

## SUBJECT OUTLINE

### 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>HORTICULTURE</b>
1.5 Cycle of study	<b>BACHELOR</b>
1.6 Study programme/Qualification	<b>LANDSCAPE / ENGINEER</b>

### 2. Information on the discipline

2.1 Name of discipline	<b>Energetic Basis and Horticultural Machinery II</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	I	2.5 Semester	II	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	4	out of which: 3.2 course	2	out of which 3.3 seminar/laboratory/project	2
3.4 Total hours in the curriculum	56	out of which: 3.5 course	28	out of which 3.6 seminar/laboratory/project	28
Time allotment					hours
Study assisted by manual, course support, bibliography and notes					14
Additional documentation in the library/ on specialised electronic platforms and in the field					7
Preparation of seminars/laboratories/ topics/reports, portfolios and essays					20
Tutorship					1
Examinations					2
Other activities					0
<b>3.7 Total hours of individual study</b>	<b>44</b>				
<b>3.9 Total hours per semester</b>	<b>100</b>				
<b>3.10 Number of credits</b>	<b>4</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. Description of the scientific, theoretical and practical fundamentals underpinning the development and application of sustainable horticultural production technologies.</p> <p>C1.3. Apply appropriate methods, techniques and procedures for customizing and optimizing sustainable horticultural production process technologies.</p> <p>C1.4. Qualitative and quantitative analysis of the effects of the technologies used (physico-chemical analyses of the obtained productions, physical, chemical and biological analyses on the environmental components that may be affected by applied horticultural technologies, the use of specific methods for assessing the impact of applied technologies on biodiversity).</p> <p>C1.5. Development of sustainable technological solutions for conventional horticultural production systems; designing alternative production systems (organic farming) and new technologies for particular cases.</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 to familiarize students with the issues of the energy base and horticultural machinery. Students have the opportunity to familiarize themselves with the main types of tractors and machines, the practical skills of construction, sizing, operation and possibilities of their construction, maintenance, operation and repair.
7.2 Specific objectives	Laboratory work is designed to provide future horticulturist engineers with practical skills in designing, building, researching, operating, repairing and maintaining technical equipment. 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 component parts and to understand the operation of machines and machines, to familiarize themselves with the modern means of measuring their parameters. They will understand their complexity and usefulness 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\*/

8.1 Course	Methods of teaching	No. of hours / Remarks
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1. Machine system. Mechanization technologies. Agricultural aggregates. Techniques of use of agricultural aggregates.	Oral presentation, demonstration and discussions	2
2. Soil cultivation machines. 2.1. Plows.	Idem	2
2.2. Mowers and excavators. 2.3. Machines for deep loosening of the soil. 2.4. Harrows.	Idem	2
2.5. Cultivators. 2.6. Rollers. 2.7. Combiners. 2.8. Soil modeling machines. 2.9. Digging machines	Idem	2
3. Sowing machines and planters. 3.1. Universal sowing machines. 3.2. Sowing machines for hoeing plants	Idem	2
3.3. Tuber planters. 3.4. Planting seedlings. 3.5. Bulb planters	Idem	2
4. Fertilizer spreader and amendments	Idem	2
5. Plant protection machinery and equipment. 5.1. Spray machines and appliances 5.2. Dredging machines and apparatus. 5.3. Other plant protection machinery and equipment	Idem	2
6. Machines for harvesting crops. 6.1. Machines for harvesting grain cereals	Idem	2
6.2. Maize harvesters. 6.3. Machines for forage harvesting	Idem	2
6.4. Potato and beet harvesters. 6.5. Machines for harvesting textile plants. 6.6. Machines for harvesting grapes. 6.6. Machines for harvesting fruits	Idem	2
7. Machines and installations used in animal husbandry	Idem	2
8. Machines and installations for the cleaning, sorting, drying, storage and preservation of horticultural products.	Idem	2
9. Equipment and devices used for precision horticulture.		
10. Formation and exploitation of agricultural aggregates.	Idem	2
11. Maintenance of machinery, equipment and agricultural installations.	Idem	2
<b>Bibliography</b>		
1. Blaga V. – Motoare pentru automobile și tractoare, Editura Universității din Oradea, 2007		
2. Blaga V. – Baza energetică pentru agricultură, Editura Universității din Oradea, 2006		
3. Ciocîrlan A., Constantin M. – Asamblarea, întreținerea și repararea mașinilor și instalațiilor, Editura ALL Educational, București, 2002		
4. Donca Gh. – Baza energetică pentru agricultură, Editura Universității din Oradea, 2012		
5. Donca Gh. – Baza energetică și mașini agricole, Îndrumător de laborator, Editura Universității din Oradea, 2013		
6. Donca Gh. – Mic dicționar de inginerie tehnică pentru domeniul agrozootehnic și agroturistic, Editura Universității din Oradea, 2012		
7. Donca Gh. – Bazele utilajelor și instalațiilor pentru alimentația publică și turism, Editura Universității din Oradea, 2009		
8. Donca Gh. – Menținerea utilajelor și instalațiilor agroalimentare, Editura Universității din Oradea, 2011		
9. Donca Gh. – Utilaje și instalații pentru alimentația publică și turism, Îndrumător de laborator, Editura Universității din Oradea, 2013		
10. Donca Gh. – Mașini și instalații zootehnice, Editura Universității din Oradea, 2015		
11. Dumitru M. – Tractoare agricole, Editura Alma Mater, Sibiu, 2006		
12. Naghiu Al. – Baza energetică pentru agricultură și silvicultură, Editura Risoprint, Cluj-Napoca, 2008.		
<b>8.2 Seminar</b>		
<b>8.3 Laboratory</b>	Methods of teaching	No. of hours / Remarks

1. Training on work safety and emergency rules. 1. Controlling the correct fitting and coupling of plows	Demonstration, experimentation, discussions, problem-solving and teamwork	2
2. Determining the parameters of the plow blade	idem	2
3. Determination of constructive and functional parameters of soil excavating machines	idem	2
4. Determination of constructive and functional parameters of disc harrows and plows	idem	2
5. Verification of the main constructive and functional parameters of the cultivators	idem	2
6. Adjustment of universal sowing machines	idem	2
7. Determination of constructive and functional parameters of planting machines	idem	2
8. Determination of the constructive and functional parameters of the fertilizer machines and amendments	idem	2
9. Determination of constructive and functional parameters of plant protection machinery	idem	2
10. Study of types of harvesters for harvesting cereal grains	idem	2
11. Study of the operation and regulation of maize harvesting machines	idem	2
12. Study of the operation and regulation of tin and windrowers	idem	2
13. Establishment of energy consumption in agricultural works	idem	2
14. Study of the operation and regulation of cleaning, sorting and seed drying plants	idem	2
<b>8.4 Project</b>		

#### Bibliography

1. Blaga V. – Motoare pentru automobile și tractoare, Editura Universității din Oradea, 2007.
2. Blaga V. – Baza energetică pentru agricultură, Editura Universității din Oradea, 2006.
3. Ciocîrlan A., Constantin M. – Asamblarea, întreținerea și repararea mașinilor și instalațiilor, Editura ALL Educational, București, 2002
4. Donca Gh. – Baza energetică și mașini agricole, Îndrumător de laborator, Editura Universității din Oradea, 2013
5. Donca Gh. – Baza energetică pentru agricultură, Editura Universității din Oradea, 2012
6. Donca Gh. – Mic dicționar de inginerie tehnică pentru domeniul agrozootehnic și agroturistic, Editura Universității din Oradea, 2012
7. Donca Gh. – Mașini și instalații zootehnice, Îndrumător lucrări practice de laborator, Editura Universității din Oradea, 2017
8. Donca Gh. – Utilaje și instalații pentru alimentația publică și turism, Îndrumător de laborator, Editura Universității din Oradea, 2013
9. Dumitru M. – Tractoare agricole, Editura Alma Mater, Sibiu, 2006
10. Naghiu Al. – Baza energetică pentru agricultură și silvicultură, Editura Risoprint, Cluj-Napoca, 2008
11. Năstăsoiu M. – Tractoare : determinarea performanțelor de tracțiune și economice, Editura Universității Transilvania, Brașov, 2004
12. Tonea C. ș.a. – Baza energetică pentru agricultură, Îndrumător de lucrări practice, Editura Agroprint, Timișoara, 2004.

\* 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 found in the curriculum of the horticultural specialization and other academic 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 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 from the course. For the passing of the exam, each subject should treated for minimum 5.).	60%
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			
Developing and applying economically efficient production technology with positive environmental and social impacts depending on specific environmental conditions.			

Date of completion

26.09.2020

Signature of course holder

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Signature of seminar

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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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