ENERGY BASE AND AGRICULTURAL MACHINERY (I st Year of study, I st SEMESTER of I st year of study)

Credit value ECTS 5

Course category
Domain (Imposed)

Course holder:
Lecturer. dr. Dan Cazacu

Discipline objectives (course and practical works)

In the disciplines are presented basic concepts of construction and operation of agricultural tractors and agricultural equipment, constructive news of tractors and agricultural machinery, technical performance, PTO, hydraulics, suspension mechanism and maintenance as well, etc.

Contents (syllabus)

Course (chapters/subchapters)
Basics of engines their classification
Constituent parts of internal combustion engine
The functioning of internal combustion engines
Technical characteristics of the internal combustion engines
Mechanisms and systems of internal combustion engines
The transmission and work equipment
Dispositifs for smart agriculture

Practical works
Materials fuels, lubricants and special liquids used in the construction of tractors and agricultural machinery
Basics bodies machine
Welding and soldering
Parts of engines with internal combustion
Mechanisms and systems of of internal combustion engines
Steering, rolling braking

Bibliography

1. Dan Cazacu and collaborators 2017 - *The tractor for everybody, edition II*. Publisher PIM , Iaşi
2. Dan Cazacu, R. Rosca, 2015 – *Tractors Construction, edition* I. Publisher Ion Ionescu de la Brad, Iaşi
3. Bill A. Stout 1999 - *CIGRE Handbook Volume III*. Publisher American Society of Agricultural Engineers Texas A & M University, USA Co-Editor: Chez Bernard Ministry of Agriculture, Fisheries and Food, France

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	oral	60%
Laboratory activity	tests, laboratory activity	40%

Contact

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TEACHING DISCIPLINE: ENERGETIC BASES AND HORTICULTURAL MACHINES (LANDSCAPE DESIGN Specialization, I th Year of study, II th Semester)

Credit value (ECTS): 4

Course category: MANDATORY

Course holder: PhD Professor Ioan ȚENU

Discipline objectives (course and practical works)

The general objective of the discipline	The Energetic bases and horticultural machines discipline, along with other specialized disciplines, contributes to the theoretical and practical training of future horticultural engineers.
Specific objectives	The development of course activities and practical works aims to assimilate the theoretical and practical knowledge on the construction, operation and exploitation of tractors, machines and installations for the horticulture field specific agricultural works execution.

Contents (syllabus)

Course (chapters/subchapters)
General considerations regarding the subject of the discipline.
Aspects on the exploitation and optimization of agricultural aggregate formation.
Plows construction and exploitation.
The construction and operation of machinery for deep loosening, leveling land and soil modeling.
Construction and exploitation of digging soil machinery and digging holes augers.
Construction and exploitation of agricultural seedbed preparation tillers.
The construction and operation of the harrows, cultivators, combiners and rollers.
The construction and exploitation of machinery for the administration of fertilizers and amendments.
The construction and operation of sowing and planting machineries.
Construction and operation of apparatus and machines for plant protection.
Construction and exploitation of universal harvesting combines for grains and technical plants.
The construction and operation of machinery for harvesting grapes and fruits.
Construction and operation of machines for harvesting potatoes and vegetables.

Practical works
Construction and plow adjustments

Construction and adjustments of machinery for deep loosening, leveling land and soil modeling. for deep loosening, leveling land and soil modeling.
Construction and adjustments of digging soil machinery and digging holes augers.
Construction and adjustments of agricultural seedbed preparation tillers.
Construction and adjustments of the harrows, cultivators, combiners and rollers.
Construction and adjustments of machinery for the administration of fertilizers and amendments.
Construction and adjustments of sowing and planting machineries.
Construction and adjustments of apparatus and machines for plant protection.
Construction and adjustments of universal harvesting combines for grains and technical plants.
Construction and adjustments of of machinery for harvesting grapes and fruits.
Construction and adjustments of of machinery for harvesting potatoes and vegetables.

Bibliography

McKeyes, E., 1985. Soil Cutting and Tillage. Amsterdam: Elsevier.

McKeyes, E., 1989. Agricultural Engineering Soil Mechanics. Amsterdam: Elsevier.

Neagu Tr. Suditu P., 2002 – Horticultural Machinery and Equipment . Edit. “Ion Ionescu de la Brad” Iaşi.

Scripnic V. şi Babiciu P., 1979, Agricultural Machinery, Editura „CERES” Bucureşti.

Stout B.A. (editor) (1999). CIGH Handbook of agricultural engineering; vol. III – Plant production engineering. ASAE, St. Joseph, MI.

Ţenu I., Cojocariu P., Cârlescu P., Roşca R., Leon D. (2010) Soil interaction with the active parts of the agricultural equipments (in Romanian). "Ion Ionescu de la Brad" Publishing House, Iaşi, Romania.

Tenu I., 2004, Irrigation Equipments Edit. Tehnică, Ştiinţifică şi Didactică ”CERMI”, Iaşi.

Tenu I., 2004, Equipment for land reclamation, Edit. ,,Gh. Asachi”, Iaşi.

Ţenu I. şi colab. , 2010, The interaction of the soil with the working bodies of the agricultural aggregates,, Editura “Ion Ionescu de la Brad” Iaşi.

Ţenu I. şi colab, 2007, Technologies and machines for soil tillage in order to practice the concept of sustainable agriculture, Editura “Ion Ionescu de la Brad” Iaşi.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Course	Exam	60%
	Presence	20%
Practical works	Tests	20 %

Contact

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