University of Agricultural Sciences and Veterinary Medicine of Iasi
Faculty of Horticulture
Specialization: LANDSCAPE DESIGN

Discipline: LAND IMPROVEMENT
Study year : (II nd Year of study, 4 rd SEMESTER)
Credit value : 4
Course category:
Domain (Imposed)

Course holder: Lecturer Ph.D.Eng. ESMERALDA CHIORESCU

Discipline objectives: The discipline aims to develop competences regarding the assimilation of theoretical and practical knowledge regarding: representation and reading concepts learned throughout the various areas of land, with benchmarks and types of facilities, knowledge of soil types and their characteristics, concepts learned through methods of calculation which require reclamation work.

Discipline objectives (course and practical works):

Course (chapters/subchapters)
1. INTRODUCTION. 1.1. Course objective: definition, purpose, significance. 1.2. Classification of land reclamation works. 1.3. The land of Romania. Soil Resources and quality.
2. HYDRAULIC CONCEPTS. 2.1. Concepts of hydrostatic. 2.2. Concepts of hydrodynamics. 2.3. Hydraulics applications in land reclamation works
3. HYDROLOGY CONCEPTS. 3.1. Hydrology - definition and scope. 3.2. Water circulation in nature or hydrological cycle. 3.3. Evaporation of perspiration. Evapotranspiration potential (ETP), real (ETR), the real optimal (ETRO)
4. HYDROGRAPHY AND HYDROLOGY CONCEPTS **4.1. River-basin-network parameters. 4.2. Hydrological catchment elements and watercourses. 4.3. Concepts of hydrogeology and groundwater hydrometer.**
5. IRRIGATION. 5.1. Soil-plant-water connections. 5.2. Fluidity of water on irrigated land.
6. IRRIGATION. 5.3. Irrigation regime elements. 5.4. Water sources and water quality for irrigation.
7. IRRIGATION. 5.5. The components of an irrigation system, scheme system.

8. IRRIGATION FACILITIES METHODS **6.1. Facilities channels from the ground. 6.2. Arrangement of buried pipes.**
9. WATERING METHODS. 7.1. Criteria for choosing methods of watering. 7.2. The method of wetting the leakage surface.
10. WATERING METHODS. 7.3. The method of sprinkler watering. 7.4. Localized irrigation methods.
11. PREVENTING MOISTURE EXCESS (LAND DRAINAGE). 8.1. Causes and effects of excess moisture. 8.2. Open channel drainage.
12. PREVENTING MOISTURE EXCESS (LAND DRAINAGE. **8.3. Underground drainage of farmland.**
13. PREVENTING MOISTURE EXCESS (LAND DRAINAGE) 8.4. Mole drainage. Combined drainage. 8.5. Vertical drainage.
14. PREVENTING MOISTURE EXCESS (LAND DRAINAGE) 8.6. Capturing coastal springs. 8.7. Drainage of greenhouses.
Practical works
1. Orifices and nozzles. Determination of the flow from the orifice and nozzle. The measurement of the speed channels. Determination of the flow rates using main route.
2. Determination of the water flow in channels
3. Geometry and hydraulic elements of channel. Dimensioning channels and ducts
4 Processing meteorological and hydrological data necessary for the design of land reclamation works
5. Establishing irrigation regime elements to design an installation of irrigation
6. Drawing irrigation network to water through runoff. Dimensioning irrigation network. Shares control calculations.
7. Preparation of nivelitic profile and the calculation of an irrigation channel embankments
8. Main leveling of slope
9. Dimensioning a pump station.
10. Drawing and dimensioning of drainage network
11. Drawing and dimensioning of horizontal drainage network
12. Quantitative estimations of soil erosion on agricultural land
13. Sizing special hydraulic engineering works erosion (terraces, coastal channels, outlets)
14. Calculation of the cross works in forms of deep erosion

Bibliography:

. Chiorescu Esmeralda, -Note de curs

2. Cismaru C., V. Gabor, 2004 - *Irigaţii, amenajări, reabilitări şi modernizări*. Editura Politehnium, Iaşi

3. Savu P., Bucur D., 2002 - *Organizarea şi amenajarea teritoriului agricol cu lucrări de îmbunătăţiri funciare*. Editura Ion Ionescu de la Brad, Iaşi

4. Savu P., Bucur D., Jităreanu S., 2005 - *Îmbunătăţiri funciare şi irigarea culturilor –lucrări practice*. Editura Ion Ionescu de la Brad, Iaşi

Evaluation:

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	written examination	60%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	40%

Course holder:
Lecturer Ph.D.Eng
CHIORESCU ESMERALDA

Contact:

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