

## SUBJECT OUTLINE

### 1. Information on the study programme

1.1 Academic institution	UNIVERSITY OF ORADEA
1.2 Faculty	FACULTY OF ENVIRONMENTAL PROTECTION
1.3 Department	ANIMAL SCIENCE AND AGRITOURISM
1.4 Field of study	ANIMAL SCIENCE
1.5 Cycle of study	BACHELOR
1.6 Study programme/Qualification	ANIMAL SCIENCE / ENGINEER

### 2. Information on the discipline

2.1 Name of discipline	Livestock Machines and Equipment II						
2.2 Course holder	PhD. Eng. DONCA Gheorghe						
2.3 Seminar/Laboratory/Project holder	PhD. Eng. GAVRA Codrin						
2.4 Year of study	II	2.5 Semester	III	2.6 Type of evaluation	E	2.7 Regime of discipline	C

(C) Compulsory; (O) Optional; (E) Elective

### 3. Total estimate time (hours per semester of didactic activities)

3.1 Number of hours per week	3	out of which: 3.2 course	2	out of which 3.3 seminar/laboratory/project	1
3.4 Total hours in the curriculum	42	out of which: 3.5 course	28	out of which 3.6 seminar/laboratory/project	14
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					10
Additional documentation in the library/ on specialised electronic platforms and in the field					6
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					14
Tutorship					1
Examinations					2
Other activities					
<b>3.7 Total hours of individual study</b>	<b>33</b>				
<b>3.9 Total hours per semester</b>	<b>75</b>				
<b>3.10 Number of credits</b>	<b>3</b>				

### 4. Prerequisites (where appropriate)

4.1 curriculum	
4.2 competences	

### 5. Conditions (where appropriate)

5.1. related to course	
5.2. related to seminar/laboratory/ project	Compliance with Labor Safety and Emergency Standards in laboratory.

<b>6. Specific competences acquired</b>	
Professional competences	<p>C1.1. Description of the scientific background of technological processes and technologies used in animal and aquatic animal husbandry.</p> <p>C1.2. Explaining the causality of technical problems in animal husbandry, fish farming and aquaculture and identifying the necessary resources and ways of solving.</p> <p>C2.1. Description of the principles underlying the design of farms, fish farming and aquaculture; characterization of technological elements specific to technological flows; the economic foundation of the project.</p> <p>C1.3. Applying methods, techniques and procedures for designing and managing technological processes in animal husbandry, fish farming and aquaculture.</p> <p>C1.4. Using appropriate criteria and methods for analyzing and evaluating specific technology projects and processes.</p>
Transversal competences	<p>CT1. Elaboration and observance of a work program and accomplishment of its own attributions with professionalism and rigor.</p>

### 7. Objectives of discipline (coming from the specific competences acquired)

7.1 General objective	The course aims at familiarizing students with the equipment and installations. The first part summarizes the basics of technical engineering (mechanical and electrical engineering). Students have the opportunity to familiarize themselves with the main types of machines, installations and machines, the practical skills of construction, sizing, operation and possibilities of their execution, maintenance, exploitation and repair.
7.2 Specific objectives	Laboratory work is designed to provide future animal science engineers practical skills in the design, development, research, exploitation, repair and maintenance of machinery and installations. The contents of the presented works are on the need to deepen the problems presented in the course. Students have the opportunity to identify the parts and to understand the operation of machines, to familiarize themselves with the modern means of measuring their parameters. They will understand the complexity and usefulness of these installations and treat them as such. Knowledge is useful in forming skills to address specific production problems faced by one skilled in the art.

### 8. Content\*/

<b>8.1 Course</b>	Methods of teaching	No. of hours / Remarks
6. Machinery and facilities for animal and shelter maintenance	Oral presentation, demonstration and discussions	2
6.1. Animal stowage equipment		
6.2. Food distribution equipment		
6.3. Water distribution equipment		
6.4. Devices for the disposal and processing of manure		
6.5. Cleaning, disinfection and disinfection equipment		
6.6. Equipment to ensure environmental conditions		
7. Machines and installations for the harvesting of animal products	Idem	2

7.1. The functional process of milking installations		
7.2. Components of machinery and milking installations	Idem	2
7.3. Technological schemes for milking	Idem	2
7.4. Sheep caring machines and installations	Idem	2
7.5. Harvesting installations and incubators used in poultry	Idem	2
8. Equipment and facilities for water purification and environmental protection	Idem	2
9. Maintenance of livestock machinery and installations	Idem	2
10. Machines and installations for Precision Livestock Farming. General analysis of the course of machines and zootechnical installations	Idem	2
<b>Bibliography</b>		
1. Bărbieru V. A. – Mașini și instalații zootehnice : construcție, funcționare și reglaje, Editura Risoprint, Cluj-Napoca, 2006		
2. Budui C. – Mașini agricole pentru producerea furajelor, Editura „Ion Ionescu de la Brad”, Iași, 2005		
3. Bungescu S., Popa I. – Mașini și instalații zootehnice, Editura Eurobit, Timișoara, 2007		
4. Ciocîrlan A., Constantin M.– Asamblarea, întreținerea și repararea mașinilor și instalațiilor, Editura ALL Educational, București, 2002		
5. Donca Gh. – Mașini și instalații zootehnice, Editura Universității din Oradea, 2015		
6. Donca Gh. – Mentenanța utilajelor și instalațiilor agroalimentare, Editura Universității din Oradea, 2011		
7. Donca Gh. – Mașini și instalații zootehnice, Îndrumător lucrări practice de laborator, Editura Universității din Oradea, 2017		
8. Donca Gh. – Mic dicționar de inginerie tehnică pentru domeniul agrozootehnic și agroturistic, Editura Universității din Oradea, 2012		
9. Donca Gh. – Baza energetică pentru agricultură, Editura Universității din Oradea, 2012		
10. Dumitru M. – Tractoare agricole, Editura Alma Mater, Sibiu, 2006		
11. Mitroi A., Udrioi A. – Automatizarea proceselor în producția zootehnică, Editura Arvin Press, București, 2003		
12. Vâlcu V. ș.a. – Mașini și instalații zootehnice, Editura Pim, Iași, 2003.		
<b>8.2 Seminar</b>	Methods of teaching	No. of hours / Remarks
<b>8.3 Laboratory</b>	Methods of teaching	No. of hours / Remarks
1. Determination of exploitation indices for root cutters	Demonstration, experimentation, discussions, problem-solving and teamwork	1
2. Determination of working capacity and moment of inertia of hammers rotors	idem	1
3. Determination of the coefficient of use of the drinkers	idem	1
4. Determination of constructive and functional parameters of conveyors	idem	1
5. Determining the productivity of the cow milking machine	idem	1
6. Determination of the constructive and functional parameters of the vacuum pump from the milking installations	idem	1
7. Establishment of vacuum pulse generator tubes for cows' milking machines	idem	1

8. Establish the operation of the milk cooling plant	idem	1
9. Establishing the kinematic regime of shearing machines	idem	1
10. Establishing the operation of incubators for eggs	idem	1
11. Determination of degree of homogenization in concentrated feed mixers	idem	1
12. Determination of the viscosity of semi-pasture fodder	idem	1
13. Determination of exploitation indices in the poultry breeding battery	idem	1
14. Study of systems for monitoring the state of health of machinery, equipment and installations in animal husbandry	idem	1
<b>8.4 Project</b>		
<b>Bibliography</b>		
1. Bărbieru V. A. – Mașini și instalații zootehnice : construcție, funcționare și reglaje, Editura Risoprint, Cluj-Napoca, 2006		
2. Bungescu S., Popa I. – Mașini și instalații zootehnice, Editura Eurobit, Timișoara, 2007		
3. Donca Gh. – Mașini și instalații zootehnice, Editura Universității din Oradea, 2015		
4. Donca Gh. – Mașini și instalații zootehnice, Îndrumător lucrări practice de laborator, Editura Universității din Oradea, 2017		
5. Donca Gh. – Utilaje și instalații pentru alimentația publică și turism, Îndrumător de laborator, Editura Universității din Oradea, 2013		
6. Donca Gh. – Baza energetică și mașini agricole, Îndrumător pentru lucrări de laborator, Editura Universității din Oradea, 2013		
7. Mitroi A., Udriou A. – Automatizarea proceselor în producția zootehnică, Editura Arvin Press, București, 2003. Donca Gh. – Utilaje și instalații pentru alimentația publică și agroturism, Editura Universității din Oradea, 2010		

\* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

### **9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme**

The content of the discipline is adapted and satisfies the requirements imposed by the labour market, is agreed by social partners, professional associations and employers in the field of the bachelor's program. The content of the discipline is in the curriculum of the specialization of animal science and in other university centres in Romania that have accredited this specialization, so knowing the basic notions is a stringent requirement of the employers in the field.

### **10. Evaluation**

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the final grade
10.4 Course	For the pass mark (5), all subjects must be treated to the minimum standards. Larger notes are in proportion to the correctness of the fixes.	Exam written 2 hours (It consists of 4 subjects in the subject of the course. For the passing of the exam, each subject should be treated for minimum 5.).	60%
10.5 Seminar			
10.6 Laboratory	All laboratory work must be done.	Monitoring the activity and the	40%

	Recovering only an outstanding laboratory (in the last week of the semester) allowed.	results obtained.	
10.7 Project			
10.8 Minimum standard of performance			
Realizing a portfolio / project by participating in a multidisciplinary team with the setting and respecting of roles and individual tasks.			

Date of completion

26.09.2020

Signature of course holder

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donca.gheorghe@gmail.com

Signature of seminar

laboratory/project holder  
1. PhD. eng. GAVRA Codrin  
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Date of approval in the department

Signature of the Head of Department  
Ass. Prof. PhD. eng. MAERESCU Cristina

Dean signature  
Prof. PhD. eng. CHEREJI Ioan

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