ELECTRIC DRIVE CONTROL SYSTEMS

COURSE SYLLABUS ABSTRACT

6-05-0713-04 Automation of technological processes and production
(speciality code and name)

Automated electric drives
(concentration)

	STUDY MODE		
	full-time	part-time	part-time (shortened program)
Year	**4**	**4**	**3**
Semester	7	8	6
Lectures, hours	48	10	10
Laboratory classes, hours	32	8	8
Course project, semester	7	8	6
Exam, semester	7	8	6
Contact hours	80	18	18
Independent study, hours	64	126	126
Total course duration in hours / credit units	144/4		

1. Course outline

The object of study of the discipline is an automated electric drive, considered as a system of two control levels: the upper (technological), implementing the logical control algorithm in the electric drive, and the lower (ACS), implementing the dynamic and static characteristics of the electric drive. The problems of automation of the operation of electric drives, methods of constructing control system units on a discrete element base (upper level) and typical structures of continuous and discrete control systems, methods of their optimization, methods of synthesizing 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 and methods of their optimization;

be able to:

- select a rational electric drive control system for control objects;
- draw up functional, structural diagrams of electric drive control systems;
- analyze static and dynamic indicators of electric drives with speed and position control systems;

possess a skill of:

- calculation during the synthesis of regulators during the design of closed automatic control systems for electric drives.

3. Competencies

To master the methodology for calculating the required characteristics of an electric drive, to be able to select technical means and develop a control circuit for an electric drive

4. Requirements and forms of midcourse evaluation and summative assessment

Current control involves assessing the performance and defense of laboratory work.
To assess the quality of assimilation of educational material by students, an intermediate assessment is conducted in the form of an exam.