



University of
Zagreb



University of Zagreb
FACULTY OF MINING,
GEOLOGY AND PETROLEUM
ENGINEERING



1. GENERAL INFORMATION				
1.1. Course teacher	Full Professor Daria Karasalihović Sedlar, PhD		1.6. Year of the study	II.
1.2. Name of the course	Natural gas market		1.7. ECTS credits	4
1.3. Associate teachers	Teaching Assistant Ivan Smajla, MSc		1.8. Type of instruction (number of hours L + E + S + e-learning)	28L+0E+28S+4e-learning
1.4. Study programme (undergraduate, graduate, integrated)	graduate		1.9. Expected enrolment in the course	15
1.5. Status of the course	<input type="checkbox"/> mandatory	<input checked="" type="checkbox"/> elective	1.10. Level of application of e-learning (level 1, 2, 3), percentage of online instruction (max. 20%)	level 3, 5% online
2. COUSE DESCRIPTION				
2.1. Course objectives	Understanding the lectures, exercises, and knowledge from mandatory literature according to subject units, application of the acquired knowledge to problem solving in the area of natural gas market. Introduce the students to important components of natural gas market, natural gas market models, organization of the market, roles of all participant in the market and different ways of undertaking regulated and market energy activities			
2.2. Enrolment requirements and/or entry competences required for the course	-			
2.3. Learning outcomes at the level of the programme to which the course contributes	Appraise projects in petroleum engineering and geoenery engineering; Appraise energy company's business; Analyse energy markets.			
2.4. Expected learning outcomes at the level of the course (3 to 10 learning outcomes)	Explain the global, regional and national relations between supply, demand, and gas consumption; Explain the organizational model of the natural gas market in Croatia; Explain the gas consumption and peak gas consumption; Compare the relations and roles of participants in the gas market; Evaluate the exploitation of unconventional natural gas reservoirs; Plan the natural gas supply routes; Organize a gas market on a national level; Asses the factors of natural gas security and flexibility of supply; Analyse the standard gas quality;			



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	Assess the natural gas security and flexibility of supply.							
2.5. Course content (syllabus)	Introduction to natural gas market; Energy units' conversion; Gas in energy supply (production, trading); World reserves and energy consumption; Fundamental natural gas properties calculation; Methane number calculation; Dependence of the gas consumption on various factors; Natural gas transport (capacities, nominations, rules, balancing); Natural gas storage (capacities, nominations, rules); LNG (production, transport, terminals, importers, exporters, LNG carriers' fleet, contracts, legislation, bunkering, small scale LNG); LNG demand and global market movements; Natural gas distribution, natural gas network design; Gas economy in Croatia, natural gas balance in Croatia; Europe's natural gas supply; Projects of gas infrastructure construction; Shale unconventional natural gas reservoirs; Tight sand unconventional natural gas reservoirs; Methane hydrates; Coal bed methane; Arctics natural gas resources; Natural gas market model; Development and integration of natural gas market; EU and Croatia's legislation regarding natural gas market; Natural gas trading – retail and wholesale and hubs; Natural gas security of supply.							
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 checked="" type="checkbox"/> partial e-learning <input checked="" type="checkbox"/> field work				<input checked="" type="checkbox"/> independent assignments <input checked="" 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	Class attendance, independent assignments, independent making and presentation of seminar papers, preliminary or written exam, oral exam.							
2.9. Monitoring student work	Class attendance	YES		Research	YES		Oral exam	YES
	Experimental work		NO	Report		NO		
	Essay		NO	Seminar paper	YES			
	Preliminary exam	YES		Practical work		NO		
	Project		NO	Written exam	YES		ECTS credits (total)	4
2.10. Required literature (available in the library and/or via other media)	Title						Number of copies in the library	Availability via other media
	Dekanić, I, Karasalihović Sedlar, D. (2016.): <i>Ekonomika energije</i> , Golden Marketing.						YES	YES
2.11. Optional literature	Internet sources: https://ec.europa.eu/energy/topics/markets-and-consumers/market-legislation/third-energy-package_en , https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en							
2.12. Other (as the proposer wishes to add)								