VECTOR CONTROL OF ALTERNATING CURRENT MOTORS

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**	**5**	**4**
Semester	8	9	7
Lectures, hours	14	4	4
Laboratory classes, hours	20	6	6
Pass/fail, semester	8	9	7
Contact hours	34	10	10
Independent study, hours	56	80	80
Total course duration in hours / credit units	90/3		

1. Course outline

The purpose of the discipline is to provide students with knowledge of the theory and principles of implementation of vector control of AC motors.

2. Course learning outcomes

Upon completion of the course, students will be expected to

know:

- mathematical description and block diagrams of electric drives based on asynchronous motors and synchronous motors with permanent magnets when the coordinate axes are oriented along the rotor flux vector, the mutual induction vector and the stator flux vector;
- the purpose of vector control of AC motors;
- basic functional diagrams of vector control of AC motors;

be able to:

- calculate the parameters of control devices of vector control systems;
- to analyze the static and dynamic characteristics of vector control systems;
- calculate the mechanical characteristics of motors for different types of vector control;

to possess a skill:

- designing vector control systems;
- calculating the mechanical characteristics of motors for different types of vector control

3. Competencies

Know the structural diagrams of vector control systems, be able to calculate the parameters of control devices, and master the methods of setting up and diagnosing vector control systems.

4. Requirements and forms of midcourse evaluation and summative assessment

Midcourse evaluation includes assessment of the completion and defense of laboratory work. The form of summative assessment is a pass.