| 1. GENERAL INFORMATION | | | | | |
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| **Study programme title** | University graduate study programme in mining engineering<br>Subprogrammes Mining engineering and Geotechnical engineering | | | | |
| **Course title** | Mining engineering design | | | **Semester** | IV |
| **Teacher** | Assoc. prof. Ivo Galić, PhD | | | **Course code** | 27369 |
| **Course type** | ☒ obligatory ☐ elective | | | **ECTS** | 7 |
| **Location** | Faculty of Mining, Geology and Petroleum Engineering, Pierottijeva 6, Zagreb | | | | |
| **Language** | ☒ Croatian ☐ English | | | | |
| **Class type** | **Weekly hours** | **Teaching staff** | **Office hours** | **Room** | **E-mail** |
| **Class** | 3 | Assoc. prof. Ivo Galić, PhD | Every day 12:00 – 14:00 | 502 | igalic@rgn.hr |
| **Practice** | 3 | PhD. Branimir Farkaš | Monday 10:00-12:00 | 515 | branimir.farkas@rgn.hr |
| **Field lecture** | | | | | |
| **E-learning level** | | 2 | **Percentage of on-line class (max. 20%)** | | 10% |

| 2. COURSE DESCRIPTION | |
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| **Course aims** | Application of certain knowledge for independent or team solving work of concrete tasks in the field of mining engineering design. Use of computer and specialised software for all types of processing (text, graphics, calculations). Training in the preparation of project documentation related to the exploration and exploitation of mineral deposits. Preparation for the project implementation and learning specific skills for managing organizational units. Acquiring knowledge for valorisation of existing projects and planning of new projects. |
| **Requirements for applicants** | Passed subjects from III. semester. |
| **Programme level learning outcomes with course contribution** | |

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| **Expected course level learning outcomes (4-10 outcomes)** | Application of acquired knowledge in the designing exploration and exploitation of mineral deposit. Understanding of the procedure for obtaining a mining concession and related procedures relevant to the mining industry. Competitive knowledge of mine design methods and independent decision making on the optimal design method. Competitive knowledge of reserve calculation methods and independent decision making on the optimal calculation method. Independent and team solving of simple project tasks. Applying knowledge in new or unfamiliar situations on the field. Creating a framework for making plans and forecasting mining works. Delivering suggestions and reasoned conclusions. Creating and developing new learning methods. |

| Course contents by individual lessons | |
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| Class | Practice |
| P1 – Introduction to Mining engineering design | V1 - Introduction to mine design process |
| P2 – Legal frameworks for mine design | V2 - Design process preparation |
| P3 – Mining engineering design methods | V3 - Legal frameworks related to the allocated mineral resources |
| P4 – Specialised mine design software | V4 - Determining the location of a surface mine |
| P5 – Forecasts and planning documents - broader social design frameworks | V5 - Positioning of investigative works |
| P6 – Expert maps for the mine design | V6 - Mineral reserves determination |
| P7 - Designing of exploration works | V7 - Calculation and drawing of the final slope |
| P8 - Exploration of mineral deposits and interpretation of research results (Study of reserves) | V8 - Drawing a cross-section of a surface mine - part 1 |
| P9 - Fundamentals for surface exploitation design (mining site openinig and mining works development) | V9 - Calculation of techno-economic assessment of the deposit |
| P10 - Fundamentals for underground exploitation design (mining site opening and mining works development) | V10 - Calculation of surface mine elements |
| P11 - Design and study of design solutions (composition of mining works) | V11 - Drawing of a surface mine elements |



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| P12 - Modelling and animation of mining work | V12 - Drawing a cross-section of a surface mine - part 2 |
| P13 - Design and study of preliminary mining projects, investment programs and mine feasibility studies | V13 – Creating three-dimensional model of a deposit and mining works - part 1 |
| P14 – Environmental impact study (studying of the mining works impact on the environment) | V14 - Creating three-dimensional model of a deposit and mining works - part 2 |
| P15 - Design and study of mining projects implementation; making of expert assessments (expertise) | V15 - Print reports, and three-dimensional models in PDF |

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| **Students' obligations** | | | | |
| **Students' work track** *(indicate share in ECTS points for each activity so that overall ECTS number corresponds to class credits score):* | Class attendance | 2 | Research | |
| | Project | 2 | Report | |
| | Colloquium | 3 | Seminar paper | |
| | Practical work | | Oral exam | |
| | Written exam | | (Extra) | |
| **Type of exam, grades and evaluation of students work** during class and on final exam | Designing a program of exploration and exploitation of mineral resources throughout the semester.<br><br>Passing 4 colloquiums. | | | |
| **Mandatory literature** (available in the Library and via other media) | V. Abramović, B. Perić: Projektiranje u rudarstvu, Faculty of Mining, Geology and Petroleum Engineering, Zagreb<br>I. Galić: Projektiranje u rudarstvu uz primjenu namjenskih programa, master thesis, Faculty of Mining, Geology and Petroleum Engineering, Zagreb<br>I. Galić: Optimalna točka otvaranja i razvoj površinskih kopova na slojevitim ležištima, doctoral thesis, Faculty of Mining, Geology and Petroleum Engineering, Zagreb<br>I. Galić, B. Farkaš: Interne skripte iz projektiranja rudnika, Faculty of Mining, Geology and Petroleum Engineering, Zagreb<br>Legal acts and by-laws related to mining in the Republic of Croatia | | | |
| **Aditional literature** (at the moment of study program proposition application) | Projects, studies, elaborates from our personal professor archive | | | |
| **Examination terms** | | | | |
| **Other** | | | | |



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