Latvia University of Life Sciences and Technologies
Doctoral School
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Doctoral Study Programme
CIVIL ENGINEERING

General information about the study programme

Educational Classification Code of the Republic of Latvia – 51582
The programme has been accredited till October, 27, 2028
Academic Adviser of the Programme: **Ulvis Skadiņš**, Dr. sc. ing., Professor
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Duration of doctoral studies: full-time – 3 years
The awarded degree: Doctor of Science (Ph.D.) in Engineering Science and Technology

The admission rules: Persons who have obtained a master's degree or an equivalent higher education degree in Civil Engineering are accepted. If the master's degree is obtained in another branch of engineering sciences, an entrance examination must be passed in the chosen sub-discipline of civil engineering science. Applicants for doctoral studies holding previous degree documents awarded by foreign universities are required for recognition of foreign qualification by Academic Information Centre (AIC) of Latvia. Foreign applicants need English language skills of at least B2 level.

Annotation of the programme

Doctoral study programme is based on the Law on Institutions of Higher Education of the Republic of Latvia and Law on Scientific Activity, Cabinet Regulations № 1001 "Regulation on the procedure and criteria of promotion", as well as the advice of accreditation experts have also been considered. The extent and structure of the programme correspond to the Guidelines for implementation of doctoral study programmes at LBTU (approved by decision Num 3.2.-12.2/14 of Science Council in September 27, 2023).

Aim of the programme

To create appropriate preconditions and, as a result of the implementation of the program, to prepare a generation of young scientists corresponding to an international level for research and academic work in civil engineering field, as well as for work in state and private institutions at a high level of professionalism with a clear, targeted development perspective.

Outcomes to be achieved

Knowledge. After successfully completing the study program, the young scientist is familiar with scientific theories and insights in the chosen sub-discipline of civil engineering, knows modern research methods, as well as knows special terminology in English and/or German.

Skills.

The young scientist is able to:

- independently assess the topicality and importance of the problem in the industry, to understand and evaluate its scientific significance, formulate research goals and tasks, choose appropriate research methods;

- plan and carry out both experimental and analytical studies, collect results, critically evaluate them and systematize the obtained information using appropriate data processing methods;
- prepare internationally cited publications;
- to communicate about his/her field of scientific activity and the problems of the civil engineering industry in circles of scientists and industry professionals both in Latvia and in foreign forums;
- independently raise his/her scientific qualification, implement research and/or development projects in companies and/or state structures.

Competences. The young scientist is able to formulate and analyze in detail the problems related to the scientific and professional activities in the relevant sub-discipline of civil engineering by performing a critical analysis of the available information. Able to integrate insights from other fields of science, which contribute to the creation of new knowledge and technologies.

Research directions

The study directions currently developed by the PhD study program "Civil Engineering" of the Faculty of Environment and Civil Engineering are in accordance with the following sub-branches of the civil and transport engineering science defined by the Cabinet of Ministers Regulations Number 595 of the Republic of Latvia:

- Construction Materials and Technologies
- Structural Analysis
- Structural Engineering
- Geodesy and Geoinformatics
- Engineering Systems of Heat, Gas and Water Supply.

Study plan of the doctoral study programme „Civil Engineering" (IKK 51582)

Study Course	Assessment Mode	Amount, KP (1 KP= 1 ECTS)
1. Theoretical Study Courses		**45**
English for Research Professionals (ValoD001)/ German for Research Professionals (ValoD002) (Fachsprache Deutsch fuer Forschung)	Promotion Examination	6
Scientific Research Methodology (CitiD016)	Examination	6
Multivariate Data Analysis I (MateD005)	Examination	3
Multivariate Data Analysis II (MateD001)	Examination	3
Research Planning and Data Analysis (BūvZD010)	Credit Test	3
Sub-Branch Course of Civil and transport engineering sciences*	Promotion Examination	12
Research Direction Course**	Promotion Examination	12

Study Course	Assessment Mode	Amount, KP (1 KP= =1 ECTS)
2. Scientific work		**135**
Latvian Language I (Valo1053)	Credit Test	3
Research work including completition of doctoral thesis	Regular reports	68
Presentation of research results	Certificates	25
Publication of research results (including publications cited by SCOPUS and/or Web of Science; including **Preparation of Scientific Papers** (CitiD001), 4 CP)	Publications	39
Total		**180**

Developed sub-branch courses in Civil and transport engineering:

BūvZD018	Construction Materials and Technologies	12 CP
BūvZD016	Structural analysis	12 CP
BūvZD008	Structural Engineering	12 CP
BūvZD012	Geodesy and Geoinformatics	12 CP
BūvZD017	Heat, Gas and Water Engineering Systems	12 CP

**** Developed special courses of the research direction:**

BūvZD013	Technology of Heat and Acoustic Materials and Products	12 CP
BūvZD009	Cement Composites and Composite Structures	12 CP
BūvZD014	Timber Engineering	12 CP
BūvZD015	Climate control systems and their operation	12 CP
BūvZD011	Precise Geometrical Levelling	12 CP
BūvZD020	Real Property Management	12 CP

Study Plan of the PhD Programme Civil Engineering (Full-time studies in English)

No.	Course Code (LBTU IS)	Study Course	Extent, ECTS	1st Year		2nd Year		3rd Year	
				Autumn Sem.	Spring Sem.	Autumn Sem.	Spring Sem.	Autumn Sem.	Spring Sem.
	A – Compulsory courses		**21**	**15**	**6**				
1	ValoD001/ ValoD002	English for Research Professionals/ German for Research Professionals	6	6 PE					
2	CitiD016	Scientific Research Methodology	6	6 E					
3	MateD005	Multivariate Data Analysis I	3	3 E					
4	MateD001	Multivariate Data Analysis II	3		3 E				
5	BūvZD010	Research Planning and Data Analysis	3		3 CT				
	B – Restricted sub-branch elective courses		**12**				**12**		
6	BūvZD018	Construction Materials and Technologies	12				12 PE		
7	BūvZD016	Structural Analysis	12				12 PE		
10	BūvZD008	Structural Engineering	12				12 PE		
11	BūvZD012	Geodesy and Geoinformatics	12				12 PE		
12	BūvZD017	Engineering Systems of Heat, Gas and Water Supply	12				12 PE		
	B – Restricted elective courses of research direction		**12**						**12**
13	BūvZD013	Technology of Heat Insulation and Acoustic Materials and Products	12						12 PE
14	BūvZD009	Cement Composites and Composite Structures	12						12 PE
15	BūvZD014	Timber Engineering	12						12 PE
16	BūvZD015	Climate Control Systems and Their Operation	12						12 PE
17	BūvZD011	Precise Geometrical Levelling	12						12 PE
18	BūvZD020	Real Property Management	12						12 PE
	Scientific research		**135**	**15**	**24**	**30**	**18**	**30**	**18**
19	Valo1053	Latvian Language I	3 CT	3					
20	*	Research work	48	15	9	18	4	2	
21	**	Presentation of research results	25		4	5	6	5	5
22	***	Publications of research results	35		4	7	8	10	6
23	CitiB003	Preparation of Scientific Papers	4 CT	4					
24		Completition of doctoral thesis	20					13	7
			180	**30**	**30**	**30**	**30**	**30**	**30**

I - Credit Test; E – Examination, PE - Promotion Examination.

* Research is the independent work of a doctoral student; the student identifies sources of scientific information, conducts research and analysis of selected information, compiles a review, performs planning of experiments, chooses the most suitable research methods, performs data processing and analysis of the obtained results, gradually creates a doctoral thesis under the supervision, discussion and regular assessment of progress in the related department (semi-annual report in the department, annual report in the Faculty Council)..

** Presentation of research results includes preparation of research results for presentation at local and international scientific conferences, seminars, symposia. Requirements for obtaining credit points - in accordance with the "Guidelines for Implementation of Doctoral Study Programme "Civil Engineering".

*** The student prepares scientific publications on the results of his research, which were obtained by completing the tasks set in the doctoral thesis, in order to achieve the set goal. Prepared articles are published in scientific journals and/or proceedings of scientific conferences. The student prepares and submits a patent application for the invention to the Patent Office of the Republic of Latvia. Requirements for obtaining credit points - in accordance with the "Guidelines for Implementation of Doctoral Study Programme "Civil Engineering".

GUIDELINES FOR IMPLEMENTATION OF DOCTORAL STUDY PROGRAMME "CIVIL ENGINEERING"

The conditions for the implementation (or execution) of the doctoral study program "Civil Engineering" have been developed in accordance with the LBTU Doctoral Studies Regulations (approved by Senate decision No. 11-119 on June 14, 2023) and based on the LBTU Doctoral study program implementation guidelines (approved by the LBTU Science Council decision no. 3.2.-12.2/14 on September 27, 2023.

1. The total amount of the doctoral study program is **180 KP (1 KP = 1 ECTS)** including:
   - theoretical studies **45 KP**
   - research work **135 KP**.
2. **Theoretical studies** in the doctoral study program "Civil Engineering ".
   The total amount of **45 KP**
   - sub-branch of civil and transport engineering science group (including promotion examination), 12 KP
   - elective course of research direction (including promotion examination), 12 KP
   - English or German for Research Professionals (including promotion examination) 6 KP
   - courses of research methodology and data analysis 15 KP
3. **Research work*** and amount of credits:
   - Research: **71 KP**
     Investigations including data processing 36 KP
     Review of literature (20-25 articles valuated by 2 KP) 15 KP
     Completition of doctoral thesis 20 KP
   - Presentation of research results. The total amount: **25 KP**
     Value of one oral presentation or poster presentation at local or international scientific conference, meeting/ workshop/ congress/ simposium 3-5 KP
     Value of one oral presentation or poster presentation at local or international forum of practicioners 2-3 KP

- Publications of research results (including course *Preparation of Scientific Papers*). **39 KP**
  The total amount:
  Value of one publication in scientific journal cited by *Web of Science Core Collection* and/or *Scopus*; 6-12 KP
  Value of one publication in proceedings of international scientific conference cited by *Web of Science Core Collection*, *Conference Proceedings Citation Index* and/or *SCOPUS*; 3-5 KP
  approved patent application in Latvia (or foreign country) 3-5 KP

[*] The scientific work also includes the doctoral student's international experience event(s) (ERASMUS activities, international projects, etc.) at least once during the study period with the aim of promoting the doctoral student's involvement in international cooperation, in order to have the opportunity to get acquainted with the experience of scientific research in the development of related topics in foreign universities and/or in other scientific institutions, as well as to establish contacts with doctoral students and lecturers of foreign universities who might be interested in solving compelling research topics and discussing results, reviewing articles and dissertations and/or developing collaborative projects.