1. GENERAL INFORMATION				
1.1. Course teacher	Associate Professor Vladislav Brkić, PhD		1.6. Year of the study	I.
1.2. Name of the course	Oil and Gas Production Engineering		1.7. ECTS credits	6,5
1.3. Associate teachers	Assistant Professor Sonja Koščak Kolin, PhD		1.8. Type of instruction (number of hours L + E + S + e-learning)	24L+30E+0S+6e-learning
1.4. Study programme (undergraduate, graduate, integrated)	graduate		1.9. Expected enrolment in the course	30
1.5. Status of the course	☒ mandatory	☐ elective	1.10. Level of application of e-learning (level 1, 2, 3), percentage of online instruction (max. 20%)	level 2, 10% online
2. COUSE DESCRIPTION				
2.1. Course objectives	Acquiring the knowledge and skills necessary to design a production system based on reservoir properties and optimizing fluid production using a different artificial lift methods.			
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	Independently solve complex engineering problems in petroleum engineering and geoenergy engineering; Predict reservoir behaviour and the behaviour of hydrocarbon and geothermal water production system; Optimize hydrocarbon and geothermal water production.			
2.4. Expected learning outcomes at the level of the course (3 to 10 learning outcomes)	Analyze the flow models in a porous medium and the influence on the choice of method of lifting reservoir fluids; Apply appropriate methods of designing and creating a well production system; Optimizing well productivity for different fluid uptake methods and well status (gas, oil, injection, geothermal); Choose the gas valves with regard to the possible supply of the bearing; Choose and define appropriate downhole pump.			
2.5. Course content (syllabus)	Fluid flow from the reservoir into the wellbore; Reservoir productivity and flow capacity of the production system from the bottom to the wellhead; Multiphase fluid flow in the wellbore; Optimization of the well production system using different fluid lifting methods; Independent task-selection and presentation of the research topic using the online database OnePetro - SWOT analysis for selecting an individual fluid lifting system, operation control and defining operating costs; Radial fluid flow in the reservoir; Fluid flow in a reservoir with a vertical well; Fluid flow in a reservoir with a horizontal well; Fluid flow in a reservoir with a multiple fractured horizontal well; IPR curves; Fluid flow in the well; Multiphase fluid flow in the well; Gas lift; Artificial lift pumps			

This document was prepared in the framework of the project InterRGN – Internationalization of the Faculty of Mining, Geology and Petroleum Engineering, funded by the European Union from the European Social Fund. The content of this document is the sole responsibility of the University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering.

2.6. Format of instruction:	☒ lectures ☐ seminars and workshops ☒ exercises ☐ online in entirety ☒ partial e-learning ☒ field work			☒ independent assignments ☐ multimedia and the internet ☐ laboratory ☒ work with mentor ☐ (other)			2.7. Comments: -			
2.8. Student responsibilities	Attendance at 80% of classes and 80% of exercises, field classes, passed colloquium, write and present research topic.									
2.9. Monitoring student work	Class attendance	YES		Research	YES		Oral exam	YES		
	Experimental work		NO	Report		NO	Research topic presentation	YES		
	Essay		NO	Seminar paper		NO				
	Preliminary exam	YES		Practical work		NO				
	Project		NO	Written exam	YES		ECTS credits (total)	6,5		

2.10. Required literature (available in the library and/or via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Brown, K. E. (1984.): *The Technology of Artificial Lift Methods*, Vol. 1, Vol. 2a, Vol. 2b, Vol. 3a, Vol. 3b and Vol. 4, PennWell Books, Tulsa, Oklahoma.	YES	NO
	Beggs, H.D. (2003.): *Production Optimization Using NODAL Analysis (Second Edition)*, OGCI, Inc., Tulsa, Oklahoma.	YES	NO
	Petroleum engineering handbook (2007.). Production operations engineering, SPE.	YES	NO
2.11. Optional literature	*Well production practical handbook* (2000.). Technip.		
2.12. Other (as the proposer wishes to add)	SPE Webinars, OnePetro online		

This document was prepared in the framework of the project InterRGN – Internationalization of the Faculty of Mining, Geology and Petroleum Engineering, funded by the European Union from the European Social Fund. The content of this document is the sole responsibility of the University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering.