

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 | AGRICULTURE, HORTICULTURE |
| 1.4 Field of study | AGRONOMY |
| 1.5 Cycle of study | BACHELOR |
| 1.6 Study programme/Qualification | AGRICULTURE / ENGINEER |

2. Information on the discipline

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|---------------------------------------|--|--------------|----|------------------------|---|--------------------------|---|
| 2.1 Name of discipline | Energetic Basis and Agricultural Machinery II | | | | | | |
| 2.2 Course holder | PhD. eng. DONCA Gheorghe | | | | | | |
| 2.3 Seminar/Laboratory/Project holder | PhD. eng. DONCA Gheorghe | | | | | | |
| 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 |
| 3.7 Total hours of individual study | 44 | | | | |
| 3.9 Total hours per semester | 100 | | | | |
| 3.10 Number of credits | 4 | | | | |

4. Prerequisites (where appropriate)

| | |
|-----------------|--|
| 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 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 agricultural production technologies.</p> <p>C1.3. Apply appropriate methods, techniques and procedures for customizing and optimizing sustainable agricultural 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 agricultural 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 agricultural 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)

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|-------------------------|---|
| 7.1 General objective | The course aims to familiarize students with the issues of the energy base and agricultural 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 agronomist engineers with practical skills in designing, building, researching, operating, repairing and maintaining technical equipment in agriculture. 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 |
|---|--|------------------------|
| 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. Milling and digging machines. 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 modelling machines. 2.9. Digging hole 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 agricultural products. | Idem | 2 |
| 9. Equipment and devices used for precision agriculture. | | |
| 10. Formation and exploitation of agricultural aggregates. | Idem | 2 |
| 11. Maintenance of machinery, equipment and agricultural installations. | | |
| 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 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. – Mentenanța 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. | | |
| 8.2 Seminar | | |

| 8.3 Laboratory | 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 plows 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 |
| 8.4 Project | | |
| 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 agricultural 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

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

Signature of seminar
laboratory/project holder

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

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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