

## **Electric actuators and automation (IIInd Year of study, IIIrd SEMESTER)**

**Credit value (ECTS) 3**

### **Course category**

Domain (Imposed)

### **Course holder:**

Lecturer Dr. Constantin CHIRILĂ

### **Discipline objectives (course and practical works)**

The course aims to make students acquire basic theoretical knowledge of electrical drives and automation schemes used in agriculture and food industry.

Practical works aims to make students acquire practical knowledge to electrical drives and automation schemes used in agriculture and food industry.

### **Contents (syllabus)**

<b>Course (chapters/subchapters)</b>
<b>Introduction to actuators</b>
<b>Electrical contacts</b>
<b>Non-automatic electrical apparatus for connection and switching</b>
<b>Limit switch</b>
<b>Automatic electrical apparatus for connection</b>
<b>Starting asynchronous motor in short circuit</b>
<b>Introduction to automation</b>
<b>Transducers</b>
<b>Comparators</b>
<b>Adaptors</b>
<b>Convertors</b>
<b>Amplifiers</b>
<b>Regulators</b>
<b>Driving elements</b>
<b>Actuators</b>
<b>Telemechanics</b>
<b>Adjusting some working parameters in automated systems</b>
<b>Automation of agricultural machinery</b>
<b>Aspects regarding smart agriculture</b>
<b>The use of robots in animal husbandry</b>

<b>Practical works</b>
<b>Work safety rules;</b>
<b>Getting Started;</b>
<b>Symbols used for electrical and automation schemas;</b>
<b>Notions of electrotechnics</b>
<b>Study regarding electrical contacts;</b>

<b>Study regarding non-automatic electrical apparatus for connection and switching;</b>
<b>Study regarding automatic electrical apparatus for connection</b>
<b>Study regarding limit switch; Study regarding change of direction of motion for a chain transmission with the help of limit switches</b>
<b>Study regarding transducers</b>
<b>Study on electromagnetic relays and time relays</b>
<b>Study regarding mechanical elements for adjustment</b>
<b>Study on level regulation and pressure regulation</b>
<b>Study on the automation of installations for the realization of the microclimate</b>
<b>Theoretical study on the automation of the operating regimes of refrigeration installations</b>
<b>Knowledge assessment</b>

### **Bibliography**

1. Chirilă C., – Elemente de acționări electrice și automatizări – Note de curs.;
2. Boțan N.V. și colab.- Acționări și automatizări – Manual pentru licee industriale și școli profesionale - Editura Didactică și Pedagogică, București 1981
3. Crăciun V.,– Automatizarea mașinilor și instalațiilor agricole – Îndrumar pentru lucrări practice. Litografiat Universitatea Tehnică Iași, Iași, 1992.
4. Popescu S.; Ghinea T. - Automatizarea mașinilor și instalațiilor folosite în agricultură - Editura „Scrisul românesc” Craiova 1986.

### **Evaluation**

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

### **Contact**

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