

SUBJECT OUTLINE

1. Information on the study programme

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| 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

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|---------------------------------------|------------------------------------|--------------|-----|------------------------|---|--------------------------|---|
| 2.1 Name of discipline | Livestock Machines and Equipment I | | | | | | |
| 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)

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|---|------------|--------------------------|----|---|-------|
| 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 | | | | | 20 |
| Additional documentation in the library/ on specialised electronic platforms and in the field | | | | | 20 |
| Preparation of seminars/laboratories/ topics/reports, portfolios and essays | | | | | 14 |
| Tutorship | | | | | 2 |
| Examinations | | | | | 2 |
| Other activities | | | | | |
| 3.7 Total hours of individual study | 58 | | | | |
| 3.9 Total hours per semester | 100 | | | | |
| 3.10 Number of credits | 4 | | | | |

4. Prerequisites (where appropriate)

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| 4.1 curriculum | |
| 4.2 competences | |

5. Conditions (where appropriate)

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

| 6. Specific competences acquired | |
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| 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)

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| 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 was 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*/

| 8.1 Course | Methods of teaching | No. of hours / Remarks |
|--|--|------------------------|
| 1. Introduction. 1.1. General considerations on mechanization of processes in agriculture and animal husbandry. 1.2. Machinery and plant for agriculture and animal husbandry. 1.3. Recapitulative of technical drawing. 1.4. Machine parts and mechanisms used in the construction of livestock machinery and installations | Oral presentation, demonstration and discussions | 2 |
| 2. Power sources. 2.1. Classical energy sources | Idem | 2 |
| 2.2. Renewable energy sources | Idem | 2 |
| 2.3. Use of electricity | Idem | 2 |
| 2.4. Automation used in agrozootechnical units. 2.5. Hydraulic drive | Idem | 2 |

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| systems | | |
| 3. Machinery and equipment for transporting and handling products 3.1. Trailed and self-propelled transport equipment | Idem | 2 |
| 3.2. Tractors. 3.2.1. Classification of tractors. 3.2.2. Main parts of tractors. 3.2.3. Transmissions used on tractors. 3.2.4. Tractor clutch. 3.2.5. Tractor gearboxes. 3.2.6. Rear axle of tractors. 3.2.7. Tractor work equipment | Idem | 2 |
| 3.3. Machines and installations for lifting and loading and unloading | Idem | 2 |
| 3.4. Transporters with flexible traction bodies 3.5. Conveyors without flexible traction | Idem | 2 |
| 4. Agricultural machinery and equipment. 4.1. Tillage machines and equipment. 4.2. Machinery and equipment for sowing and planting. 4.3. Machines and equipment for crop maintenance. 4.4. Fertilizer and amendments machinery and equipment. 4.4.1. Machines and equipment for the administration of organic fertilizers. 4.5. Harvesters. 4.5.1. Machines for forage crops harvesting | Idem | 2 |
| 5. Machines and plants for the preparation of feed in animal husbandry. 5.1. Mechanization technologies in food preparation. 5.2. Systems and plants for fodder cleaning | Idem | 2 |
| 5.3. Machines and plants for shredding forage | Idem | 2 |
| 5.4. Machines and plants for the preparation of fodder mixtures | Idem | 2 |
| 5.5. Machines and plants for the treatment of fodder and foraging | Idem | 2 |
| 5.6. Machines and plants for the preservation of fodder | Idem | 2 |
| Bibliography | | |
| 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., Udroui A. – Automatizarea proceselor în producția zootehnică, Editura Arvin Press, București, 2003 | | |
| 12. Vâlcu V. ș.a. – Mașini și instalații zootehnice, Editura Pim, Iași, 2003. | | |
| 8.2 Seminar | Methods of teaching | No. of hours / Remarks |
| 8.3 Laboratory | Methods of teaching | No. of hours / Remarks |
| Work safety and emergency training. 1. Basics of machine, machine and plant study | Demonstration, experimentation, discussions, problem-solving | 1 |

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| | and teamwork | |
| 2. Metals and alloys used in the construction of machinery and installations | idem | 1 |
| 3. Three-phase asynchronous motor with short-circuit rotor | idem | 1 |
| 4. Parts of internal combustion piston engines, gas turbines and compressors | idem | 1 |
| 5. Determination of constructive and functional parameters of motor vehicles | idem | 1 |
| 6. Tractor transmission study | idem | 1 |
| 7. Parameters of the braking system of motor vehicles | idem | 1 |
| 8. Parameters of the working equipment of tractors | idem | 1 |
| 9. Constructive and functional parameters of fertilizer spreaders | idem | 1 |
| 10. Chopping resistance determination for fodder | idem | 1 |
| 11. Determination of impact frequency for shredding concentrated fodder | idem | 1 |
| 12. Determination of the power required to drive the cutting machine from the fibrous feeders | idem | 1 |
| 13. Determination of the constructive and functional parameters of the thrower from the fibrous feeders | idem | 1 |
| 14. Determination of the constructive and functional parameters of the root feeding machine | idem | 1 |
| 8.4 Project | | |
| | | |

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. – 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., Udroi 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 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 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 | | | |
| 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

1. PhD. Eng. DONCA Gheorghe
donca.gheorghe@gmail.com

Signature of seminar

laboratory/project holder
1. PhD. Eng. GAVRA Codrin
gavracodrin@yahoo.com

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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