

## Agricultural Constructions (Ist Year of study, IInd Semester)

Credit value (ECTS) 4

### Course category

Domain (Imposed)

### Course holder:

Assoc. Prof. PhD. Roxana Dana BUCUR

### Discipline objectives (course and practicum)

The Construction discipline offers the basic notions necessary to master the graphic language of design, with which all technical disciplines operate. The structures of the agricultural constructions have in view the composition of those that function in specific environments for sheltering the animals and storing their food, the structural elements specific to the agricultural environment. The knowledge to be acquired regarding the optimal functionality correlated with the technological process in agriculture is taken into account. The graduates of the discipline will be the holders of construction knowledge for the graphic materialization and the correct interpretation of the technical ideas necessary for any agronomic engineer. They will also acquire the necessary skills for the engineer specialized in agriculture, to design and use efficiently the spaces destined for agricultural productions.

### Contents (syllabus)

Course (chapters/subchapters)
<b>Introduction.</b> Purpose, importance, course content and relationships with other disciplines. General notions about constructions. Construction classification. Technical conditions for constructions.
<b>General characteristics of construction materials.</b> Wood, stone, metal, concrete, mortar. Ceramic materials. Materials for hydro and thermal insulation. Glass, synthetic polymers, geotextiles
<b>Construction elements and resistance structures.</b> Construction elements and resistance structures made of wood, masonry, metal, concrete and reinforced concrete.
<b>Strength elements of constructions.</b> Foundations. Walls. Roofs
<b>Finishing works.</b> Flooring. Plastering. Plywood. Stairs
<b>Agricultural constructions with masonry structure.</b> Grain stores. Vegetable and fruit stores. Sanitary-veterinary constructions. Zootechnical constructions.
<b>Agricultural constructions with metal structure.</b> Warehouses for storing vegetable products. Corn blanket. Grain dryers. Cereal and feed silos. Greenhouses and solariums. Ancillary auxiliary constructions.
<b>Reinforced concrete agricultural constructions.</b> Biometric elements used in sizing buildings for housing animals. Aggressive environments in agro-zootechnical constructions, protection of closing elements.
<b>Constructions for storage, conservation and conditioning of vegetable production.</b> Storage methods. Small and large capacity warehouses. Installations and equipment used in warehouses. Constructions for storing cereals and fodder.

<b>Practicum</b>
Notions of technical drawing of constructions. Formats. Stairs. Rating. Tracing axis. Level rating. Conventional representations.
Presentation of construction materials. Constructive solutions in elevation. Stairs.Rramps.
Calculation of heat losses through different constructive solutions of the closing elements of some constructions.
Solutions for constructions made of environmentally friendly materials.
Analysis of constructive solutions regarding the efficient use of productive spaces - through economic-mathematical calculations.
Design theme. Sizing of modules of productive spaces. Zoning by activities of the territory of the designed unit.
General plan of an agricultural unit. Design 1. Calculation of the required amount of water for the designed unit. Calculation of technical-economic indices of the general plan.
Designing the basic spaces imposed in the design theme by saving the productive space. Design 2.
Behavior and thermal calculation of construction elements. Design 3.
Calculation of the amount of masonry, glass and concrete needed to build the basic spaces imposed in the design theme. Pre-calculations.
Calculation of the amount of energy required for the proper conduct of activities within the designed unit. Estimate by categories of works.

### References

1. Bucur Roxana Dana - Constructii horticole, Editura Ion Ionescu de la Brad, Iasi, 2011
2. Berar T. - Elemente de construcții civile, industriale, agricole și forestiere, Editura Orizonturi Universitare, 2005;
3. Berar T. - Construcții civile, industriale, agricole, Editura Mirton, 2002;
4. Bob C. - Materiale de construcții, EDP, București, 1982;
5. Tudor D. - Construcții civile, industriale, agricole, IPT, Timișoara, 1986;
6. Negoită Al. - Construcții civile, EDP, București, 1976;
7. Gâdeanu E. - Clădiri industriale, IPT, Timișoara, 1986;
8. Borza I. - Instalații pentru construcții, IPT, Timișoara, 1996;

### Evaluation

<b>Evaluation form</b>	<b>Evaluation Methods</b>	<b>Percentage of the final grade</b>
Exam	Multiple choice test	70%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests.	30%

### Contact

**Assoc. Prof. Dr. Roxana Dana BUCUR**

Faculty of Animal Science - IULS

Aleea Mihail Sadoveanu nr. 3, Iași, 700490, Romania

telefon: 0040 232 407 583, fax: 0040 232 219175 , E-mail: [rbucur@uaiasi.ro](mailto:rbucur@uaiasi.ro)