



CATALOG OF ELECTIVE DISCIPLINES

EDUCATIONAL PROGRAM

8D07158 –Automation and control

Education level: Doctoral studies

Study period: 3 years

Year of admission: 2023

Module	Cycle	Component	Name of the discipline	Total labor intensity		Term	Educational outcomes	Brief description of the discipline	Prerequisites	Post-requirements
				in academic hours	in academic credits					
Module 1- Scientific and pedagogical competencies	BD	EC	Methods and means of improving the reliability of electrical complexes and systems	150	5	1	ON4	The discipline studies the main reliability indicators of existing and prospective microelectronic complexes and systems; analysis of the reliability and safety of two and three-channel structures, standardization and proof of safety of various complexes and systems, types of tests of safe systems on machine models, reliability of devices and equipment of electrical automation and telemechanics systems, modeling the reliability of electrical complexes and systems.	Bachelor's and Master's degree courses	Research work of a doctoral student, Final Certification, Research practice
			Methods and means of effective operation of electrical complexes and systems				ON4	The discipline studies the indicators of effective operation of micro-processor complexes, calculation of indicators of operational reliability of systems with a complex structure, methods of rationing and conditional meters, failure rate; certification of systems of electrical engineering complexes, external factors affecting the operational reliability of microelectronic systems. Internal and external factors affecting the operational reliability of the complexes.	Master's degree courses	Research work of a doctoral student, Final Certification, Research practice
Module 2- Core competencies	PD	EC	Identification of automatic control systems	150	5	1	ON5	The discipline studies general equations of control objects, identification of static and dynamic characteristics of industrial objects, methods for constructing models of control objects, engineering method for determining the refined model of ACS processes using regulators, selection of the controller and its settings in the automatic stabilization system based on simplified dynamic characteristics of the object, identification of the main elements of electric drives of industrial objects	Bachelor's and Master's degree courses	Research work of a doctoral student, Final Certification, Research practice
			Theory and technique of scientific experiment				ON6	The discipline studies the methodological foundations of scientific research; the theory of experiment planning, ways to develop and improve test and research methods, sources of information and methods of working with them, means and methods of scientific research, control of research, technology of creativity in research and invention, patent and information support for scientific research.	Bachelor's and Master's degree courses	Research work of a doctoral student, Final Certification, Research practice

Head of the «Automation and Control» Department

AGREED:

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