounds as phytonutrients - to recognize its biological activity - provide for the possibility of some other insulating technique of the same - choose various methods of identifying them
Course content broken down in detail by weekly class schedule (syllabus)	Lectures : Phytonutrients - definition of the term and the giveaway of full joints in the main group (4 hours) Alkaloids (tannins , caffeine ...) basic insulation of caffeine and its identification (4 hours) Flavonoid and- basics isolation of chlorophyll from spinach and beta-carotene in carrots (4 hours) Vitamins (soluble and insoluble), the influence of elevated temperature on the same (3 hours) Laboratory exercises: Isolation and identification of caffeine from green tea leaves (3 hours) Isolation and identification of chlorophyll from spinach (3 hours) Isolation and identification of beta - carotene of carrots (3 hours) Isolation and identification of piperine from pepper (3 hours) Standardization of vitamin C, the determination of vitamin C in the juice and the same effect of temperature (3 hours)
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	Attendance at laboratory exercises involving individual work of student , conducting laboratory log data for each exercise, processing the data obtained.

Screening student work *(name the proportion of ECTS credits for each activity so that the total number of*						
	Class attendance	0.5	Research		Practical training	
	Experimental work	0.5	Report	0.2	Exam preparation	0.3
	Essay		Seminar essay		(Other)	

ECTS credits is equal to the ECTS value of the course)	Tests		Oral exam	0.5	(Other)	
	Written exam		Project		(Other)	
Grading and evaluating student work in class and at the final exam	For lab monitoring results for each exercise in the form of daily work. Written or oral way of examination or through papers as an independent presentation of the given topic.					

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	1. Donald L. Pavia, Gary M. Lampman, George S. Kriz & Randall G. Engel, Introduction to Organic Laboratory Techniques, 2nd edition, Brooks/Cole-Thomson Learning, Belmont, USA, 2006.	2	yes
	2. Internal script for laboratory exercises		yes
Optional literature (at the time of submission of study programme proposal)	• Meskin, M.S., Bidlack, W.R., Davies, A.J., Omaye, S.T., Phytochemicals in Nutrition and Health, CRC Press, New York, 2000		
Quality assurance methods that ensure the acquisition of exit competences	For lab quality laboratory diaries, anonymous student surveys, student's success on the exam, consultation with students.		
Other (as the proposer wishes to add)			