



University of
Zagreb



University of Zagreb
**FACULTY OF MINING,
GEOLOGY AND PETROLEUM
ENGINEERING**



1. GENERAL INFORMATION				
1.1. Course teacher	Assistant Professor Karolina Novak Mavar, PhD		1.6. Year of the study	I.
1.2. Name of the course	Accidental Risk Assessment		1.7. ECTS credits	6
1.3. Associate teachers			1.8. Type of instruction (number of hours L + E + S + e-learning)	40L+0E+10S+10e-learning
1.4. Study programme (undergraduate, graduate, integrated)	graduate		1.9. Expected enrolment in the course	30
1.5. Status of the course	<input checked="" type="checkbox"/> mandatory	<input type="checkbox"/> elective	1.10. Level of application of e-learning (level 1, 2, 3), percentage of online instruction (max. 20%)	level 2, 16,67% online
2. COUSE DESCRIPTION				
2.1. Course objectives	To educate and to train students to identify the risks arising during oil and gas exploration and production (in further text: O&G E&P) activities, to conduct risk assessment, its valorisation and management.			
2.2. Enrolment requirements and/or entry competences required for the course	No special requirements.			
2.3. Learning outcomes at the level of the programme to which the course contributes	Independently solve complex engineering problems in petroleum engineering and geoenery engineering; Compare specific procedures and processes in petroleum engineering and geoenery engineering; Appraise process and facility's efficiency in petroleum engineering and geoenery engineering; Assess the risk of accidental situations during various operations in petroleum engineering and geoenery engineering; Assess the environmental impact of petroleum engineering and geoenery engineering; Plan the methods and procedures for avoiding or minimizing environmental impact of petroleum engineering and geoenery engineering activities.			
2.4. Expected learning outcomes at the level of the course (3 to 10 learning outcomes)	Define important terms in the field of risk analysis; Identify O&G E&P risk sources; Analyse environmental and socio-economic risks and risk management; Evaluate projects with regard to the risk level; Apply qualitative and quantitative methods of risk analysis on real examples.			
2.5. Course content (syllabus)	Basic concepts in the field of risk assessment in O&G E&P; Occurrence of fire and explosions; Causes of accidents; Risk identification and assessment methods; Main methods of risk analysis and assessment; Analysis and data collection for risk assessment; Risk analysis in well construction; An integrated approach to blowout risk analysis; Risk analysis in well completion			

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	and maintenance; Quantitative analysis of environmental impact risks; Offshore activities and associated risks; Simultaneous operations; Causes and consequences of the blowout at the Macondo well in the Gulf of Mexico; The impact of the Gulf of Mexico disaster on new legislation; Examples and analysis of accidents at drilling rigs; Examples and analysis of accidents during workover activities, and in transportation and collection systems; Calculation of occurrence probability for individual adverse events and other analytical variables; Event tree in risk assessment; Alert system for near miss cases, injuries, process incidents, environmental pollution; Safety management system; Major accident prevention and related legislation.								
2.6. Format of instruction:	<input checked="" type="checkbox"/> lectures <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> exercises <input type="checkbox"/> online in entirety <input type="checkbox"/> partial e-learning <input type="checkbox"/> field work			<input checked="" type="checkbox"/> independent assignments <input type="checkbox"/> multimedia and the internet <input type="checkbox"/> laboratory <input type="checkbox"/> work with mentor <input type="checkbox"/> (other)			2.7. Comments:		
							-		
2.8. Student responsibilities	Attendance at lectures (80%), prepared and presented seminar paper.								
2.9. Monitoring student work	Class attendance	YES		Research		NO	Oral exam	YES	
	Experimental work		NO	Report		NO	Seminar presentation	YES	
	Essay		NO	Seminar paper	YES		(other)		NO
	Preliminary exam		NO	Practical work		NO	(other)		NO
	Project		NO	Written exam	YES		ECTS credits (total)	6	
2.1. Required literature (available in the library and/or via other media)	Title						Number of copies in the library	Availability via other media	
	Matanović, D, Gaurina-Međimurec, N, Simon, K. (2013.): <i>Risk Analysis for Prevention of Hazardous Situations in Petroleum and Natural Gas Engineering</i> , IGI Global, USA.						YES	YES	
2.11. Optional literature	Klovning, J., Nilsen, E.F.: <i>Quantitative Environmental Risk Analysis</i> , SPE 30686.								
	Blotto, P., Bonuccelli, M., Dellarole, E., Falcitelli, M., Podenzani, F.: <i>Development of a Integrated Approach to the Risk Analysis of a Blow-out Accident</i> , SPE 86704.								
2.12. Other (as the proposer wishes to add)									

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