



University of
Zagreb



University of Zagreb
FACULTY OF MINING,
GEOLOGY AND PETROLEUM
ENGINEERING



| 1. GENERAL INFORMATION | | | | |
|--|--|---|---|-------------------------|
| 1.1. Course teacher | Associate Professor Jasna Orešković, PhD | | 1.6. Year of the study | II. |
| 1.2. Name of the course | Integrated Well Logging and Seismic Data Interpretation | | 1.7. ECTS credits | 4 |
| 1.3. Associate teachers | Teaching Assistant Josipa Kapuralić, PhD | | 1.8. Type of instruction (number of hours L + E + S + e-learning) | 30L+15E+10S+5e-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, 8,3% on line |
| 2. COUSE DESCRIPTION | | | | |
| 2.1. Course objectives | Students shall develop basic knowledge and skills within seismic reflection data interpretation and their correlation to well logging data, as necessary to understand the subsurface relationships and to delineate reservoirs. | | | |
| 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 | Analyse reservoir rock and reservoir fluids properties; Plan hydrocarbon and geothermal reservoir management. | | | |
| 2.4. Expected learning outcomes at the level of the course (3 to 10 learning outcomes) | Explain fundamental aspects of seismic wave propagation; Make interpretations of the more common well logging measurements; Correlate the results of different logging measurements; Perform well-seismic ties; Construct synthetic seismograms; Construct 3D surface based on well logging and seismic data. | | | |
| 2.5. Course content (syllabus) | Theoretical knowledge about seismic reflections from geological boundaries; Seismic acquisition and processing principles of 2D and 3D seismic data; Well logging data acquisition and seismic-well tie; Vertical and horizontal resolution of seismic data; Direct hydrocarbon indicators; Basic seismic interpretation techniques; Map generation; Time to depth conversion; Fundamental seismic attributes. | | | |
| 2.6. Format of instruction: | <input checked="" type="checkbox"/> lectures | <input checked="" type="checkbox"/> independent assignments | 2.7. Comments: | |

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| | | | | | | |
|---|--|--|----------------|-----|--|---|
| | <input type="checkbox"/> seminars and workshops <input checked="" type="checkbox"/> exercises <input type="checkbox"/> online in entirety <input checked="" type="checkbox"/> partial e-learning <input type="checkbox"/> field work | <input type="checkbox"/> multimedia and the internet <input type="checkbox"/> laboratory <input type="checkbox"/> work with mentor <input checked="" type="checkbox"/> computer lab (other) | - | | | |
| 2.8. Student responsibilities | Attending lectures and compulsory exercises in addition to an exercise in the computer lab through usage of software for well and seismic data analysis. The exercises are solved through teamwork or individually. | | | | | |
| 2.9. Monitoring student work | Class attendance | YES | Research | NO | Oral exam | YES |
| | Experimental work | | Report | NO | | |
| | Essay | | Seminar paper | NO | | |
| | Preliminary exam | | Practical work | YES | | |
| | Project | YES | Written exam | NO | 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 |
| | Yilmaz, Ö. (2001.): <i>Seismic Data Analysis</i> . Society of Exploration Geophysicists. | | | | NO | YES |
| 2.11. Optional literature | Lowrie, W. (2007.): <i>Fundamentals of Geophysics</i> (Ch. 3). Cambridge University Press. | | | | | |
| | Chopra, S., Marfurt, K.J. (2007.): <i>Seismic attributes for Prospect Identification and Reservoir Characterization</i> . Society of Exploration Geophysicists. | | | | | |
| | Ellis, D.V., Singer, J.M. (2008.): <i>Well Logging for Earth Scientists</i> . Springer, 2nd ed. | | | | | |
| | Articles | | | | | |
| 2.12. Other (as the proposer wishes to add) | - | | | | | |

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