

NAME OF THE COURSE		Chemistry education research						
Code	PMC311	Year of study			2nd year; graduate study			
Course teacher	Dr.sc. Roko Vladušić	Credits (ECTS)			2,0			
Associate teachers		Type of instruction (number of hours)			P	S	V	T
					15	15		
Status of the course	Elective	Percentage of application of e-learning			20			
COURSE DESCRIPTION								
Course objectives	The goal of the course is to introduce Chemistry Education research. The focus is on the specific elements of research (recognition of the problem, research questions, methodology, instruments...) and specific problems related to teaching and learning Chemistry. The aim is to prepare pre-service chemistry teachers for tomorrow's questioning of their own chemistry instruction in scientific way.							
Course enrolment requirements and entry competences required for the course	There are no prerequisites for enrolment in the course; starting competencies are related to Pedagogical Content (Chemistry) Knowledge.							
Learning outcomes expected at the level of the course (4 to 10 learning outcomes)	<p>After fulfilling all obligations, students will be able to:</p> <ul style="list-style-type: none"> - differ types of research, - search databases, - plan research in chemistry education area, - choose adequate research approach, - set research question, - create research instrument, - conduct simple research in chemistry education area, - present the research 							
Course content broken down in detail by weekly class schedule (syllabus)	<p>Lectures</p> <ol style="list-style-type: none"> 1. The ways (methods) of comprehending the world 2. Scientific and unscientific approaches to the cognition 3. Theories and research 4. Research approaches 5. Research frameworks 6. Basic elements of research process 7. i 8. Writing scientific paper and research report 9. Research project 10. Preparation of written, oral and poster presentation of the research results 11. - 15. Review and analysis of scientific journals and selected papers from the field of chemistry education. <p>Seminars</p> <ol style="list-style-type: none"> 1. - 10. Analysis of chemistry education scientific papers 11. - 13. Research instrument design 14. - 15. Research plan preparation 							
Format of instruction	<input checked="" type="checkbox"/> lectures <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> exercises <input type="checkbox"/> <i>on line</i> in entirety <input checked="" type="checkbox"/> partial e-learning <input type="checkbox"/> field work			<input checked="" type="checkbox"/> independent assignments <input type="checkbox"/> multimedia <input type="checkbox"/> laboratory <input type="checkbox"/> work with mentor <input type="checkbox"/> (other)				
Student responsibilities	To attend classes; to accomplish individual tasks.							
Screening student work (name the proportion of ECTS credits for each activity so that the total number of	Class attendance	1	Research		Practical training			
	Experimental work		Report		Research plan preparation	0,5		
	Essay		Seminar essay	0,5	(Other)			

<i>ECTS credits is equal to the ECTS value of the course)</i>	Tests		Oral exam		(Other)	
	Written exam		Project		(Other)	
Grading and evaluating student work in class and at the final exam	Scientific paper analysis - 40 % Development of the research instrument - 20 % Research plan development - 40 % Students dissatisfied with achievement are free to approach to the oral exam.					
Required literature (available in the library and via other media)	Title			Number of copies in the library	Availability via other media	
	1. Milas, G. (2009). Istraživačke metode u psihologiji i drugim društvenim znanostima, Naklada Slap.			6		
	2. Silobrčić, V. (2003). Kako sastaviti, objaviti i ocijeniti znanstveno djelo. Medicinska naklada, Zagreb.			1		
Optional literature (at the time of submission of study programme proposal)	1. Bodner, G. M., Orgil, M. (2007). Theoretical Frameworks for Research in Chemistry/Science Education, Pearson Prentice Hall. 2. 2. Bunce, D., M. and Cole, R., S. (2008). Nuts and Bolts of Chemical Education Research, American Chemical Society.					
Quality assurance methods that ensure the acquisition of exit competences	Internal evaluation of learning outcomes achievement; institutional evaluation at the end of the semester.					
Other (as the proposer wishes to add)						