

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

Credit value ECTS 5 + 4

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
Tools, machinery, agricultural aggregates - the working capacity
Agricultural equipment for soil processing
Fertilization agricultural equipment
Agricultural machinery for seeding and planting
Farm machinery for phytosanitary treatments
Harvesting equipment for agriculture
Machines and equipment for conditioning agricultural products
Equipment used in precision farming

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
Plows, harrows, cultivators, combiners
Mills machines, holes digging, sub soiling processing machines
Seeders, planters
Fertilization equipment

Sprayers
Harvester for cereals and technical plants
Machinery for treaty and conditioning seeds

Bibliography

1. Dan Cazacu and collaborators 2004 - *The tractor for everybody*. Publisher Ion Ionescu de la Brad, Iași
2. Dan Cazacu, R. Rosca, 2015 – *Tractors Construction, edition I*. Publisher Ion Ionescu de la Brad, Iași
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
4. Mircea Badescu, Sorin Boruz, 2005 – *Agricultural and horticultural machines*. Publisher Sitech, Craiova.
5. Drocaș I, and collaborators, 1999 - *Setting agricultural machinery for soil, sowing, planting, fertilization and crop protection* - Publisher Risoprint, Cluj Napoca.
6. Toma Dragos, Traian Neagu and collab., 1981 - *Tractors and machinery for agriculture*, vol. II, Didactic and Pedagogical Bucharest.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	oral	70%
Laboratory activity	tests, laboratory activity	30%

Contact

Lecturer Ph.D. Cazacu Dan

Faculty of Agriculture - USAMV Iași
Aleea Mihail Sadoveanu nr. 3, Iași, 700490, Romania
telefon: 0040 232 407563, fax: 0040 232 260650
E-mail: dcazacunori@yahoo.com