



Course ID: HNMI01	Course name: DISCOVERY-BASED LEARNING IN CHEMISTRY		
Cycle: SECOND	Year: FIRST	Semester: I	ECTS credits: 4
Course status: ELECTIVE	Total course hours: 60 Lectures: 30 Laboratory: 30		
Teaching participants:	Teachers and associates with expertise in the field to which the subject belongs		
Prerequisite for enrollment:	-		
Course aims:	Introduction to discovery learning strategy and its application in teaching chemistry		
Thematic course units:	<ol style="list-style-type: none">1. Educational strategies, methods and procedures2. Discovery learning3. Research-based chemistry instruction4. Simulations5. Projects in chemistry instruction6. Authentic tasks7. Reflective practice8. Information and media literacy9. The importance of context in teaching and learning10. Smartphone applications for practical chemistry assignments		
Learning outcomes:	<p>Knowledge:</p> <ul style="list-style-type: none">• Support innovative approaches that encourage the learning process in chemistry teaching <p>Skills:</p> <ul style="list-style-type: none">• Create guided tasks and provide examples for students using variety of teaching strategies and methods <p>Competences:</p> <ul style="list-style-type: none">• Assess the accuracy of students ideas developed during the discovery learning process and provide feedback		
Teaching methodology:	Oral presentation Discussion Research Practical exercises		

Assessment methods and grading system¹:	Grading criteria		
	Criteria	Maximal score	Required score
	1. Class attendance	5	3
	2. Class activities	15	8
	3. Midterm	25	14
	4. Seminar	15	8
	5. Final exam	40	22
	Total	100	55
	Scores and grading		
	Score	Grade (B&H)	Grade (ECTS)
	< 55	5	F, FX
	55-64	6	E
	65-74	7	D
75-84	8	C	
85-94	9	B	
95-100	10	A	
Literature²:	Mandatory literature		
	<ol style="list-style-type: none"> 1. Sikirica, M. (2003). <i>Metodika nastave kemije – Priručnik za nastavnike kemije</i>. Zagreb: Školska knjiga 2. Andrade, M., Richter, J.-L., Gutschank, J. (2014). <i>Smartphones in Science Teaching – iStage 2</i>. Berlin: Science on Stage Deutschland e.V. www.science-on-stage. 		
Literature²:	Supplementary literature:		
	<ol style="list-style-type: none"> 1. Kehoe, E., & Lee Penn, R. (2013). Introducing Colorimetric Analysis with Camera Phones and Digital Cameras: An Activity for High School or General Chemistry. <i>Journal of Chemical Education</i> 90(9), 1191-1195. 2. Montangero, M. (2015). Determining the Amount of Copper(II) Ions in a Solution Using a Smartphone. <i>Journal of Chemical Education</i> 92(7), 1759-1762. 3. Polić, M. (2000) <i>Spoznajne osobitosti suvremene nastave</i>, Zagreb: Učiteljska akademija u Zagrebu 4. Sutman, F.X., Schmuckler, J.S., Woodfield, J.D. (2008). <i>The Science Quest: Using Inquiry/Discovery to Enhance</i> 		

¹ The grading structure for each subject is determined by the Council of the organizational unit before the beginning of the academic year in which the subject is taught as per Article 64, paragraph 6 of the Law on Higher Education of Sarajevo Canton

² The Senate of the higher education institution, as an institution, or the Council of the organizational unit of the higher education institution, as a public institution, determines by a special decision, which is published on its website before the beginning of the academic year obligatory, mandatory and recommended textbooks and manuals, as well as other recommended literature based on which exams are prepared and taken as per Article 56, paragraph 3 of the Law on Higher Education of the Sarajevo Canton

