

## DISCIPLINE DESCRIPTION

### 1. Information on the study programme

1.1 Academic institution	<b>UNIVERSITY OF ORADEA</b>
1.2 Faculty	<b>FACULTY OF ENVIRONMENTAL PROTECTION</b>
1.3 Department	<b>AGRICULTURE, HORTICULTURE</b>
1.4 Field of study	<b>AGRONOMY</b>
1.5 Cycle of study	<b>MASTER</b>
1.6 Study programme/Qualification	<b>MODERN TEHNOLOGIES IN AGRICULTURAL AND LIVESTOCK FARMS / ENGINEER</b>

### 2. Information on the discipline

2.1 Name of discipline	<b>Modern Machinery in Agricultural and Livestock Exploitations</b>						
2.2 Course holder	<b>PhD. Eng. DONCA Gheorghe</b>						
2.3 Seminar/Laboratory/Project holder	<b>PhD. Eng. DONCA Gheorghe</b>						
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	1	out of which 3.3 seminar/laboratory/project	2
3.4 Total hours in the curriculum	42	out of which: 3.5 course	14	out of which 3.6 seminar/laboratory/project	28
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					42
Additional documentation in the library/ on specialised electronic platforms and in the field					46
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					42
Tutorship					1
Examinations					2
Other activities					
<b>3.7 Total hours of individual study</b>	<b>83</b>				
<b>3.9 Total hours per semester</b>	<b>175</b>				
<b>3.10 Number of credits</b>	<b>7</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 Labour Safety and Emergency Standards in laboratory.

**6. Specific competences acquired**

Professional competences	<p>C1.1. Identification of environmental components and adverse effects of agricultural practices on them.</p> <p>C1.2. Explaining and interpreting the different and complex mode of action of the elements of agricultural technology on the environment.</p> <p>C1.3. Use of concepts, methods, techniques and research tools specific to the development of sustainable technological links.</p> <p>C1.4. Using criteria and performance methods to evaluate the functioning of sustainable technological links, critical analysis and founding of solutions.</p> <p>C1.5. Designing advanced (sustainable) technology to limit the negative effects of practices on the environment.</p>
Transversal competences	<p>CT1. Performing our own tasks with professionalism and rigor and taking decisions specific to team work in accordance with ethical values and principles.</p>

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

7.1 General objective	The course aims at familiarizing students with the latest developments in the field of machinery, equipment and installations for agriculture and zootechnie . Students have the opportunity to familiarize themselves with the main types of machines, equipment and installations, to aquire the practical skills of construction, sizing, operation and possibilities of execution, maintenance, exploitation, repair and refinement.
7.2 Specific objectives	Laboratory work is designed to provide practical skills in the design, construction, research, operation, repair and maintenance of machinery, equipment and installations. The contents of the presented works are based on the need to deepen the problems presented in the course. Students have the opportunity to identify parts and understand the operation of machines, machines and installations. They will understand the complexity and usefulness of these facilities and treat them as such. Knowledge is needed to develop the right skills to address specific production problems faced by a specialist in the field.

**8. Content\*/**

8.1 Course	Methods of teaching	No. of hours / Remarks
1. Introduction. Modern production systems in agriculture and animal husbandry	Oral presentation, demonstration and discussions	1

2. Energy efficiency through the use of renewable energy sources	Idem	1
3. Trends in modernizing engines for agriculture	Idem	1
4. High performance machinery and equipment for the transport and handling of products	Idem	1
5. Specific features of modern tractors	Idem	1
6. New machinery and equipment for soil cultivation, sowing, planting and crop maintenance	Idem	1
7. New machinery and equipment for fertilizers, amendments and harvesting	Idem	1
8. Complex aggregates used in agricultural holdings	Idem	1
9. Machinery, plant and equipment for the preparation of feed in animal husbandry	Idem	1
10. Machinery and facilities for the maintenance of animals and shelters	Idem	1
11. Machines and installations for the harvesting of animal products	Idem	1
12. Effective equipment and plant for environmental protection in agriculture and animal husbandry	Idem	1
13. Machinery, equipment, devices and automation used to achieve precision agro-technology	Idem	1
14. Modern maintenance systems applied in agricultural and zootechnical farms	Idem	1
<b>Bibliography</b>		
1. Bărbieru V. A. – <i>Mașini și instalații zootehnice : construcție, funcționare și reglaje</i> , Editura Risoprint, Cluj-Napoca, 2006		
2. Budui C. – <i>Mașini agricole pentru producerea furajelor</i> , Editura „Ion Ionescu de la Brad”, Iași, 2005		
3. Bungescu S., Popa I. – <i>Mașini și instalații zootehnice</i> , Editura Eurobit, Timișoara, 2007		
4. Ciocîrlan A., Constantin M.– <i>Asamblarea, întreținerea și repararea mașinilor și instalațiilor</i> , Editura ALL Educational, București, 2002		
5. Donca Gh. – <i>Mașini și instalații zootehnice</i> , Editura Universității din Oradea, 2010		
6. Donca Gh. – <i>Mentenanța utilajelor și instalațiilor agroalimentare</i> , Editura Universității din Oradea, 2011		
7. Donca Gh. – <i>Mașini și instalații zootehnice, Îndrumător lucrări practice de laborator</i> , Editura Universității din Oradea, 2017		
8. Donca Gh. – <i>Mic dicționar de inginerie tehnică pentru domeniul agrozootehnic și agroturistic</i> , Editura Universității din Oradea, 2012		
9. Donca Gh. – <i>Baza energetică pentru agricultură</i> , Editura Universității din Oradea, 2012		
10. Donca Gh. – <i>Mașini agricole și horticoale</i> , Curs universitar, Editura Universității din Oradea, 2014		
11. Dumitru M. – <i>Tractoare agricole</i> , Editura Alma Mater, Sibiu, 2006		
12. Mitroi A., Udroui A. – <i>Automatizarea proceselor în producția zootehnică</i> , Editura Arvin Press, București, 2003		
13. Mitroi C. ș.a. – <i>Tehnologia de întreținere, revizii și reparații pentru mașinile și instalațiile din zootehnie</i> , Editura Ceres, București, 1980		
14. Vâlcu V. ș.a. – <i>Mașini și instalații zootehnice</i> , 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
Work safety and emergency training.	Demonstration, experimentation, discussions,	2
1. Basic study of machinery, installations and plant		

	problem-solving and teamwork	
2. Study of the characteristics of photovoltaic panels	idem	2
3. Determination of the characteristics of internal combustion engines	idem	2
4. Material weighing study for continuous transport	idem	2
5. Determining the main parameters of modern tractors	idem	2
6. Studying the reliability of modern plows	idem	2
7. Study of characteristics of fertilizer machines	idem	2
8. Determining the power required to drive complex aggregates	idem	2
9. Determining the power needed to produce the food	idem	2
10. Study of modern solutions for shelter maintenance	idem	2
11. The study of egg sorting systems	idem	2
12. Determining the efficiency of biogas production methods in the farm	idem	2
13. Determination of the parameters of the surveillance installations	idem	2
14. Study of maintenance management systems	idem	2
<b>8.4 Project</b>		

#### Bibliography

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. – *Baza energetică pentru agricultură*, Editura Universității din Oradea, 2012
6. Donca Gh. – *Baza energetică și mașini agricole, Îndrumător pentru lucrări de laborator*, Editura Universității din Oradea, 2013
7. Donca Gh. – *Mașini agricole și horticole*, Curs universitar, Editura Universității din Oradea, 2014
8. Mitroi A., Udrioiu A. – *Automatizarea proceselor în producția zootehnică*, Editura Arvin Press, București, 2003
9. Naghiu Al. – *Baza energetică pentru agricultură și silvicultură*, Editura Risoprint, Cluj-Napoca, 2008

\* 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 labor market, being agreed by social partners, professional associations and employers in the field of the bachelor's program. The content of the discipline is found in the curriculum of the specialization and in other academic centers in Romania that have accredited this specialization.

### **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 treated to the minimum standards. Larger notes are in	Exam written 2 hours (It consists of 3 subjects from the course. For the passing of the exam, each subject	60%

	proportion to the correctness of the fixes.	should treated for minimum 5.).	
10.5 Seminar			
10.6 Laboratory	All laboratory work must done. Recovering only an outstanding laboratory (in the last week of the semester) allowed.	Monitoring the activity and the results obtained.	40%
10.7 Project			
10.8 Minimum standard of performance			
Designing a functional model for optimal use of machinery and energy resources at agricultural and zotechnical farm level.			

Date of completion

26.09.2020

Signature of course holder

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Signature of seminar

laboratory/project holder  
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Date of approval in the department

Signature of the Head of Department  
Prof. PhD. eng. BANDICI Gheorghe Emil

Dean signature  
Prof. PhD. eng. CHEREJI Ioan

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