LATVIA UNIVERSITY OF LIFE SCIENCES AND TECHNOLOGIES
FACULTY OF ENVIRONMENT AND CIVIL ENGINEERING
Department of Architecture and Construction

APPROVED
by the academic staff meeting of
Department of Architecture and Construction
January 16, 2018

Construction Technology (I)

Jelgava

Programme

Code of the study course at LLU IS Register: BūvZ 4009, BūvZ 4010
Construction Technology I [full-time] – BūvZ 4074, 2CP (32 h):
lectures:16 h, lab.w. 16 h, Test,
Construction Technology II [part-time] – BūvZ 4009, 2.5 CP (32 h):
lectures16 h, lab.w. 16 h, Test, Course project 8 h, Examination
Construction Technology [Course project, full-time and part-time] –
BūvZ 4010, 1.5CP (24 h): Course project
Construction Technology III [full-time] – BūvZ 4062, 0.5 CP (8 h):
lectures 4 h, pract.w. 4 h, Course project, Examination
4.0 CP (112 h): lectures. h, lab. w. H, Course project, Test,
Examination.
The author: Ilmārs Preikšs, lecturer of the Department of Architecture and Construction.
Compulsory course of the Bachelor's degree level study programme "Civil Engineering" of the Faculty of Environment and Civil Engineering included in the 4th year 7th and 8th semester.

Abstract:
The study course is intended to teach students about construction processes on construction site and their mutual relationship, various applied technologies for building structural parts of buildings, construction work planning methods and existing legislation.

The aim of the study course*:*
The aim of the course is to get an insight and acquire the knowledge of the relationship between all stages of the organization and management of construction, their aspects and impact on the management and operation of a construction company. The course provides information on construction

processes on the building site and their interrelation, various technologies for the construction of different structures.

Learning Outcomes (knowledge, skills and competence):
Upon completion of the course students will have:

- extended and systematized theoretical and practical **knowledge** and understanding of legislation in the field of construction, the rules and regulation of construction industry, construction work processes, technology, construction work planning, work organization and management on the construction site;
- the necessary **skills** to implement a project for the organization of construction work (construction calendar plan, master plan of construction work, technological plan and quality assurance plan); skills in the organization of construction work on construction sites;
- **competence** to elaborate a project for planning and implementation of the construction process, to observe work-related technology in accordance with construction standards, to prepare and implement executive documentation, to determine labour protection measures; to monitor the construction process, perform technical and quality control of the work performed, keep records of the completed work, inspect the completed work, and control the project documentation.

Relation of the study course with other subjects:
Students should have the prior knowledge of the following study courses: BūvZ3016 Construction Processes, BūvZ3114 Construction Processes I, BūvZ3054 Construction Processes I, BūvZ4071 Construction Processes II, BūvZ3009 Construction Machines, BūvZ2007 Construction Materials I, BūvZ2040 Structural Mechanics I, BūvZ3074 Structural Mechanics I, BūvZ4073 Construction Economics II, BūvZ4039 Concrete and Masonry Structures I, BūvZ3079 Soil Mechanics and Foundations I, BūvZ3079 Soil Mechanics and Foundations I, BūvZ3109 Wood and Plastic Structures I, BūvZ4105 Metal Structures I.

Requirements for individual work:
Submitted and presented practical works:

1. reviews of visits to construction sites (general characteristics of a building, photo fixation with explanations);
2. evaluation of spatial layout of the structure analysis of the construction site using ArcGIS software.
3. Reviews of individual topics.

Assessment of knowledge:
- Test No 1: work intensity calculation, formation of the professional team, work calendar schedule;
- Test No 2: Work calendar schedule and their development. Plan of resource utilization: time, employees, transport and materials;
- Test No 3: Construction site plans and their design. Warehouses, temporary buildings, roads. Cranes.

Requirements for the admission to the test (examination):
- Completed and presented practical works (reviews of buildings, spatial layout structure analysis);
- Successfully written tests with a positive grade (the grade is above 4);
- Examination: in written and oral form (written answers to the questions and oral discussion of the answers with a member of academic staff). Students who have completed and presented practical works and passed the tests are admitted to the examination.

***Procedure and requirements for settling missed lectures*:**
According to the procedure approved by the department.

Extended content of the programme

1. Organization of work for workers in construction industry, basic forms of organization, work management in worksites.
2. Design of construction works, development of a technological schema. Labour intensity calculation. The role of a team members.
3. Transport organisation in the construction site. Temporary roads. Construction work on the water. Choice of assembly mechanisms and their justification.
4. Reception, storage and assembly of wooden structures in the construction site.
5. Concrete and reinforced concrete work: reception, storage and assembly of structures in the construction site. Moulds, rounds, structural grips.
6. Supply, storage and assembly of metal constructions.
7. The assembly technology and organization of single-storey, multi-storey houses, framed and frameless buildings.
8. Peculiarities of construction work in the reconstruction of functional buildings. Dismantling work technologies (mechanical, chemical, hydraulic).
9. Projects for the organization and implementation of construction work.
10. Work organization methods - sequential, parallel and flow methods.
11. Construction calendar plans and their design. Resource usage schedules: the time, labour force, transport, materials.
12. The preparation period. Principles of formation of technological kits.
13. Construction sites' masterplans and their design. Warehouses, temporary buildings and roads. Cranes.

14. Energy supply to construction sites - electricity, hot / cold water, compressed air, natural gas.
15. Quality of construction works, control and acceptance.
16. Modern technology in the design of calendar schedule and supervision of their implementation.

List of practical work

1. A group tour is organized to the construction site. A lecture of a representative of the building site is delivered on specific construction processes in the construction site. During this time, students take notes of important information and perform photo fixations. After the tour, the students draw up a review of the site visit (a general description of the worksite, photo fixation with explanations). The reports of the visits during one semester are included in a folder, submitted and defended.
2. Depending on the progress of the course, a lecturer gives pre-prepared construction site information or students acquire practical information about the construction site. Students prepare analytical reports on the site's spatial structure using the ArcGis software.
3. Each student must independently carry out the analysis of the topic given by the lecturer using the latest data from books, periodicals and internet resources. The summarized and analyzed information is presented in a folder and defended.

Bibliography

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