



University of
Zagreb



University of Zagreb
FACULTY OF MINING,
GEOLOGY AND PETROLEUM
ENGINEERING



| 1. GENERAL INFORMATION | | | | |
|--|--|--|--|-----------------------------|
| 1.1. Course teacher | Tenured Professor Nediljka Gaurina-Međimurec, PhD | | 1.6. Year of the study | II |
| 1.2. Name of the course | Advanced Drilling Technologies | | 1.7. ECTS credits | 4 |
| 1.3. Associate teachers | Teaching Assistant Petar Mijić, PhD | | 1.8. Type of instruction (number of hours L + E + S + e-learning) | 28,5L+13,5E+15S+3e-learning |
| 1.4. Study programme (undergraduate, graduate, integrated) | graduate | | 1.9. Expected enrolment in the course | 10 |
| 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 | Acquisition of knowledge for designing casing drilling, underbalanced drilling, managed pressure drilling and extended reach drilling. | | | |
| 2.2. Enrolment requirements and/or entry competences required for the course | Passed exams from <i>Drilling engineering</i> from first year of graduate study. | | | |
| 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; Design wellbore for hydrocarbon and geothermal water exploitation. | | | |
| 2.4. Expected learning outcomes at the level of the course (3 to 10 learning outcomes) | Compare casing drilling (CD) methods; Design managed pressure drilling (MPD); Design under pressure drilling (UBD); Formulate the specifics of extended reach drilling (ERD); Estimate application of solid expandable tubulars (SET). | | | |
| 2.5. Course content (syllabus) | Casing drilling and liner drilling technology; Managed pressure drilling (MPD); Underbalanced drilling (UBD); Specifics of extended reach drilling (ERD); Solid expandable tubulars and their applications; Analysis of case study. | | | |
| 2.6. Format of instruction: | <input checked="" type="checkbox"/> lectures <input checked="" type="checkbox"/> seminars and workshops <input checked="" type="checkbox"/> exercises <input type="checkbox"/> online in entirety <input type="checkbox"/> partial e-learning <input type="checkbox"/> field work | | <input 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 | Active participation in lectures, auditory exercises and seminars, preparation and presentation of seminars, taking written and oral exams. | | | |

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.



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|---|--|-----|----|----------------|-----|----|---------------------------------------|---------------------------------|--|
| 2.9. Monitoring student work | Class attendance | YES | | Research | | NO | 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 | |
| | McLennan, J. et al (1997.): <i>Underbalanced Drilling Manual</i> , Gas Research Institute, Chicago, Illinois. – selected chapters | | | | | | YES | YES | |
| | Byrom, T.G. (2015.): <i>Casing and Liners for Drilling and Completion, Design and Application</i> , Second edition, Elsevier. – selected chapters | | | | | | NO | YES | |
| | Halliburton (2016.): <i>Extended Reach Drilling - Solutions and Applications</i> , Halliburton – selected chapters | | | | | | NO | YES | |
| | Bourgoyne, A. (2014.): <i>Directional Drilling and Deviation Control: Definitions and Reasons for Directional Drilling</i> . – selected chapters | | | | | | YES | YES | |
| | Hesham F. Tantawy, H.F. (2014.): <i>Extended Reach Drilling: A New Vision</i> , CreateSpace Independent Publishing Platform, pp. 138. – selected chapters | | | | | | NO | YES | |
| | Verma, L. (2015.): <i>Managed Pressure Drilling</i> , Scitus Academics LLC, pp. 240. – selected chapters | | | | | | NO | YES | |
| | Bill Rehm, B., Schubert, J.; Haghshenas, A.; Paknejad, A. S.; Jim Hughes, J. (2008.): <i>Managed Pressure Drilling</i> , Gulf Publishing Company, Tulsa, Oklahoma. – selected chapters | | | | | | NO | YES | |
| 2.11. Optional literature | OnePetro papers. | | | | | | | | |
| 2.12. Other (as the proposer wishes to add) | - | | | | | | | | |

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