

Hydropneumatic systems (IInd Year of study, fourth semester)

Credit value (ECTS) 4

Course category

Specialty (Imposed)

Course holder:

Lecturer Dr. Constantin CHIRILĂ

Discipline objectives (course and practical works)

The course aims to make students acquire basic theoretical knowledge of hydrostatic drive systems and pneumatic drive systems used in agriculture and food industry.

Practical works aims to make students acquire practical knowledge to hydrostatic and pneumatic drives used in agriculture and food industry.

Contents (syllabus)

Course (chapters/subchapters)
Introduction to hydrostatic drives
Storage of hydraulic medium
Filters for hydraulic drives
Measuring, control and surveillance instruments
Pipes and sealing elements
Pumps for hydraulic drives
Hydraulic motors
Distribution system for hydrostatic systems
Adjusting the main parameters of the hydraulic systems
Hydraulic drive systems for tractors hidraulic lift assambley
Hydraulic power steering systems
Hydraulic systems for farm machines
Hydrostatic drive systems for combine harvester
Introduction to pneumatic drives
Air properties
Compressed air production equipment
Preparation of compressed air
Tanks and air cells for compressed air
Leading apparatus
Control apparatus for pneumatic drive systems
Pneumatic motors

Practical works
Work safety rules;
Introduction to hydraulic and pneumatic drive systems;
Symbols used for hydraulic and pneumatic drive systems schemas;
Study on gear pumps

Study regarding distributors with cylindrical drawers
Study regarding hydraulic cylinders;
Study on the use of hydraulic installations in the construction of agricultural equipment
Study regarding pneumatic drive systems schemas
Knowledge assessment

Bibliography

1. Chirilă C., – Acționări hidropneumatice – Note de curs.;
2. Ionescu Fl. și colab. - Mecanica fluidelor și acționări hidraulice și pneumatice – Editura didactică și pedagogică, 1980
3. Oprean A. Și colab. – Acționări și automatizări hidraulice – Editura Tehnică 1989
4. Roșca R.; Vâlcu V. - Acționări hidraulice și pneumatice - Editura „Ion Ionescu de la Brad” Iași 2000

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Exam	written assessment	65%
Appreciation of the activity during the semester	Oral assessment during the semester, verification tests and final laboratory colloquium.	35%

Contact

Lecturer Dr. Constantin CHIRILĂ

Faculty of Agriculture - USAMV Iași

Aleea Mihail Sadoveanu nr. 3, Iași, 700490, Romania

telefon: 0040 232 407560, fax: 0040 232 219175

E-mail: chirilac@uaiasi.ro