

## SYLLABUS

**1. Course title:**

CONTINUOUS SURFACE MINING

**2. Code:**

LRUDKPE

**3. Cycle of study:**

1

**4. ECTS credits:**

5

**5. Type of course:**

Mandatory

**6. Prerequisites:**

No

**7. Class restrictions:**

No

**8. Duration / semester(s):**

1

7

**9. Weekly contact hours and student workload:**

	Semester (1)	Semester (2)	(for two-semester courses)	Workload: (hours)
9.1. Lectures	4			Classes: 56,25
9.2. Seminars	0			Individual work: 71,00
9.3. Laboratory / Practice classes	1			In total: 127,2

**10. Faculty:**

Mining, Geology and Civil Engineering

**11. Department/study program:**

Mining Engineering

**12. Lecturer:**

PhD Samir Nurić Full Professor

**13. Course aims:**

- To familiarize students with basic knowledge in the field of surface exploitation using continuous technology,
- To transfer theoretical and practical knowledge and experience in production processes characteristic of continuous surface exploitation of mineral raw materials (technology of continuous digging and loading machines, continuous

mechanization for transport, overburden disposal, and mineral raw material deposition),

- To improve their intellectual skills in applying the acquired knowledge to solve various engineering problems in the field of surface exploitation using continuous technology,
- To improve their communication skills in written and verbal forms, as well as skills related to individual and team/group work,
- To improve students' skills in continuous work throughout the academic year,
- To prepare students for open communication between professors and students.

#### 14. Learning outcomes:

At the end of the semester/course, successful students, who have continuously fulfilled their obligations throughout the entire course period, will be capable of:

- Using available (written/electronic) literature to solve various problems related to this course,
- Solving simple, as well as relatively complex problems in the field of surface exploitation of mineral raw materials using continuous technology,
- Solving problems of varying complexity, both individually and in teams, and presenting them in written or verbal form,
- Understanding the significance of this course in solving various problems in engineering practice related to the studied field,
- Passing the final exam in the first available exam sessions at the end of the semester.

#### 15. Course content:

Introductory Class: Presentation of the course syllabus for Continuous Surface Exploitation (literature, course content, course objectives, expected competencies at the end of the course, teaching methods and evaluation, additional course-related information). Rock Destruction by Excavation: Parameters of the excavation process with an excavator, excavation resistance, specific digging force of the excavator. Wheel Excavators: Dependence of excavation parameters on the working dimensions of the wheel excavator (excavation geometry), dependence of cutting parameters and capacity of the wheel excavator (digging geometry), capacities and utilization coefficients of wheel excavators, selective excavation with wheel excavators. Bucket Chain Excavators: Excavation geometry and excavation with a bucket chain excavator in frontal excavation and blocks, capacities and utilization coefficients of bucket chain excavators, selective excavation with bucket chain excavators. Overburden Disposal in Continuous Surface Exploitation: Opening of the surface mine: general principles and classification of surface mine openings, external and internal cuts for opening a surface mine, cut parameters, cut construction methods, construction of opening graphs and preparation of levels  $L = f(T)$ . Elements, Parameters, Indicators, and Classification of Exploitation Systems without Deepening the Surface Mine: Exploitation systems with transport bridges. Exploitation systems with a console belt stacker. Exploitation systems with conveyor transport in horizontal levels. Exploitation systems with conveyor transport in inclined levels. Combined exploitation systems.

#### 16. Learning methods:

In order to efficiently deliver the course and achieve the expected course objectives and student competencies, various teaching methods are used:

- Lectures,
- Project (programming) assignments, and
- Consultations.

The student is required to attend lectures throughout the entire semester, as defined by the Rules and the Statute of the University of Tuzla. The right to receive a signature for the specified course is determined by the applicable Rules and Statute of the University of Tuzla. Throughout the semester, the instructor will monitor student attendance on a specially created form. The percentage of hours that must be attended in lectures and exercises is also defined by the applicable Rules and Statute of the University of Tuzla.

#### 17. Assessment methods:

The methods of evaluating students include the following criteria:

1. Attendance and participation in lectures and laboratory exercises
2. Test
3. Final oral/written exam

Based on these criteria, at the end of the course, the instructor will assign a final grade by scoring the individual activities.

#### 18. Assessment components:

The total number of points is obtained by summing the maximum possible points from all activities during the semester: attendance and participation in lectures, written/oral exam. The points are awarded as follows:

- Attendance in lectures: 5 points
- Participation in lectures: 5 points
- Test: 40 points
- Pre-exam obligations: 50 points
- Final exam: 50 points

**Total: 100 points**

The final success of the student, after all the prescribed forms of knowledge assessment, is evaluated and graded according to the ECTS grading scale as follows:

- a) 10 (A) – exceptional performance with no errors or minor errors, 95-100 points;
- b) 9 (B) – above average, with some errors, 85-94 points;
- c) 8 (C) – average, with noticeable errors, 75-84 points;
- d) 7 (D) – generally good, but with significant shortcomings, 65-74 points;
- e) 6 (E) – meets the minimum criteria, 54-64 points;
- f) 5 (F, FX) – does not meet the minimum criteria, less than 54 points.

**19. Mandatory reading list:**

1. A. Lazić, Selektivno otkopavanje rotornim bagerima na površinskim kopovima uglja, Rudarsko-geološki fakultet, Beograd, 1994.
2. J. Kun, Površinska eksploatacija lignita, Knjiga I, Rudarski institut Beograd, Beograd, 1981.
3. J. Kun, Površinska eksploatacija lignita, Knjiga II, Rudarski institut Beograd, Beograd, 1982.
4. N. Popović, Naučne osnove projektovanja površinskih kopova, NIRO "Zajednica" – NIŠRO "Oslobođenje", Sarajevo, 1984.
5. R. Simić, N. Popović, Sistemi otvaranja i eksploatacije na površinskim kopovima, Univerzitet u Beogradu, Rudarskogeološki fakultet, Beograd, 1981.
6. S. Živković, D. Vrkljan, Površinska eksploatacija mineralnih sirovina, Sveučilište u Zagrebu, Rudarsko-geološkonaftni fakultet, Zagreb, 2002.
7. W. Durst, W. Vogt, Bucket wheel excavator, Trans Tech Publications, Series on Mining Engineering, Vol. 7,

**20. Additional reading list:**

**21. Web sources:**

**22. Applicable from the academic year:**

2025/26

**23. Adopted in the Faculty/Academy session:**