

LATVIA UNIVERSITY OF LIFE SCIENCES AND TECHNOLOGIES
FACULTY OF ENVIRONMENT AND CIVIL ENGINEERING
Department of Land Management and Geodesy

APPROVED
by the academic staff meeting of
Department of Land Management and Geodesy
February 6, 2018

PLANNING OF FARM'S TERRITORY

Jelgava

Programme

Code of the study course at LLU IS Register: **VidZ4015** and **VidZ4016**

4 CP (64 h): lectures 1.0 CP (24 h), laboratory works 1.0 CP (32 h), Course Project 2.0 CP (32 h).

Type of Assessment: Examination, Course Project – Formal Test with a grade.

The authors: Vivita Puķīte, associated professor of the Department of Land Management and Geodesy,

Vita Cintiņa, a lecturer of the Department of Land Management and Geodesy.

Compulsory course of the professional Bachelor's degree level study programme "Land Management and Surveying", 7th semester in full-time studies and 8th semester in part-time studies.

Abstract

Students acquire farm land-use requirements and opportunities. Students acquire the knowledge of the use of land holdings in historical perspective. Students learn the system of measures for favorable territorial conditions to organize production in a farm, environmental protection and rational use of land and production resources related to it. They get acquainted with possibilities and procedure of receiving the EU funding.

The aim of the study course:

The aim of the study course is to acquire the principles of evaluation of use of agricultural land, to acquire skills in planning land use developing and evaluating various variants, to get acquainted with the EU payments to agricultural enterprises and learn about application requirements for area payments.

Learning outcomes (knowledge, skills and competence):

After completing the study course students will have:

- knowledge of land resources for agricultural production, knowledge of the designing of spatial plan of farmland and the evaluation of variants.
- skills to evaluate the land use in farms, to use rules and regulations for agricultural land use planning in the project development.

- competence as a combination of knowledge and skills of using land, planning farmland areas, sustainable land exploitation and protection, including the EU requirements and support payments.

Students should have the prior knowledge in study courses:

Students should have the prior knowledge in study courses “Real Estate”, “Cadastre”, “Designing Land Management” and “Land Legislation”, “Land Drainage”,

The knowledge of the given study course will facilitate acquisition of the study course “Economics of Real Estate”.

Requirements for individual work:

Individual studies of the theoretical material included in the bibliography. In the course project students work out crop rotation areas and cultivated pastures projects for the given farm territory in two variants and perform analysis of each variant. Arrangement of project plans.

Assessment of knowledge:

Two tests at the scheduled time:

Procedure and requirements for settling missed lectures:

The missed tests should be settled according to the procedure approved by the department in the time agreed with a lecturer.

Extended content of the programme

1. The notion and tasks of farmland use planning.

The notion and tasks. Relationship of farmland use planning with land management, drainage, road construction, planning of populated areas and production centers, greenery of the territory, environmental protection, forest management and other measures of spatial planning and production organization.

2. Content and procedure of farm’s territorial planning design and its implementation

Components and content of farm territorial planning design. The procedure of project implementation. Designing methods.

3. Organizing farm’s territorial planning design

The task and content of organizational work. Preparing design documentation package. Preparing field work. Designing task.

4. Location of rural areas and production centres

The concept and characteristics of rural areas. Advantages and disadvantages of different rural areas. The main requirements for the location of rural settlements in farms and state enterprises. Location of rural settlements. The relation of location of the settlement, zoning of the territory and the organization of the farm’s territory. Location of production centres.

5. Location of internal roads

Classification of internal roads. The main tasks and requirements that must be observed in the location of internal roads. Relation of road location with other farm land-use planning components. Procedure of the location of roads and work arrangements. Development of the

transport communication scheme. Design of road directions. Road traffic load and determination of road surface material. Design of road network layout and substantiation of road pavement.

6. Organisation of land use types

Concept and content of organization of land use types. Tasks of the organization of land use types. Procedure for designing the organization of land use types. The most important natural and economic conditions to be observed in organization of land use types. Determination of areas of land use types. Procedure for determining the composition and area of land use types. Concept and tasks of transformation of land use types. Concept and tasks of improvement of land use types. Major land improvement measures.

7. Design of field areas

7.1. Organisation of crop rotation system

Concept, tasks and content of the organization of crop rotation system. Design methods of field areas. Types and kinds of crop rotations. Requirements to be observed in the organization of the rotation system. Determination of the type and number of crop rotations. Location of field crop rotations. Fodder plant location. Location of special crop rotation. Determination of number of fields and crop sequence. Justification of the organization of the crop rotation system.

7.2. Design of crop rotation areas

Elements of designing the territory of the crop rotation. Complex nature of the crop rotation project for the territory. Clarification of conditions influencing the design of the crop rotation and their significance. Procedures for the development and justification of the project of the crop rotation area. The main requirements to be observed in the design of crop rotation in the fields and individually cultivated plots. Field configuration and compactness, its significance and observance. Evaluation of configuration and compactness. Location of fields and separately cultivated areas regarding soil and local relief. Observance of other conditions in locating fields. The similar size of fields, its significance and observance. Field interior design. Crop rotation and road location. Substantiation of road location. Forest zones for field protection. Features of vegetable crop rotation design.

8. Design of territories for orchards and berry plantations

Tasks and content of orchard and berry plantation design. Elements of the design of the orchard and berry plantation area. The task of the design, investigation work. Requirements to be observed in the design of orchards and berry plantations. Selection and location of fruit plants and varieties. Square design: size of squares, configuration and location, location of varieties in the quarter, planting systems and distances. Upwind design. Design of garden roads. Peculiarities of designing the territory of the orchard on the plot near the house.

9. Pasture design.

Tasks and contents of the designing pastures. Systems of using pastures. Elements of the pastures project. Principles of forming herds, their size, location of grazing areas necessary for herds. Design of roads in pastures. Design of paddocks: number and size of paddocks, location of paddocks. Designing water supply. Design of fencing.

10. Role of Rural Support Service in the farming development.

Functions and structure of Rural Support Service. Role of Rural Support Service in land drainage and land use transformation.

Laboratory works

1. Selection of an object, preparation of the cartographic basis in the computer program Bentley MicroStation.
2. Preparation of the land use plan in the Bentley MicroStation programme.
3. Development of a crop rotation plan and design of crop rotation fields in the Bentley MicroStation program.
4. Designing the territory of orchards in the Bentley MicroStation program.
5. Designing the territory of pastures in the computer program Bentley MicroStation.
6. Development of a farm's centre and the development of a model using 3D printer.

Course Project

In the framework of the course project, a student draws up a farm's land planning project. Solutions of settlements, production centres and road locations are given, a model of the farm centre is designed. Depending on the type of business activities chosen by the farm, pastures and field layout project, a crop rotation project, an orchard area project are developed by the student.

Bibliography

1. Lauku saimniecību teritorijas projektēšana. Mācību līdzeklis LLU Lauku inženieru fakultātes studentiem / sast. M.Locmers, A.Jankava – Jelgava: LLU, 2002. -138.lpp.
2. Lauksaimniecības sistēma Latvijas lauku pārbūves periodā. - Rīga: Avots, 1991. - 20.-27., 99.-104., 114.-126., 257.-263., 277.-291.lpp.
3. Nikodemus, O., Kārklīšs, A., Kļaviņš, M., Melecis, V. Augsnes ilgtspējīga izmantošana un aizsardzība. Rīga : LU Akadēmiskais apgāds, 2009. 256 lpp.
4. Augkopība // A.Ružas redakc. – Jelgava: LLU, 2004. – 374.lpp.
5. Agronomijas pamati // A.Ružas vadībā. – R.: Zvaigzne ABC, 1994. – 350.lpp.
6. Labas lauksaimniecības prakses nosacījumi Latvijā /–Jelgava: LLU, 1999. – 103.lpp.
7. Boruks A. Dabas apstākļi un to ietekme uz agrovidi Latvijā. – Rīga, 2004. – 166.lpp.
8. Zemkopība // S.Pogodina red. - Rīga: Zvaigzne, 1983. - 122.-164.lpp.
9. Boruks A. Lauksaimniecības reģionālā specializācija un teritoriālais izvietojums Latvijā - Rīga: Auditorfirma "Grāmatvedis". 1996. - 168.lpp.