

## Land reclamation systems (IInd Year of study, IVrd SEMESTER)

Credit value (ECTS) 4

### Course category

Domain (Imposed)

### Course holder:

Prof. Dr. Daniel BUCUR

### Discipline objectives (course and practical works)

lands affected by drought or degraded by erosion.

The aim of the course is to provide students with the knowledge and skills required on water and agricultural land management.

Students will also study the modalities of the protection and restoration of lands by drought or degraded by water excess, soil erosion and landslides. The technical solutions of water storage and flood protection will be analyzed from a technical and economic point of view.

Practical works aim to familiarize students with the design of irrigation systems, surface and underground drainage and soil erosion control techniques.

### Contents (syllabus)

Course (chapters/subchapters)
<b>Importance and necessity of agricultural land arrangement with land improvement works.</b>
<b>Notions of hydraulic:</b> notions of hydrostatic; notions of hydrodynamics; hydraulics applications in land reclamation works.
<b>Notions of hydrology, hydrography and hydrometry:</b> The Water Cycle; hydrographic network; hydrometry of surface waters.
<b>Notions of hydrogeology:</b> classification and distribution of groundwater; groundwater regime on irrigated and drained lands.
<b>Irrigation systems:</b> water sources and irrigation water quality; water intakes for irrigation; ditch irrigation systems; pressure piped irrigation system; irrigation techniques; operation and maintenance of irrigation systems.
<b>Drainage systems:</b> excess moisture on agricultural land; network channels design; drainage network building.
<b>Subsurface drainage system:</b> subsurface pipes; mole drainage; subsurface drainage on irrigated lands; operation and maintenance of the drainage works.
<b>Soil erosion control:</b> factors influencing erosion; consequences of soil erosion; quantitative estimation of soil erosion; quantitative estimation of the soil erosion; soil erosion control techniques.
<b>Landslides:</b> causes and effects of landslides; prevention and control of landslides; landslide mitigation measures.

Practical works
Channels and pipes design.
Meteorological and hydrological data processing.
Establishment of irrigation regime.
Irrigation system design.
Channel longitudinal profile and cross sections.
Volume of embankments for canals
Pumping station sizing.
Surface drainage design.
Subsurface drainage design.
Estimation of soil loss by water erosion.
Agricultural terraces design.
Runoff channel design.
Typical design of check-dams in ravine.
Final colloquium of knowledge evaluation

### Bibliography

1. Bucur D., 2007 - *Conservarea terenurilor agricole prin lucrări de îmbunătățiri funciare*, Editura “Ion Ionescu de la Brad”, Iași.
2. Cîmpeanu S., Bucur D., 2006 - *Combaterea eroziunii solului*, Relal Promex Publisher, Bucuresti, 245 p, ISBN 973-85863-6-4.
3. Savu P., Bucur D., 2002 - *Organizarea și amenajarea teritoriului agricol cu lucrări de îmbunătățiri funciare*, Editura “Ion Ionescu de la Brad”, Iași.
4. Savu P., Bucur D., Jitoreanu S. I., 2005 - *Îmbunătățiri funciare și irigarea culturilor - lucrări practice*, Editura “Ion Ionescu de la Brad”, Iași.
5. Bucur D. ed., 2016 - *River basin management*, InTech, Rijeka, ISBN 978-953-51-2604-1, DOI: 10.5772/61557, 316 pages, - <http://dx.doi.org/10.5772/61557>).

### Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	Oral examination	70%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	30%

### Contact

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