

ACADEMIC AND RESEARCH ACTIVITIES

COURSE SYLLABUS ABSTRACT

7-06-0716-03 Instrument engineering

(speciality code and name)

Monitoring and control in electromechanical systems

(concentration)

Advanced higher education

	STUDY MODE	
	full-time	part-time
Year	1, 2	1, 2
Semester	1, 2, 3	2, 3, 4
Practical classes (seminars), hours	150	36
Pass/fail, semester	1, 2, 3	2, 3, 4
Contact hours	150	36
Independent study, hours	174	288
Total course duration in hours / credit units	324/9	

1. Course outline

The purpose of teaching this discipline is to study the methodological foundations of scientific research in relation to monitoring and control problems in electromechanical systems. Particular attention is paid to the practical use of circuit solutions for monitoring and control in electromechanical systems, methods for their description and analysis, and the search for optimal solutions for the formation of the required traction and speed characteristics.

2. Course learning outcomes

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

- methodology for choosing the direction of scientific research, identifying characteristic features and contradictions for motivating scientific research, methods of analyzing the object of research,
- methods of preparing for experimental research and conducting them,
- methods for processing the results of scientific research and presenting them;

be able to:

- analyze the technical specifications for the research object and special literature,
- prepare the basis for experimental research, conduct research and assess the quality of the experiment,
- develop proposals for the use of the results obtained;

have the skills:

- setting up automatic control systems for electromechanical systems and assessing their performance and reliability,
- development of design documentation,
- analysis of quality indicators of generated dynamic modes in electromechanical systems and their static characteristics.

3. Competencies

Know universal algorithmic programming languages, methods of mathematical description of automatic control systems (ACS), ACS modeling package MatLab Simulinc, be able to apply modern programming technologies

4. Requirements and forms of midcourse evaluation and summative assessment

Current monitoring of progress involves assessing the completion of tests. Interim certification is carried out in the form of an exam.