



# Presentation of the study programme

2<sup>nd</sup> cycle master study programme

**CIVIL ENGINEERING (MA)**

Valid from study year 2024/2025 | Valid study programme from 20/01/2024

University of Ljubljana, Faculty of Civil and Geodetic Engineering

## INFORMATION ABOUT THE STUDY PROGRAMME

### 1. Basic data

Programme name	<b>Civil Engineering</b>
Programme characteristics	
Type	master
Cycle	Second cycle
KLASIUS-SRV	Master higher education (second cycle Bologna)/Master higher education (second cycle Bologna) (17003)
ISCED	<ul style="list-style-type: none"> <li>architecture, urbanism and civil engineering (58)</li> </ul>
KLASIUS-P	<ul style="list-style-type: none"> <li>Civil engineering (not specified in detail) (5820)</li> </ul>
KLASIUS-P-16	<ul style="list-style-type: none"> <li>Civil engineering (0732)</li> </ul>
Frascati	<ul style="list-style-type: none"> <li>Technical sciences (2)</li> </ul>
Level SOK	Level SOK 8
Level EOK	Level EOK 7
Level EOVK	Second cycle
Areas/modules/orientations	<ul style="list-style-type: none"> <li>No subdivision (study programme)</li> <li>Geotechnics - Hydrotechnics (division)</li> <li>Structural engineering (division) <ul style="list-style-type: none"> <li>Interdisciplinary project study of computer-aided design of structures (module)</li> <li>Engineering modelling (module)</li> <li>Steel structures (module)</li> <li>Concrete and masonry structures (module)</li> </ul> </li> <li>Building information modelling - BIM A+ (division)</li> <li>Infrastructural engineering (division) <ul style="list-style-type: none"> <li>Municipal engineering (module)</li> <li>Organisation - building informatics (module)</li> <li>Project (module)</li> <li>Traffic engineering (module)</li> </ul> </li> </ul>
Member of University of Ljubljana	<ul style="list-style-type: none"> <li>Faculty of Civil and Geodetic Engineering, Jamova 2, 1000 Ljubljana, Slovenia</li> </ul>
Duration (years)	2
Number of ECTS per year	60
Implementation of study	full-time, part-time

### 2. Basic goals of the programme

The basic goal of the 2<sup>nd</sup> cycle master study programme Civil Engineering is to educate experts with in- depth and specific knowledge and skills from the basic areas of civil engineering, and considering the chosen orientation and elective courses also with special in-depth knowledge from the individual area of civil engineering or the areas related to it.

Within the study, the student will learn about the traditional principles upgraded by the latest findings. The contents will be delivered in a contemporary way with modern technology. Students will also learn about all specifics in Slovenia and Europe resulting from special historic, socio- economical and geographic characteristics. With group work, project work and problem-oriented tasks they will get accustomed to group work, public appearance and managing customers as well as get actively involved in research. All the acquired theoretic knowledge will be tested to the largest possible extent with appropriate practical work and with solving demanding theoretic or professionally oriented problems and projects, which will facilitate them the inclusion in practical work after the study and to understand the issues related to civil engineering.

Students acquire the necessary in-depth and specific knowledge from the basic natural sciences and computer- information courses, the knowledge from the basic courses related to civil engineering as well as specific knowledge from professional civil engineering courses. Within individual orientations and elective courses students can choose specialisation and prepare for further study within the programmes of the third cycle.

The goal of the programme is to ensure international comparability, mobility and progression, and the graduate can continue study in Europe and get a job within the European Union. The programme is harmonised with the minimum requirements of the FEANI Association, and thus also with the accreditation of the programme for the title Euro-eng. The goal is also to increase the progression of students and to provide better quality by introducing regular study, with the development of general student and teacher tutorship as well as tutorship for specific courses.

Student can test the acquired knowledge in practice within two-week practical training in construction and similar companies that also represent the target employment areas.

The programme designed in this way results in a graduate with in-depth theoretical and expert knowledge who can find job in construction companies or individually perform the most demanding expert and development tasks from the area of civil engineering in Slovenia and in Europe.

### 3. General competences

General competences of the graduate of 2<sup>nd</sup> cycle master study of Civil Engineering are:

- good general information and knowledge about academic areas and scientific methods of work,
- development of abilities to setup, research, understand and creatively solve problems, principles and theories,
- critical reading and understanding of texts, independent search for knowledge and sources,
- development of the ability of critical, analytical and synthetic thinking,
- qualification for the transfer and use of theoretic knowledge into practice and solving of expert and working problems as well as interdisciplinary connections,
- development of professional and ethical responsibility,
- development of scientific literacy, public appearance and communication with customers, delivering and presenting of knowledge and results,
- possibility of using foreign expert language in written and oral communication, communication in international and national scientific circles,
- possibility of using information-communication technology,
- consideration of safety, functional, economical, environmental and ecological aspects at work,
- development of moral-ethical standards (integrity to the work with customers, unbiased advice, independence and expertise according to valid legislation),
- creating objective view to the environment and society.

### 4. Course-related competences

With the 2<sup>nd</sup> cycle master study programme Civil Engineering, the graduate acquires mainly the following course-specific competences:

- basic and specific expert knowledge from the area of civil engineering, mainly from the areas of design, organisation, management and execution of construction works and construction manufacturing, construction informatics, ecology, spatial planning and spatial policy,
- independent comprehensive design of demanding structures,
- independent project management in the area of civil engineering,
- understanding interaction of technical and environmental issues with the ability to conceptualise and design environment friendly structures,
- performing demanding tasks from the area of civil engineering independently and within work groups for the activities described in the first indent,
- organisation, management and performance of development activity in the area of civil engineering,
- managing the basic knowledge from the area of civil engineering (natural sciences, mathematics, informatics, mechanics, materials), ability to connect knowledge from different areas and ability for the application of the acquired knowledge,
- use of knowledge in specialised areas of civil engineering (hydraulic engineering, building structures, municipal engineering, organisation – informatics and traffic engineering),
- understanding the general structure of the basic discipline and interconnection of its sub-disciplines,
- use of information-communication technology and systems, most frequently used in practice in the area of civil engineering
- managing construction and similar companies and offices.

## 5. Conditions for enrolment

The 2<sup>nd</sup> cycle master study programme Civil Engineering is available to the graduates from:

- a) 1<sup>st</sup> cycle study programme from the area of Civil Engineering, which consists of the whole thematic field of civil engineering,
- b) 1<sup>st</sup> cycle study programme from construction management, traffic or other expert areas, if before the enrolment the candidate completes other study obligations, which are essential for the continuation of the study, totalling 10-60 ECTS; these obligations shall be defined according to the nature of expert area, and the candidates may complete them during the 1<sup>st</sup> cycle study, in programmes for additional education and by passing exams before the enrolment to the master study
- c) higher education professional study programme according to the old study programme of civil engineering
- d) higher education professional study programme according to the old study programme of other expert areas, if before the enrolment the candidate completes study obligations, which are essential for the continuation of the study, totalling 10–60 ECTS; candidates may complete them during the 1<sup>st</sup> cycle study, in programmes for additional education and by passing exams before the enrolment to the master study

## 6. Selection criteria when enrolment is restricted

In case of restricted enrolment, the following conditions shall be considered: grade obtained in the 1<sup>st</sup> cycle study (100%).

## 7. Criteria for recognising knowledge and skills acquired before enrolment in the programme

The student can be acknowledged the knowledge that matches the contents and scope of the study in the programme Civil Engineering. The Study Board of the Department of Civil Engineering of UL FGG takes decisions regarding the acknowledgement of knowledge and skills acquired before the enrolment, based on the student's written application, the enclosed certificates and other documents evidencing the successfully acquired knowledge and contents of this knowledge, and in accordance with the Rules on the procedure and criteria for the acknowledgement of informally acquired knowledge and skills, adopted on 29 May 2007 at the 15<sup>th</sup> meeting of the UL Senate.

For the acknowledgement of knowledge and skills the following shall be considered:

- certificates and other documents evidencing finished courses and other forms of education,
- evaluation of finished products, services, publications and other original works of the student,
- evaluation of knowledge acquired by the student based on self-education or learning from experiences (possibility of completing study obligations without participation at lectures, practical work, seminars),
- adequate work experiences.

Shall the Study Board of the department establish that the acquired knowledge may be acknowledged, this shall be evaluated with the same number of points according to ECTS as the number of points in the subject.

## 8. Methods of assessment

The assessment methods are in accordance with [Statute of University of Ljubljana](#) and listed in the Course Syllabi.

## 9. Conditions for progression through the programme

Students may enrol to subsequent year, if they complete by the end of the study year the obligations foreseen by the study plan, amounting to at least 45 ECTS.

Exceptionally students may enrol to subsequent year with at least 40 ECTS points collected if they have completed the mandatory contents in accordance with the study programme and they have justifiable reasons as defined by the UL Statute. The UL FGG Commission for solving student applications decides on exceptional enrolment.

## 10. Transfers between study programmes

Transfer involves suspension of the student's educational process in the study programme of the original choice and continuation of education in another 2<sup>nd</sup> cycle master study programme of Civil Engineering (second programme), where all or part of student's successfully completed work in the original study programme is accepted as completed work.

Transfers are possible from 2<sup>nd</sup> cycle study programmes and also from undergraduate academic study programmes, until the last year of validity, adopted before 11. 06. 2004 that provide comparable competences and which cover, according to the recognition criteria, at least half of ECTS budgets from the first study programme, related to obligatory courses of the second study programme. Considering the scope of obligations recognised from the first study programme finished in the Republic of Slovenia or abroad, student may enrol to the same or higher year in the second study programme. Students changing their study programme shall comply with the conditions for the enrolment to the second study programme.

Applications of candidates changing their 2<sup>nd</sup> cycle master study programme of Civil Engineering and their study obligations in the second study programme will be discussed individually by the Study Board of the Department of Civil Engineering. If the candidate is approved at least the number of credit points that represent the condition for the enrolment to a higher year of the 2<sup>nd</sup> cycle master study programme of Civil Engineering, such candidate is allowed to enrol to a higher (second) year of the 2<sup>nd</sup> cycle master study programme of Civil Engineering.

## 11. Conditions for completion of the study

Students finish the study by accomplishing all the prescribed obligations totalling 120 points according to ECTS, including practical training and submission and defence of the Master thesis.

## 12. Conditions for completion of individual parts of the programme

The study is uniform.

## 13. Qualification, professional or academic title

- magister inženir gradbeništva (male)  
(second cycle graduate in civil engineering)
- magistrica inženirka gradbeništva (female)  
(second cycle graduate in civil engineering)
- magister inženir informacijskega modeliranja zgradb (BIM)  
(second cycle graduate in building information modelling (BIM))
- magistrica inženirka informacijskega modeliranja zgradb (BIM) (female)  
(second cycle graduate in building information modelling (BIM))

## 14. Qualification, professional or academic title (abbreviation)

- mag. inž. grad.
- mag. inž. BIM

## SYLLABUS OF STUDY PROGRAMME WITH FORESEEN COURSE COORDINATORS

### Geotechnics – Hydrotechnics (division)

#### 1<sup>st</sup> year, mandatory

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0034917	Mathematics 3	Gašper Jaklič	45	0	30	0	0	75	150	5	Winter	no
2.	0034918	Finite Element Methods in Civil Engineering	Boštjan Brank	30	0	0	30	0	60	120	4	Winter	no
3.	0034916	Geotechnics of Infrastructural Facilities	Janko Logar	30	0	15	15	0	60	120	4	Winter	no
4.	0034920	Hydraulic Modelling	Gašper Rak, Matjaž Četina, Gorazd Novak	45	15	0	45	0	105	210	7	Winter	no
5.	0034915	Hydrological Modelling	Mojca Šraj	30	0	0	60	0	90	180	6	Winter	no
6.	0038912	Elective course 1		30	0	30	0	0	60	120	4	Winter	yes
7.	0034921	Seismic Engineering	Matjaž Dolšek	45	0	0	30	0	75	150	5	Summer	no
8.	0034922	Modelling of Geotechnical Structures	Boštjan Pulko, Janko Logar	45	0	15	30	0	90	180	6	Summer	no
9.	0034924	Numerical Modelling of Solids	Jože Korelc	45	0	0	45	0	90	180	6	Summer	no
10.	0034923	Design of Building Structures	Drago Saje	30	0	0	30	0	60	120	4	Summer	no
11.	0034919	Theory of Probability and Statistics	Marjeta Kramar Fijavž	30	0	30	0	0	60	120	4	Summer	no
12.	0038913	Elective course 2		45	0	30	0	0	75	150	5	Summer	yes
		Total		450	15	150	285	0	900	1800	60		

**2<sup>nd</sup> year, mandatory**

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0037993	Project Management	Robert Klinc	30	0	0	30	0	60	120	4	Winter	no
2.	0037994	River Engineering	Matjaž Mikoš	60	30	15	0	15	120	240	8	Winter	no
3.	0037995	Hydraulic Structures	Andrej Kryžanowski	60	0	60	0	0	120	240	8	Winter	no
4.	0037996	Experimental Methods in Geotechnical Engineering	Janko Logar, Matej Maček	45	10	0	30	5	90	180	6	Winter	no
5.	0038914	Elective course 3		30	0	30	0	0	60	120	4	Winter	yes
6.	0037997	Practical training	Andreja Istenič Starčič	6	0	0	0	80	34	120	4	Summer, Winter	no
7.	0037998	Torrent Control Engineering	Matjaž Mikoš	45	0	30	0	15	90	180	6	Summer	no
8.	0037999	Slope Stabilisation	Matej Maček, Matjaž Mikoš	20	5	0	30	5	60	120	4	Summer	no
9.	0038000	Rock Mechanics and Underground Structures	Janko Logar, Vojkan Jovičič	45	0	0	45	0	90	180	6	Summer	yes
10.	0034965	Master thesis		0	0	0	0	150	150	300	10	Summer	no
		Total		341	45	135	135	270	874	1800	60		

**Elective professional courses from Geotechnics - Hydrotechnics**

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0038005	Hydraulic Machines and Devices	Gašper Rak, Marko Hočevar	30	0	0	30	0	60	120	4	Summer, Winter	yes
2.	0034914	Hydroelectric Power	Andrej Kryžanowski	30	0	30	0	0	60	120	4	Summer, Winter	yes
3.	0038007	Numerical Methods in Fluid Dynamics	Matjaž Četina	45	0	0	30	0	75	150	5	Summer, Winter	yes
4.	0034912	Environmental Geotechnics	Matej Maček	30	0	30	0	15	75	150	5	Summer, Winter	yes
		Total		135	0	60	60	15	270	540	18		



**Structural engineering (division)****1<sup>st</sup> year, mandatory**

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0034917	Mathematics 3	Gašper Jaklič	45	0	30	0	0	75	150	5	Winter	no
2.	0034918	Finite Element Methods in Civil Engineering	Boštjan Brank	30	0	0	30	0	60	120	4	Winter	no
3.	0034955	Building Physics	Zvonko Jagličić	30	0	15	0	0	45	90	3	Winter	no
4.	0034956	Non-linear Mechanics	Igor Planinc	45	0	30	15	0	90	180	6	Winter	no
5.	0034957	Structural Analysis	Tatjana Isaković	30	15	0	30	0	75	150	5	Winter	no
6.	0034958	Conception of Building Structures	Matija Gams	30	15	0	0	0	45	90	3	Winter	no
7.	0038915	Elective course 1		30	0	15	15	0	60	120	4	Winter	yes
8.	0034959	Repair and Testing of Structures	Vlatko Bosiljkov	30	15	0	30	0	75	150	5	Summer	no
9.	0034960	Non-linear Analysis of Structures	Jože Korelc	45	0	0	30	0	75	150	5	Summer	no
10.	0034961	Computer-Integrated Construction	Žiga Turk	45	0	15	15	0	75	150	5	Summer	no
11.	0034919	Theory of Probability and Statistics	Marjeta Kramar Fijavž	30	0	30	0	0	60	120	4	Summer	no
12.	0034963	Geotechnics of Buildings	Boštjan Pulko	60	0	15	30	0	105	210	7	Summer	no
13.	0034964	Practical Training	Andreja Istenič Starčič	6	0	0	0	80	34	120	4	Summer	no
		Total		456	45	150	195	80	874	1800	60		

**2<sup>nd</sup> year, mandatory**

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0034966	Project Management	Robert Klinc	30	0	0	30	0	60	120	4	Winter	no
2.	0034967	Structural Dynamics and Earthquake Engineering	Matjaž Dolšek	60	0	0	45	0	105	210	7	Winter	no
3.	0034968	Selected Chapters from Concrete and Masonry Structures	Drago Saje, Jože Lopatič, Sebastjan Bratina	45	0	0	45	0	90	180	6	Winter	no
4.	0170226	Steel Structures II	Primož Može	45	0	0	30	0	75	150	5	Winter	no
5.	0034970	Probabilistic Methods and Reliability of Structures	Goran Turk	30	0	0	30	0	60	120	4	Winter	no
6.	0038916	Elective course 2		30	0	15	15	0	60	120	4	Winter	yes
7.	0034965	Master thesis		0	0	0	0	150	150	300	10	Summer	no
8.	0639884	Module - BII - CE SE		75	90	0	135	0	300	600	20	Summer, Winter	yes
		Total		315	90	15	330	150	900	1800	60		

**Elective professional courses from Structural engineering**

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0038456	Numerical Modelling of Solids	Jože Korelc	45	0	0	45	0	90	180	6	Summer	yes
2.	0038457	Coupled Problems	Dejan Zupan, Goran Turk	30	0	0	30	0	60	120	4	Summer	yes
3.	0038514	Technology of Material with Mineral Binders	Violeta Bokan-Bosiljkov	45	0	0	45	0	90	180	6	Summer	yes
4.	0034927	Advanced Construction and Building Materials	Violeta Bokan-Bosiljkov	15	15	0	30	0	60	120	4	Summer	yes
5.	0034928	Fire Safety	Tomaž Hozjan	45	0	0	45	0	90	180	6	Summer	yes
6.	0038504	Prestressed Concrete	Jože Lopatič, Sebastjan Bratina	45	0	0	45	0	90	180	6	Summer	yes
7.	0038507	Composite Structures	Primož Može	30	0	0	30	0	60	120	4	Summer	yes
8.	0034929	Engineering Timber Structures	Jože Lopatič	30	0	0	30	0	60	120	4	Summer	yes
9.	0034930	Shell Structures	Boštjan Brank	30	0	0	30	0	60	120	4	Summer	yes
10.	0038000	Rock Mechanics and Underground Structures	Janko Logar, Vojkan Jovičič	45	0	0	45	0	90	180	6	Summer	yes
11.	0038509	Modelling of Geotechnical Structures	Boštjan Pulko, Janko Logar	45	15	0	30	0	90	180	6	Summer	yes
12.	0034931	Nonlinear Seismic Analysis of Reinforced Concrete Bridges	Tatjana Isaković	30	60	0	0	0	90	180	6	Summer	yes
13.	0170318	Masonry Structures	Matija Gams, Vlatko Bosiljkov	30	0	30	0	0	60	120	4	Winter	yes
Total				465	90	30	405	0	990	1980	66		

## Interdisciplinary project study of computer-aided design of structures (module)

2<sup>nd</sup> year

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0038452	Interdisciplinary Seminar on Computer Aided Design of Structures	Matija Gams, Tatjana Isaković	0	90	0	60	0	150	300	10	Summer	yes
2.	0038453	Information and Communication Technology for Project Work	Tomo Cerovšek, Žiga Turk	20	10	30	0	0	60	120	4	Summer	yes
3.	0041665	Elective course SE		45	0	45	0	0	90	180	6	Summer	yes
		Total		65	100	75	60	0	300	600	20		

## Engineering modelling (module)

2<sup>nd</sup> year

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0038456	Numerical Modelling of Solids	Jože Korelc	45	0	0	45	0	90	180	6	Summer	yes
2.	0038457	Coupled Problems	Dejan Zupan, Goran Turk	30	0	0	30	0	60	120	4	Summer	yes
3.	0038466	Numerical Modelling of Geotechnical Structures	Boštjan Pulko, Janko Logar	45	0	0	30	0	75	150	5	Summer	yes
4.	0038007	Numerical Methods in Fluid Dynamics	Matjaž Četina	45	0	0	30	0	75	150	5	Summer, Winter	yes
		Total		165	0	0	135	0	300	600	20		

## Steel structures (module)

### 2<sup>nd</sup> year

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0038455	Design of Steel Structures - Seminar	Primož Može	0	90	0	60	0	150	300	10	Summer	yes
2.	0041666	Elective course SE 1		45	0	0	45	0	90	180	6	Summer	yes
3.	0041667	Elective course SE 2		30	0	0	30	0	60	120	4	Summer	yes
		Total		75	90	0	135	0	300	600	20		

## Concrete and masonry structures (module)

### 2<sup>nd</sup> year

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0038454	Design of Concrete and Masonry Structures - Seminar	Drago Saje, Jože Lopatič, Sebastjan Bratina	0	90	0	60	0	150	300	10	Summer	yes
2.	0041668	Elective course SE 1		45	0	0	45	0	90	180	6	Summer	yes
3.	0041669	Elective course SE 2		30	0	0	30	0	60	120	4	Summer	yes
		Total		75	90	0	135	0	300	600	20		

## Building information modelling - BIM A+ (division)

### 1<sup>st</sup> year, mandatory

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0034917	Mathematics 3	Gašper Jaklič	45	0	30	0	0	75	150	5	Winter	no
2.	0034918	Finite Element Methods in Civil Engineering	Boštjan Brank	30	0	0	30	0	60	120	4	Winter	no
3.	0034994	Geotechnics of Infrastructural Facilities	Janko Logar	45	30	45	0	0	120	240	8	Winter	no
4.	0034995	Quality Control and Quality Assurance	Žiga Turk	30	0	30	0	0	60	120	4	Winter	no
5.	0034996	Operative Planning and Monitoring of Projects	Robert Klinc	45	0	15	15	0	75	150	5	Winter	no
6.	0038914	Elective course 1		30	0	30	0	0	60	120	4	Winter	yes
7.	0034997	Real Estate Management	Maruška Šubic-Kovač, Daniel Kozelj	45	0	30	0	0	75	150	5	Summer	no
8.	0034923	Design of Building Structures	Drago Saje	30	0	0	30	0	60	120	4	Summer	no
9.	0034999	Intelligent Transport Systems	Marijan Žura	30	0	15	0	15	60	120	4	Summer	no
10.	0035000	Optimisation Methods in Civil Engineering	Marijan Žura	30	0	15	15	0	60	120	4	Summer	no
11.	0034919	Theory of Probability and Statistics	Marjeta Kramar Fijavž	30	0	30	0	0	60	120	4	Summer	no
12.	0116816	Elective course 2		30	0	30	0	0	60	120	4	Summer	yes
13.	0116817	Elective course 3		45	0	30	0	0	75	150	5	Summer	yes
		Total		465	30	300	90	15	900	1800	60		

**2<sup>nd</sup> year, mandatory**

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0118307	Management of information and collaboration in BIM	Tomo Cerovšek	30	15	30	0	0	75	150	5	Winter	no
2.	0118308	Modelling in Architecture and Engineering	Žiga Turk	30	15	30	0	0	75	150	5	Winter	no
3.	0116192	Parametric modelling in BIM	Matevž Dolenc, Vlado Stankovski	30	15	30	0	0	75	150	5	Winter	no
4.	0118310	Advanced BIM data-systems and interoperability	Tomo Cerovšek, Žiga Turk	30	15	30	0	0	75	150	5	Winter	no
5.	0116194	4D, 5D, 6D Modelling and Applications	Aleksander Srđić, Marijan Žura	30	15	30	0	0	75	150	5	Winter	no
6.	0118312	BIM based rehabilitation and sustainability analysis	Mitja Košir, Vlatko Bosiljkov	30	15	30	0	0	75	150	5	Winter	no
7.	0116196	Master thesis		0	0	0	0	450	450	900	30	Summer	no
		Total		180	90	180	0	450	900	1800	60		

## Infrastructural engineering (division)

### 1<sup>st</sup> year, mandatory

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0034917	Mathematics 3	Gašper Jaklič	45	0	30	0	0	75	150	5	Winter	no
2.	0034918	Finite Element Methods in Civil Engineering	Boštjan Brank	30	0	0	30	0	60	120	4	Winter	no
3.	0034994	Geotechnics of Infrastructural Facilities	Janko Logar	45	30	45	0	0	120	240	8	Winter	no
4.	0034995	Quality Control and Quality Assurance	Žiga Turk	30	0	30	0	0	60	120	4	Winter	no
5.	0034996	Operative Planning and Monitoring of Projects	Robert Klinc	45	0	15	15	0	75	150	5	Winter	no
6.	0038917	Elective course 1		30	0	30	0	0	60	120	4	Winter	yes
7.	0034997	Real Estate Management	Maruška Šubic-Kovač, Daniel Kozelj	45	0	30	0	0	75	150	5	Summer	no
8.	0034923	Design of Building Structures	Drago Saje	30	0	0	30	0	60	120	4	Summer	no
9.	0034999	Intelligent Transport Systems	Marijan Žura	30	0	15	0	15	60	120	4	Summer	no
10.	0035000	Optimisation Methods in Civil Engineering	Marijan Žura	30	0	15	15	0	60	120	4	Summer	no
11.	0034961	Computer-Integrated Construction	Žiga Turk	45	0	15	15	0	75	150	5	Summer	no
12.	0034919	Theory of Probability and Statistics	Marjeta Kramar Fijavž	30	0	30	0	0	60	120	4	Summer	no
13.	0034964	Practical Training	Andreja Istenič Starčič	6	0	0	0	80	34	120	4	Summer	no
		Total		441	30	255	105	95	874	1800	60		



**2<sup>nd</sup> year, mandatory**

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0034966	Project Management	Robert Klinc	30	0	0	30	0	60	120	4	Winter	no
2.	0035003	Road Construction Machinery and Technology	Matej Maček, Robert Rijavec	60	0	15	30	0	105	210	7	Winter	no
3.	0035004	Urban Roads	Peter Lipar	45	0	15	15	0	75	150	5	Winter	no
4.	0035005	Information Modelling of Buildings	Tomo Cerovšek	30	15	15	30	0	90	180	6	Winter	no
5.	0038917	Elective course 2		30	0	30	0	0	60	120	4	Winter	yes
6.	0038914	Elective course 3		30	0	30	0	0	60	120	4	Winter	yes
7.	0034965	Master thesis		0	0	0	0	150	150	300	10	Summer	no
8.	0639885	Module - BII - CE IE		120	45	75	60	0	300	600	20	Summer	yes
		Total		345	60	180	165	150	900	1800	60		

**Elective professional courses from division Infrastructural engineering**

	Code	Course title	Lecturers	Contact hours					Independent work	Total hours	ECTS	Semester	Elective
				Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms					
1.	0038585	Traffic Flow Theory and Capacity Analysis	Marijan Žura	45	0	0	15	0	60	120	4	Summer	yes
2.	0034979	Construction planning and road maintenance	Marijan Žura	30	0	15	15	0	60	120	4	Summer	yes
3.	0034978	Property Law	Ana Vlahek	30	0	30	0	0	60	120	4	Summer	yes
4.	0034981	Real Estate Valuation	Maruška Šubic-Kovač	30	0	30	0	0	60	120	4	Summer	yes
5.	0034980	Traffic Ecology	Peter Lipar	30	0	15	15	0	60	120	4	Summer	yes
6.	0034976	Urban Planning	Alma Zavodnik Lamovšek	30	0	30	0	0	60	120	4	Summer	yes
7.	0038588	Design and Construction of Steel Buildings	Primož Može	30	15	15	0	0	60	120	4	Summer	yes
8.	0109879	Engineering works and water Protection	Mario Krzyk, Nataša Atanasova, Sabina Kolbl Repinc	15	15	0	30	0	60	120	4	Summer, Winter	yes
		Total		240	30	135	75	0	480	960	32		

## Municipal engineering (module)

2<sup>nd</sup> year

				Contact hours									
	Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms	Independent work	Total hours	ECTS	Semester	Elective
1.	0038559	Municipal and Housing Economics	Maruška Šubic-Kovač, Daniel Kozelj	30	15	45	0	0	90	180	6	Summer	yes
2.	0038560	Water supply and sewage systems	Franc Steinman, Mario Krzyk	60	30	0	60	0	150	300	10	Summer	yes
3.	0038561	Project from Municipal Infrastructure	Maruška Šubic-Kovač, Daniel Kozelj	30	0	30	0	0	60	120	4	Summer	yes
Total				120	45	75	60	0	300	600	20		

## Organisation - building informatics (module)

2<sup>nd</sup> year

				Contact hours									
	Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms	Independent work	Total hours	ECTS	Semester	Elective
1.	0038562	Process Modelling and Information Systems	Tomo Cerovšek	30	0	15	15	0	60	120	4	Summer	yes
2.	0038563	Selected Chapters of Building Informatics	Žiga Turk	45	0	0	45	0	90	180	6	Summer	yes
3.	0038564	Management in Civil Engineering	Robert Klinc	30	0	30	0	0	60	120	4	Summer	yes
4.	0038576	Organisational Planning of Construction	Robert Klinc	30	30	15	15	0	90	180	6	Summer	yes
Total				135	30	60	75	0	300	600	20		

## Project (module)

### 2<sup>nd</sup> year

				Contact hours									
	Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms	Independent work	Total hours	ECTS	Semester	Elective
1.	0038577	Construction Informatics Project	Tomo Cerovšek	0	60	0	0	0	60	120	4	Summer	yes
2.	0038578	Project from Traffic Infrastructure	Marijan Žura	0	120	0	0	0	120	240	8	Summer	yes
3.	0038579	Project from Municipal Economics	Maruška Šubic-Kovač, Daniel Kozelj	0	60	0	0	0	60	120	4	Summer	yes
4.	0038580	Project from Construction Organisation and Contracting	Robert Klinc	30	30	0	0	0	60	120	4	Summer	yes
Total				30	270	0	0	0	300	600	20		

## Traffic engineering (module)

### 2<sup>nd</sup> year

				Contact hours									
	Code	Course title	Lecturers	Lectures	Seminar	Tutorials	Clinical tutorials	Other study forms	Independent work	Total hours	ECTS	Semester	Elective
1.	0038581	Road Design	Peter Lipar, Robert Rijavec	30	0	15	0	0	45	90	3	Summer	yes
2.	0038582	Road Seminar	Peter Lipar, Robert Rijavec	0	60	0	45	0	105	210	7	Summer	yes
3.	0038583	Railway Design	Marijan Žura, Peter Lipar, Robert Rijavec	30	0	15	0	0	45	90	3	Summer	yes
4.	0038584	Railway Seminar	Peter Lipar, Robert Rijavec	0	45	0	60	0	105	210	7	Summer	yes
Total				60	105	30	105	0	300	600	20		

## 15. Possibilities of elective courses and mobility

The division Structural Engineering foresees two external elective courses (4+4 ECTS in the second and third semesters), and students shall select a master module consisting of additional professional electives from the area of structural engineering.

The division Geotechnics - Hydrotechnics foresees three external elective courses (4+5 ECTS in the second and 4 ECTS in the third semester).

The division Infrastructural Engineering foresees three elective courses (4 ECTS in the second and 4+5 ECTS in the third semester). Further on, the division foresees four elective master modules in the fourth semester. Due to large variety of the syllabus at Infrastructural Engineering, students are recommended to select only electives from the division Infrastructural Engineering.

Students may choose external elective courses in any study programme of the UL or from other universities.

Students may transfer 30 ECTS of the programme (one semester, regardless of obligatory or elective units) from any programme from the area of civil engineering of any faculty in Slovenia or from abroad, provided that the UL FGG has a valid bilateral agreement with such institution.