

# ELECTRIC DRIVE CONTROL SYSTEMS

## COURSE SYLLABUS ABSTRACT

1-53 01 05 Automated electric drives

	STUDY MODE		
	full-time	part-time	part-time (shortened program)
Year	3,4	4,5	3,4
Semester	6,7	8,9	6,7
Lectures, hours	66	16	12
Laboratory classes, hours	48	12	10
Course project, semester	7	9	7
Exam, semester	6,7	6,7 8,9	6,7
Contact hours	114	32	22
Independent study, hours	102	184	194
Total course duration in hours / credit units	216/6		

### 1. Course outline

The object of study of the discipline is an automated electric drive, considered as a system of two levels of control: the upper (technological), implementing a logical control algorithm in the electric drive and the lower (ACS), implementing dynamic and static characteristics of the electric drive. The tasks of automating the operation of electric drives, methods of constructing control system nodes on a discrete element base (upper level) and typical structures of continuous and discrete control systems, methods of their optimization, methods of synthesis of regulators are considered, dynamic and accuracy indicators of electric drives with speed and position control systems (lower level) are analyzed.

### 2. Course learning outcomes

Upon completion of the course, students will be expected to know:

- methods of constructing nodes of logical control systems on discrete elements, typical structures of electric drive control systems, ways to optimize them.

be able to:

- to analyze static, dynamic and precision indicators of electric drives with speed and position control systems;

possess:

- methods of synthesis of regulators in the design of closed systems of automatic control of electric drives.

### 3. Competencies

To possess methods of designing closed systems of automatic control of electric drives, be able to carry out their analysis and synthesis.

### 4. Requirements and forms of midcourse evaluation and summative assessment

The current certification is an exam. Intermediate – intermediate rating control, classroom control work and protection of laboratory work.