

1. GENERAL INFORMATION					
Study programme title	University Graduate Study Programme in Geology – Subprogramme: Geology of Mineral Resources and Geophysical Explorations				
Course title	Petroleum System Exploration Methods	Semester	2nd		
Teacher	Assist. Prof. Marko Cvetković	Course code	27218		
Course type	<input checked="" type="checkbox"/> obligatory <input type="checkbox"/> elective	ECTS	6		
Location	Rudarsko-geološko-naftni fakultet, Pierottijeva 6, Zagreb				
Language	<input type="checkbox"/> Croatian <input checked="" type="checkbox"/> English				
Class type	Weekly hours	Teaching staff	Office hours	Room	E-mail
Class	2	Assist. Prof. Marko Cvetković	Variable		marko.cvetkovic@rgn.hr
Practice	2	Assist. Prof. Marko Cvetković David Rukavnja, mag. geol.	Variable		marko.cvetkovic@rgn.hr david.rukavina@rgn.hr
Field lecture	1	Assist. Prof. Marko Cvetković David Rukavnja, mag. geol.	Variable		marko.cvetkovic@rgn.hr david.rukavina@rgn.hr
E-learning level	Level 1	Percentage of on-line class (max. 20%)		10 %	
2. COURSE DESCRIPTION					
Course aims	Course concept is the learning of the methods in exploration and evaluation of petroleum systems. Through the course, the students are presented with basics of wellsite geology, basin analysis, stratigraphic traps and legal framework of hydrocarbon reserve estimations.				
Requirements for applicants	Fundamentals of Petroleum Geology and Geophysical explorations				

Programme level learning outcomes with course contribution	
Expected course level learning outcomes (4-10 outcomes)	<ul style="list-style-type: none"> • Ability to recognize and classify stratigraphic traps • Recognition of role of diapirs in the formation of traps and hydrocarbon accumulations • Ability to make structural models in modelling software used in Petroleum industry • Awareness of the fundamentals of Basin analysis • Ability to make 1D basin model • Ability to calculate reserves from simple geological models
Course contents by individual lessons	
Class	Practice
C1 – Introduction, Introduction. Obligations of students. Basics of Petroleum systems exploration	P1 – Basic well log interpretation – Preparation of well data for lithofacies map construction (individual work on modelling software)
C2 – Wellsite geology	P2 – Basic well log interpretation – Preparation of well data for lithofacies map construction (individual work on modelling software)
C3 – Overpressure zones and influence of borehole conditions on well log results	P3 – Geological modelling – simple model construction – introduction (individual work on modelling software)
C4 – Fundamentals of crossplots and their utilization	P4 – Geological modelling – simple model construction – simple structural trap (individual work on modelling software)
C5 – Dipmeter acquisition and analysis of data	P5 – Geological modelling – simple model construction -structural trap (individual work on modelling software)
C6 – Temperature and caliper logging and possibility of application in formation temperature evaluation and lithological composition	P6 - Geological modelling – simple model construction - simple stratigraphic trap (individual work on modelling software)
C7 – Primary and secondary porosity determination based on well logs	P7 – Volume calculation on cell based geological models (individual work on modelling software)
C8 – Dean term	P8 – Dean term

C9 – Fundamentals of geological modeling I	P9 – Geological modelling – individual task (individual work on modelling software)			
C10 - Fundamentals of geological modeling II	P10 – Basin modelling introduction (individual work on modelling software)			
C11 - Basin analysis - fundamentals	P11 – Basin modelling 1D model construction (individual work on modelling software)			
C12 - Basin Analysis – modelling and calibration principles	P12 – Basics of interpretation of seismic data – introduction (individual work on modelling software)			
C13 - Stratigraphic traps, detailed stratigraphic traps division. Methods of research and the possibility of finding such traps in Croatia.	P13 – Basics of interpretation of seismic data – horizon modelling I (individual work on modelling software)			
C14 - Role of diapirism in forming traps for hydrocarbon accumulations, types of diapires, possibility of finding diapire related traps in Croatia	P14 – Basics of interpretation of seismic data – horizon modelling II (individual work on modelling software)			
C15 – Legal framework for hydrocarbon reserve calculation	P15 – Basics of interpretation of seismic data – fault modelling (individual work on modelling software)			
Students' obligations	Regular attendance to class lectures and practices (maximum allowed absence from practices is limited to 3 times)			
Students' work track (indicate share in ECTS points for each activity so that overall ECTS number corresponds to class credits score):	Class attendance	2	Research	
	Project		Report	1
	Colloquium		Seminar paper	
	Practical work	2	Oral exam	1
	Written exam		(Extra)	
Type of exam, grades and evaluation of students work during class and on final exam	Exam is comprised of performing a modelling task based on practises (40%) and oral exam (60%)			
Mandatory literature (available in the Library and via other media)	<p>Bassiouni, Z. (1994): Theory, Measurement, and Interpretation of Well Logs. Henry L. Doherty Memorial Fund of AIME Society of Petroleum Engineers. 372 str., Richardson, TX.</p> <p>Miall, A. D. (1997): The Geology of Stratigraphic Sequences. Springer-Verlag. 433 str., Berlin Heidelberg.</p>			



	Magoon, L.B., Dow, W. G. (1994): The Petroleum System: From Source to Trap. AAPG memoir. 644 str.
Additional literature (at the moment of study program proposition application)	
Examination terms	On Tuesdays during Exam periods
Other	