UNIVERSITY OF TUZLA

Faculty of Mining, Geology, and Civil Engineering Tuzla

Study Course: Mining Engineering

INNOVATED STUDY PLAN AND PROGRAM – MINING

First Cycle of Studies, Effective from the 2025/2026 Academic Year

Tuzla, Urfeta Vejzagića 2, phone number 035 320 550, 035 320 551, www.rggf.untz.ba

1. Title of the Study Program and Mode of Delivery

The title of the first-cycle study program at the Faculty of Mining, Geology, and Civil Engineering is **"**Mining engineering".

2. Study Program Holder and Implementing Institution

The study program is conducted by the Faculty of Mining, Geology, and Civil Engineering at the University of Tuzla, in collaboration with other organizational units of the University of Tuzla and universities in the region.

3. Duration of Studies and Total ECTS Credits

The **first cycle of education** in the "Mining engineering" study program lasts **8 semesters (4 academic years),** upon completion of which the student earns a total of **240 ECTS credits.**

4. Admission Requirements for the "Mining engineering" Study Course

Eligible candidates for admission to the first year of the first cycle of studies include:

Bosnia and Herzegovina citizenship, foreign nationals, and stateless persons who have completed a four-year secondary school education in Bosnia and Herzegovina, or candidates who have completed secondary school outside Bosnia and Herzegovina, following the process of nostrification or equivalency recognition, where is determined the candidate have completed an adequate grade of secondary education.

Eligible candidates are those who have completed a four-year vocational secondary school, and in addition obtained vocational education in general education subjects at a gymnasium or secondary technical school, with appropriate evidences.

Classification and selection of candidates are based on the entrance exam results and other criteria determined by the Senate of the University of Tuzla.

Mathematics is the subject on the entrance exam.

Admission to the first cycle of studies is announced by a public call for applicants, published by the Senate of the University of Tuzla.

5. Professional and Academic Title and Degree Awarded Upon Completion of the First Cycle of Studies

Upon completing the first cycle of the "Mining engineering" study program at the Faculty of Mining, Geology, and Civil Engineering, students are awarded the academic i.e. professional title:

Bachelor – Mining Engineering

This title is in accordance with the Regulations on the Use of Academic Titles and the Acquisition of Scientific and Professional Titles at higher education institutions in Tuzla Canton.

6. Expected Learning Outcomes Upon Completion of Study Program

A Bachelor – Mining Engineering will be competent for:

- Understanding legacy and professional practices in mining industry.
- Independently planning and performing mining activities.
- Managing and designing mining operations.
- Supervising work involving mining machinery, including selection, procurement, maintenance, and training programs.
- Analyzing and optimizing technological processes in mining.
- Judgments based on incomplete or limited information, while considering social and ethical responsibilities related to the knowledge and decision-making actions.
- Solving technical and scientific problems in a new and unfamiliar environment within the field of expertise.
- Enhancing knowledge, deepening understanding of their expertise, and continuously developing skills through independent learning and professional growth.
- Developing interpersonal and teamwork skills suited to various learning and employment contexts.
- Demonstrating leadership, initiating projects ideas and contributing to development.

Based on the knowledge and skills acquired during their studies, graduates will be qualified to continue their education in the second cycle of the "Mining engineering" study program or related fields, both domestically and internationally.

7. Organization of Studies

The study program is conducted as a full-time study program.
Students earn ECTS credits by obtaining a passing grade in each course, in accordance with the Statute and general regulations of the University.
Students receive a list of mandatory courses, which they must complete to earn the required ECTS credits by the end of their studies.

ECTS credits for elective study subjects can be obtained by selecting subjects from the list of electives available in the current semester of the academic year.
A final diploma work is not mandatory.
The summer internship is mandatory and carries 3 ECTS credits.
The summer internship is conducted in the sixth (VI) semester and takes place at mining company facilities for a total of 75 hours, with prior approval from the company or companies that have signed a Cooperation Agreement with the University of Tuzla.
Upon completing the internship, the student must submit a confirmation letter signed by an authorized representative of the host company, confirming that the internship was completed in production facilities and operational sites of business entities that have signed an Agreement on Professional Practice Implementation. Based on this letter, the Head of the Mining Department validates the completion of the summer internship requirement. The internship is not assigned to any professor nor included in their weekly teaching workload, i.e. it is recognized only through ECTS credits for the student.

7.1. Knowledge Assessment

Students' knowledge is assessed and evaluated continuously throughout the semester. The results of knowledge assessments are accessible and transparent to students during the entire semester. The specific methods of assessing are detailed in the subject syllabi.
The assessment criteria apply to all subjects and may include: Colloquiums and tests, Partial exams, Final exams (written and/or oral). In addition to these criteria, attendance, active participation in lectures and exercises, as well as the preparation and presentation of seminar papers and projects are also evaluated. The final student performance in individual subject is expressed using a numerical, descriptive, or letter grading, as follows:

Rating	Descriptive	Literally	Points
5 (five)	Does not meet the minimum criteria	F, FX	0-53
6 (six)	Meets the minimum criteria	E	54-64
7 (seven)	Generally good, but with significant shortcomings	D	65-74
8 (eight)	Average, with noticeable errors	C	75-84
9 (nine)	Above average, with occasional errors	B	85-94
10 (ten)	Outstanding performance, with no errors or only minor errors	A	95-100

The final grade is based on the total number of points a student earns by fulfilling pre-exam obligations and passing the exam, reflecting the quality of acquired knowledge and skills, with a maximum of 100 points.

7.2. Teaching Methods

Teaching in the course is conducted through interactive lectures in classrooms, in industrial or service organizations (study visits), or in the field. In addition to lectures, the organization of teaching includes practical exercises, which are organized in the laboratories of the Faculty of

Mining, Geology, and Civil Engineering, as part of visits to business companies, or as part of fieldwork at the appropriate location. The teaching process may also involve the preparation of reports, projects, seminar papers, and/or practical assignments, consultations, continuous monitoring of activities, and assessment of acquired knowledge, as well as distance or combined learning.

8. Enrollment Conditions for the Next Semester i.e. Academic Year

A student enrolls and verifies each semester.

A student enrolls in the next academic year based on the total number of earned ECTS credits, with each semester valued at 30 ECTS credits and each academic year at 60 ECTS credits, in accordance with relevant legal regulations. A student can enroll in the next academic year, if transfering no more than 10 ECTS credits or a maximum of two subjects, regardless the ECTS credits those subjects carry together.

If a student does not earn enough ECTS credits to enroll in the next academic year, he/she must re-enroll in the same academic year. A student repeating the academic year may be allowed to attend classes and take exams in subjects studied in the following academic year, according to the law, ensuring that the total workload per semester does not exceed 30 ECTS credits.

9. Method of Completing the Studies

The first cycle of studies is completed when the student passes the last remaining exam. At that point, the student will have earned a total of 240 ECTS credits.

10. Conditions Under Which Students Who Have Interrupted Their Studies, or Lost the Right to Study, Can Resume Their Studies

Students who have interrupted their studies or lost the right to study, can resume their studies in accordance with the Higher Education Law of the Tuzla Canton, the Statute of the University of Tuzla, and other general acts of the University.

11. List of Mandatory and Elective Subjects

Mandatory Subjects – Winter Semester

Mathematics
General Chemistry
Physics
Geology, Mineralogy, and Petrography
Energy Resources and Energy
Drilling and Blasting Technology
Materials in Mining engineering
Geostatistics

Fluid Mechanics and Basics of Climatology
Mechanics
Natural Hazards, Fires, and Explosions
Rock Mechanics
Programming with Numerical Methods
Transport and vertical transport
Mining Thermodynamics
Surface Mine Designing
Mining Safety
Underground Mining Bedded Deposits
Continuous Surface mining
Numerical Modelling in Mining

Mandatory Courses – Summer Semester
Descriptive Geometry And Engineering Drawing
Environmental Protection
Mineral Deposits
Applied Mathematics
Fundamental Mining
Technical and Architectural Rock Stone
Strength of Materials
Survey and Mining Measurements
Drainage
Construction of Mining Facilities
Surface Mining Technology
Well Mining of Mineral Raw Materials
Discontinuous Surface Mining
Tunnels
Soil Mechanics
Summer Practice
Underground Exploitation of Non-bedded Deposits
Mine Closure and Reclamation
Underground Mine Designing
Mining Ventilation and Aerology
Raw Material Preparation and Mineral Processing

Specialized Elective Courses – Winter Semester
Engineering Fundaments
Mining Mechanization
Forensic Engineering and Risk Management
Construction works In Mining industry
Mining Geophysics
Flotation and Agglomeration
Mining Regulations and Standardization

Material Handling and Delivery
Geotechnical Works
Mechanical Extraction of Mineral Raw Materials
Databases in Mining

Specialized Elective Courses – Summer Semester
Mining Economics
Geoenvironmental Engineering
Chemical and Physical Measurements in Mining Engineering
Electrical works in Mining Engineering
Waste Disposal and Depositing
Geographic Information Systems
Engineering Graphics and CAD
Mining Management
Remote Control and Management
Safety Pillars exploitation in underground mining
Mine Reconstruction

A student who does not earn ECTS credits from the selected elective course may re-enroll in the same course or choose a different elective course in the following academic year. The faculty reserves the right to depart from the aforementioned schedule of courses per semester and may not offer certain elective courses to students every academic year due to organizational reasons.

12. Curriculum Plan for the Study Subjects

Considering the prior knowledge that a student needs to acquire in order to successfully follow the lectures, the following schedule of subjects per semester is proposed:

MINING ENGINEERING 1ST CYCLE – 1ST YEAR

1ST YEAR	WINTER SEMESTER				SUMMER SEMESTER			
Subject	P*	A*	L*	ECTS	P*	A*	L*	ECTS
Mathematics	2	2	0	5				
General Chemistry	2	1	0	5				
Physics	2	1	0	4				
Geology, Mineralogy, and Petrography	6	1	0	7				
Energy Resources and Energy	3	3	0	6				
Descriptive Geometry And Engineering Drawing					4	0	2	6
Environmental Protection					3	1	1	6
Mineral Deposits					2	0	0	3
Applied Mathematics					3	2	0	5
Fundamental Mining					4	0	1	6
TOTAL OBLIGATORY	15	8	0	27	16	3	4	26
Additional credits	2	0	0	3	2	0	0	4
TOTAL	**17**	**8**	**0**	**30**	**18**	**3**	**4**	**30**

***Lectures (P), auditory exercises (A), laboratory exercises (L)**

ELECTIVE COURSES								
1ST YEAR	WINTER SEMESTER				SUMMER SEMESTER			
Subject	P*	A*	L*	ECTS	P*	A*	L*	ECTS
Engineering Fundaments	2	0	0	3				
Mining Mechanization	2	0	0	3				
Forensic Engineering and Risk Management	2	0	0	3				
Mining Economics					2	0	0	4
Geoenvironmental Engineering					2	0	0	4

***Lectures (P), auditory exercises (A), laboratory exercises (L)**

MINING 1ST CYCLE – 2ND YEAR

2ND YEAR	WINTER SEMESTER				SUMMER SEMESTER			
Subject	**P***	**A***	**L***	**ECTS**	**P***	**A***	**L***	**ECTS**
Drilling and Blasting Technology	3	1	1	5				
Materials in Mining engineering	3	0	1	5				
Geostatistics	3	0	1	5				
Fluid Mechanics and Basics of Climatology	3	0	1	5				
Mechanics	4	1	1	6				
Technical and Architectural Rock Stone					3	0	1	5
Strength of Materials					3	2	0	5
Survey and Mining Measurements					3	0	2	5
Drainage					2	0	1	5
Construction of Mining Facilities					3	1	1	6
TOTAL OBLIGATORY	16	2	5	26	14	3	5	26
Additional credits	2	0	0	4	2	0	1	4
TOTAL	**18**	**2**	**5**	**30**	**16**	**3**	**6**	**30**

***Lectures (P), auditory exercises (A), laboratory exercises (L)**

ELECTIVE COURSES								
2ND YEAR	**WINTER SEMESTER**				**SUMMER SEMESTER**			
Subject	**P***	**A***	**L***	**ECTS**	**P***	**A***	**L***	**ECTS**
Construction works In Mining industry	2	0	0	4				
Mining Geophysics	2	0	0	4				
Flotation and Agglomeration	2	0	0	4				
Chemical and Physical Measurements in Mining Engineering					2	0	1	4
Electrical works in Mining Engineering					2	0	1	4
Waste Disposal and Depositing					2	0	1	4

***Lectures (P), auditory exercises (A), laboratory exercises (L)**

MINING 1.ST CYCLE – 3RD YEAR

3RD YEAR	WINTER SEMESTER				SUMMER SEMESTER			
Subject	**P***	**A***	**L***	**ECTS**	**P***	**A***	**L***	**ECTS**
Natural Hazards, Fires, and Explosions	4	0	1	6				
Rock Mechanics	2	1	1	5				
Programming with Numerical Methods	3	0	1	5				
Transport and vertical transport	4	0	1	6				
Mining Thermodynamics	3	2	0	4				
Surface Mining Technology					4	0	0	5
Well Mining of Mineral Raw Materials					3	0	1	4
Discontinuous Surface Mining					4	0	1	5
Tunnels					2	1	1	4
Soil Mechanics					2	1	2	5
Summer Practice					0	0	0	3
TOTAL OBLIGATORY	16	3	4	26	15	2	5	26
Additional credits	2	0	0	4	2	0	1	4
TOTAL	**18**	**3**	**4**	**30**	**17**	**2**	**6**	**30**

***Lectures (P), auditory exercises (A), laboratory exercises (L)**

ELECTIVE COURSES								
3RD YEAR	**WINTER SEMESTER**				**SUMMER SEMESTER**			
Subject	**P***	**A***	**L***	**ECTS**	**P***	**A***	**L***	**ECTS**
Mining Regulations and Standardization	2	0	0	4				
Material Handling and Delivery	2	0	0	4				
Geographic Information Systems					2	0	1	4
Engineering Graphics and CAD					2	0	1	4
Mining Management					2	0	1	4

***Lectures (P), auditory exercises (A), laboratory exercises (L)**

MINING 1.ST CYCLE – 4TH YEAR

4TH YEAR	WINTER SEMESTER				SUMMER SEMESTER			
Subject	P*	A*	L*	ECTS	P*	A*	L*	ECTS
Surface Mine Designing	4	0	1	5				
Mining Safety	3	1	0	5				
Underground Mining Bedded Deposits	4	0	1	6				
Continuous Surface mining	4	0	1	5				
Numerical Modelling in Mining	2	0	1	5				
Underground Exploitation of Non-bedded Deposits					4	1	0	6
Mine Closure and Reclamation					2	0	1	4
Underground Mine Designing					4	1	0	6
Mining Ventilation and Aerology					4	0	1	6
Raw Material Preparation and Mineral Processing					3	0	1	4
TOTAL OBLIGATORY	17	1	4	26	17	2	3	26
Additional credits	2	0	1	4	2	1	0	4
TOTAL	**19**	**1**	**5**	**30**	**19**	**3**	**3**	**30**

***Lectures (P), auditory exercises (A), laboratory exercises (L)**

ELECTIVE COURSES								
4TH YEAR	WINTER SEMESTER				SUMMER SEMESTER			
Subject	P*	A*	L*	ECTS	P*	A*	L*	ECTS
Geotechnical Works	2	0	1	4				
Mechanical Extraction of Mineral Raw Materials	2	0	1	4				
Databases in Mining	3	0	0	4				
Remote Control and Management					2	1	0	4
Safety Pillars exploitation in underground mining					2	1	0	4
Mine Reconstruction					2	1	0	4

***Lectures (P), auditory exercises (A), laboratory exercises (L)**