

HIGHER EDUCATION PROFESSIONAL STUDY PROGRAMME
GEO TECHNOLOGY AND MINING

Academic year 2024/2025

General information

Programme name	Geotechnology and Mining
Degree	Higher education professional study programme
Level	First level
KLASIUS-SRV	Higher professional education (first Bologna level) (16203)
ISCED	Production technologies (54)
KLASIUS-P	Mining and other extraction of minerals (undefined in more detail) (5440)
KLASIUS-P-16	Mining and other extraction of minerals (0724)
Frascati	Natural-mathematical sciences (1) Technical sciences (2)
Level SOK	SOK 7
Level EOK	EOK 6
Level EOVK	First level
Member of the University of Ljubljana	Faculty of Natural Sciences and Engineering, Aškerčeva cesta 12, 1000 Ljubljana, Slovenia
Duration (years)	3
ECTS credit points per year	60
Mode of study	Full-time

Basic goals of the programme

The higher education professional study programme Geotechnology and Mining offers education steeped in natural sciences and engineering, following the latest developments in professions centring on geoscience and non-living matter. Increasingly, we have also seen the need for students to acquire other knowledge, e.g. from the fields of environmental protection, economics and IT. The programme gives students the necessary theoretical and practical knowledge needed to solve actual professional problems in practice. At the same time, it offers an introduction to the fundamentals of conducting research, which are key for further studies at higher levels of education. With the help of electives, students have the possibility to further their knowledge in the fields they find especially interesting. The programme provides students with the competences necessary to secure employment in a wide area of industries involving extracting ore, primary processing of ore, blasting, construction of underground and other geotechnical structures, drilling techniques, work for measuring and tracking in nature, geotechnical investigation, work for assessing and implementing activities affecting nature, restoration of degraded areas, environmental and solid waste management, rehabilitation of land due to natural disasters (landslides, earthquakes) and due to improper interventions in the environment in the past. The higher education professional study programme Geotechnology and Mining enables the training of experts in the above fields and represents an increase in expertise in activities that have been neglected in the past on the one hand, e.g. care for the preservation of the natural environment, and on the other hand, technical and economic possibilities did not yet allow construction and wider use of spaces below the surface of the earth. The acquired knowledge and skills enable successful work in more demanding professional positions in both public and private companies at home and abroad.

General competences (learning outcomes)

European engineering programmes tend to be comparable to American engineering programmes. The undergraduate first-level study programme Geotechnology and Mining provides the following qualification attributes or competences:

- ability to manage implementation processes of service activities in the field of geotechnology, mining, geotechnical constructions, tunnel construction, waste management etc.;
- ability to apply fundamental knowledge of mathematics, physics and chemistry to engineering problems;
- theoretical and practical knowledge of the professional domain;

- ability to use techniques, skills and modern engineering tools needed in practice;
- ability for individual and project work in the field of geotechnology and mining;
- understanding of ethical and professional responsibility;
- recognition of the need and ability to implement lifelong learning;
- ability to participate in projects in the field of geotechnology and mining.

Subject-specific competences (learning outcomes)

The competence profile of a student completing the undergraduate higher education professional programme Geotechnology and Mining encompasses the following competences:

- fundamental expert knowledge in the field of geotechnology and mining;
- ability to understand and theoretically justify professional topics involving natural sciences and engineering;
- ability to identify concrete and practical problems, analyse them theoretically, find solutions and act accordingly;
- ability to cooperate in developing and transferring research and development achievements into practice within geotechnology and mining;
- ability to understand the interdependence between natural sciences, modern technologies and engineering;
- ability to communicate with co-workers and experts from related fields;
- ability to assume professional, ethical and environmental responsibility;
- ability to be professionally critical and responsible.

Enrolment conditions

Enrolment in the programme shall be possible for any person who has successfully:

- completed general matura exam;
- completed vocational matura in any four-year secondary school programme;
- completed any four-year secondary school programme before 1 June 1995;
- completed the final examination in any four-year secondary school programme.

Selection criteria in case of limited enrolment

If the number of candidates applying for the programme exceeds the number of available enrolment places, candidates shall be short-listed according to the following criteria:

candidates from point a) will be selected according to:

- overall performance at the general matura exam (60% of points),
- overall performance in the 3rd and 4th year of secondary school (40% of points);

candidates from point b) will be selected according to:

- overall performance at the vocational matura exam (60% of points),
- overall performance in the 3rd and 4th year of secondary school (40% of points);

candidates from points c) and d) will be selected according to:

- overall performance at the final examination (60% of points),
- overall performance in the 3rd and 4th year of secondary school (40% of points).

Criteria for crediting knowledge and skills obtained before enrolment

Recognition of knowledge and skills acquired before the enrolment is considered individually. The Study Committee of the Faculty of Natural Sciences and Engineering decides on recognition after preliminary consideration by the Department for Geotechnology, Mining and the Environment. Knowledge of candidates acquired through different methods of education can be recognised if it is similar in content to the courses or the programme of the higher education professional study programme Geotechnology and Mining. In addition to the application, the candidate must provide certificates and other evidence of acquired skills and the content of these skills.

When crediting knowledge obtained before the enrolment, the Study Committee will take into account the following criteria:

- whether conditions for enrolling in the study programme Geotechnology and Mining are adequate;
- whether the scope of the completed educational course adequately compares with the credited requirements.

The acquired knowledge and skills may be credited as a completed study activity if the conditions for taking part in the educational programme were at least attained secondary school education, if the prior educational programme encompassed at least 75% of the scope of the course and if at least 75% of its contents cover the same areas as the course which the applicant would like to have credited. If the Committee established that the acquired knowledge can be credited, it is granted the same number of ECTS credit points as awarded for the course in question. A special case of crediting skills and knowledge obtained prior to the enrolment is the crediting of practical training if the student was regularly employed at a company working with geotechnology and mining activities or similar for at least a year. In the case of limited enrolment, knowledge and skills acquired before the enrolment, i.e. awards and other public recognitions, are also taken into account as a selection criterion.

Assessment methods

The assessment methods are in accordance with the Statute of the University of Ljubljana and are specified in the curricula.

Requirements for progression through the programme

Students can enrol in the 2nd study year if they have collected at least 49 ECTS credit points by the end of the academic year. To enrol in the 3rd study year, all obligations from the 1st year must be met (60 ECTS credit points) and at least 49 ECTS credit points obtained from the 2nd study year. Exceptionally, a student can enrol in a higher year even if they have not achieved 49 ECTS credit points, when there are justified reasons for doing so. Justified reasons are specified in the Statute of the University of Ljubljana.

To repeat a study year (re-enrol in the same study year), students must have:

- in the 1st study year accumulated at least 26 ECTS credit points;
- in the 2nd study year obtained at least 26 ECTS credit points.

A student can repeat a year or change a study programme once during their studies due to not fulfilling obligations in the previous study programme.

Requirements for transferring between programmes

Transfer is possible between two study programmes:

- which guarantee the acquisition of comparable competences or learning outcomes at the end of the studies;
- among which, according to the criteria for recognition of knowledge and skills acquired before the enrolment in the higher education professional study programme Geotechnology and Mining, at least half of the obligations under the European Transferable Credit System (ECTS) from the first study programme, which refer to compulsory courses of the higher education professional study programme Geotechnology and Mining.

An individual exam passed in the previous study programme is recognised as having been passed in the first-level professional study programme Geotechnology and Mining if the contents of the two courses are at least 75% compatible. The recognised exam is evaluated with ECTS credit points in the previous study programme; however, not with more credit points than evaluated in the higher education professional study programme Geotechnology and mining.

Candidates can enrol in the 2nd or 3rd study year of the higher professional study programme Geotechnology and Mining with transfer if:

- they meet the conditions for enrolment in the study programme,
- vacant places are available.

The Study Committee of the Department of Geotechnology, Mining and the Environment determines for each candidate the extent to which it recognises already completed study obligations, determines new obligations and defines the year the candidate can transfer to.

Requirements for completing studies

Successful completion of the studies is conditioned by the fulfilment of all obligations and conditions specified in the study programme. In doing so, each student must first successfully complete a three-year higher education professional study according to the prescribed programme and successfully defend a diploma thesis.

Professional title (abbreviation)

Bachelor of Applied Science (B.A.Sc.)

SUBJECTS OF THE STUDY PROGRAM WITH INTENDED COURSES AND SUBJECT LECTURERS

1st year

	University course code	Course title	Lecturers	Contact hours					Individual work	Hours total	ECTS	Semester	Elective
				Lectures	Seminar	Tutorial	Clinical tutorial	Other forms of study					
1.	0067636	Applied Geology in Geoengineering	Barbara Čenčur Curk, Goran Vižintin	60	30	0	0	0	90	180	6	1st semester	no
2.	0067637	Economy of Business in Geotechnological Companies	Jurij Šporin, Željko Vukelić	45	30	45	0	0	120	240	8	1st semester	no
3.	0067638	Physics	Matej Komelj	45	0	30	0	0	75	150	5	1st semester	no
4.	0067640	Chemistry	Romana Cerc Korošec	60	0	15	0	0	75	150	5	1st semester	no
5.	0067641	Mathematics I	Janko Bračič	45	0	45	0	0	90	180	6	1st semester	no
6.	0068544	Geometry in Engineering	Goran Vižintin, Željko Vukelić	45	0	30	0	0	75	150	5	2nd semester	no
7.	0067642	Mathematics II	Janko Bračič	45	0	45	0	0	90	180	6	2nd semester	no
8.	0067643	Surveying in Geotechnology I	Damjan Hann, Goran Vižintin	45	0	45	0	0	90	180	6	2nd semester	no
9.	0068549	Technical English	Barbara Luštek Preskar	30	15	15	0	0	60	120	4	2nd semester	no

10.	0067645	Technical Mechanics	George Mejak	45	0	30	0	0	75	150	5	2nd semester	no
11.	0067646	Technology and Quality of Construction Materials	Damjan Hann	30	30	0	0	0	60	120	4	2nd semester	no
Total				495	75	330	0	0	900	1800	60		

2nd year

	University course code	Course title	Lecturers	Contact hours					Individual work	Hours total	ECTS	Semester	Elective
				Lectures	Seminar	Tutorial	Clinical tutorial	Other forms of study					
1.	0067649	Soil Mechanics and Structure Foundations	Vojkan Jovičić, Željko Vukelić	45	0	30	0	15	90	180	6	1st semester	no
2.	0067650	Mineral Processing	Jože Kortnik	45	0	45	0	0	90	180	6	1st semester	no
3.	0067652	Basics of Electrotechnics	Jurij Šporin, Željko Vukelić	30	0	30	0	0	60	120	4	1st semester	no
4.	0067653	Basics of Mechanical Engineering	Željko Vukelić	30	0	30	0	0	60	120	4	1st semester	no
5.	0067654	Computer Science and Information Technology	Goran Vižintin	30	0	30	0	0	60	120	4	1st semester	no
6.	0068561	Extraction of Mineral Resources I	Damjan Hann, Janez Rošar, Željko Vukelić	60	0	15	0	15	90	180	6	1st semester	no
7.	0559442	Engineering Geophysics I	Goran Vižintin	45	0	45	0	0	90	180	6	2nd semester	no
8.	0067648	Rock Mechanics	Vojkan Jovičić, Željko Vukelić	45	15	30	0	15	105	210	7	2nd semester	no
9.	0068556	Surveying in Geotechnology II	Damjan Hann, Goran Vižintin	45	0	45	0	15	105	210	7	2nd semester	no
10.	0067655	Environmental Management and Clean Technologies	Jože Kortnik	30	30	0	0	0	60	120	4	2nd semester	no
11.	0086889	General Optional Course I		45	0	45	0	0	90	180	6	2nd semester	no

	Total	450	45	345	0	60	900	1800	60	
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3rd year

	University course code	Course title	Lecturers	Contact hours					Individual work	Hours total	ECTS	Semester	Elective
				Lectures	Seminar	Tutorial	Clinical tutorial	Other forms of study					
1.	0067659	Management of Waste Materials	Jože Kortnik	30	15	0	0	15	60	120	4	1st semester	no
2.	0067660	Landfills for Waste Materials	Jože Kortnik	30	15	0	0	15	60	120	4	1st semester	no
3.	0067662	Practical Training	Jože Kortnik	0	0	0	0	120	120	240	8	1st semester	no
4.	0067663	Research Drilling I	Željko Vukelić	30	0	30	0	0	60	120	4	1st semester	no
5.	0067665	Technology and Environment	Goran Vižintin, Željko Vukelić	30	0	30	0	0	60	120	4	1st semester	no
6.	0086891	Professional Optional Course I		45	0	45	0	0	90	180	6	1st semester	no
7.	0067657	Ore Dressing and Recycling	Jože Kortnik	45	15	15	0	15	90	180	6	2nd semester	no
8.	0067661	Underground Structures I	Janez Rošer, Željko Vukelić	45	0	30	0	15	90	180	6	2nd semester	no
9.	0067664	Research Drilling II	Željko Vukelić	30	0	15	0	15	60	120	4	2nd semester	no
10.	0086892	General Optional Course II		30	0	30	0	0	60	120	4	2nd semester	no
11.	0086893	Professional Optional Course II		30	0	30	0	0	60	120	4	2nd semester	no
12.	0068563	Diploma Thesis		0	0	0	0	90	90	180	6	2nd semester	no
Total				345	45	225	0	285	900	1800	60		

Elective professional course type

				Contact hours									
	University course code	Course title	Lecturers	Lectures	Seminar	Tutorial	Clinical tutorial	Other forms of study	Individual work	Hours total	ECTS	Semester	Elective
1.	0068571	Extraction of Mineral Resources II	Damjan Hann, Janez Rošer, Željko Vukelić	45	0	45	0	0	90	180	6		yes
2.	0561566	Engineering Geophysics II	Goran Vižintin	30	0	15	0	15	60	120	4		yes
3.	0075569	Underground Structures II	Janez Rošer, Željko Vukelić	45	15	15	0	15	90	180	6		yes
4.	0075570	Utilization of Geothermal Energy	Željko Vukelić	30	0	15	0	15	60	120	4		yes
5.	0075574	Basics of Reinforced Concrete Structures	Vojkan Jovičić, Željko Vukelić	30	0	30	0	0	60	120	4		yes
6.	0075579	Underground Landfills for Waste Materials	Jože Kortnik	45	0	30	0	15	90	180	6		yes
7.	0075635	Measurements Encyclopedia	Goran Vižintin	45	0	30	0	15	90	180	6		yes
8.	0075641	Basics of Underground Fluids Modelling	Goran Vižintin	30	0	30	0	0	60	120	4		yes
9.	0075651	Advanced Strength of Materials	Pino Koc	45	0	45	0	0	90	180	6		yes
10.	0643408	Holistic Thinking and Acting	Andrej Demšar	30	0	30	0	0	60	120	4		yes
11.	0643409	Business Communication	Andreja Jaklič	30	30	0	0	0	60	120	4		yes
Total				345	15	255	0	75	690	1380	46		