

Tractor fundamentals (2nd Year, 3rd SEMESTER)

Credit value (ECTS) 6

Course category

Domain (Imposed)

Lecturer

prof. dr. Gheorghe Radu ROȘCA

Discipline objectives (course and practical works)

The aim of the course is to present the basic notion regarding the construction and operating principles of the agricultural tractors and engines.

In the practical training sessions the students see the main parts of the internal combustion engines and tractors in order to understand their construction and operating processes.

Contents (syllabus)

Course (chapters/subchapters)
General description and clasification of agricultural tractors. The four strokes compression ignition internal combustion engine. The main parts of the Diesel engine.
Cycle diagram of Diesel engine; characteristic curves of Diesel engine
Engine timing system.
Diesel engine fueling system
Lubrication and cooling system
The spark ignition engine
The steering mechanism
The braking system
Tractor transmission
Pneumatic braking systems for trailers
The three point hitch mechanism
The hydraulic system
The power take-off

Practicum
1. Materials used in the construction of tractors and agricultural equipment. Fuels, lubricants and special fluids.
2. Machine parts
3. Fixed and moving parts of the internal combustion engines. The timing mechanism.
4. Fueling systems for Diesel and spark ignition engines.
5. Lubrication and coolong systems
6. Ignition systems for spark ignition engines
7. Tractor transmissions
8. Braking&steering systems; running gear system
9. Pneumatic braking systems.
10. Three point hitch mechanism, hydraulic system and power take-off.

11. Final colloquium

References

1. Cazacu Dan si colab. – ‘Tractorul pe întelesul tuturor’ Edit. Pim , Iasi, 2004
2. Cazacu Dan – „Reducerea consumului de combustibil si tasării solului în agricultura”,Editura Pim. Iasi, 2009.
3. Radu Roșca si colab.-Combustibili neconvenționali pentru motoare cu ardere internă.Edit.Gh. Asachi Iași, 2002.
4. Dăscălescu D. – Motoare termice cu piston-aspecte constructive. Edit. Matrix Rom, București, 1998.
5. Neagu Tr., Cojocariu P. – Tractoare agricole. Univ. Agronomică Iași, 1995.
6. Roșca R., Cazacu D., - Construcția tractoarelor (ed. a II-a). Edit. „Ion Ionescu de la Brad”, Iași, 2015.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Course	Presence and active participation	10%
Practicum	Presence and active participation	30%
Final exam	Oral examination	60%

Contact person

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