

Course card

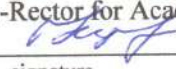
Name of the course/program	Industrial pneumoautomatics and mechatronics. Main level
The target audience	Engineers of MI&A, assistant engineers, locksmiths of MI&A, electronic engineers
Form of study	full-time
Brief description, purpose of the program, competencies to be formed	<p>is the development by students of the course of competencies in the field of industrial pneumoautomatics and mechatronics. As a result of mastering the program, the student must:</p> <ol style="list-style-type: none"> 1. Be able to maintain control systems based on modern PLCs. 2. Configure and run hardware diagnostics. 3. Analyze management systems. 4. Understand the construction and operation of pneumatic elements. 5. Maintain and operate equipment with pneumatic automation systems 6. Read and draw pneumatic circuit diagrams. 7. Clean and draw pneumatic circuit diagrams. 8. Perform installation and commissioning of pneumatic automation systems. 9. Diagnose malfunctions of pneumatic systems and eliminate them. 10. Reduce the likelihood of malfunctions and downtime of industrial equipment.
Structural subdivision	Department of IT&A
Keywords (5 words)	pneumatics, mechatronics, automation control systems, equipment diagnostics, installation and adjustment.

Requirements for students of the program Confident PC user, basic knowledge of programming.

graduation document certificate

Number of hours 36

Kostanay Engineering and Economic University named after. M. DULATOV

APPROVED by
Vice-Rector for Academic Development

signature Full Name
« 28 » 03 20 22 Kushebina G.M.

STUDY PROGRAM

Industrial pneumoautomatics and mechatronics. Main level
(name of the course, seminar, training)

on the topic "Industrial pneumoautomatics and mechatronics. Main level"
(by specialty, discipline, topic)


Engineer of MI&A, assistant engineers, locksmiths of MI&A, electronic engineers (specialists,
category of listeners)

№	The content of the discipline (topic or section)	Number of hours		
		Total	including	
			Lecture	Practice
1 module.				
1	Introduction to FluidSIM – overview of components and functions	1	1	
2	Symbols of pneumatic devices, creation of circuit diagrams. International Standards.	1	1	
3	Control system: pneumatic distributors of various types (structure, types and purpose of pneumatic distributors), sensors, throttles, logic elements. Pneumatic systems using multiple cylinders.	2	1	1
4	Schemes with one actuator Schemes with multiple actuators	2		2
5	Block diagram of work, communication FluidSim with the controller	2		2
2 module.				
1	Distribution station: disassembly / assembly of mechanics, programming according to WSI standards.	2	1	1
2	Sorting station: mechanical disassembly/assembly, traffic light programming.	2		2
3	Transfer station: disassembly / assembly of mechanics, programming of the traffic light on the SIM-box.	2		2
3 module.				

1	Station overview: 1.Handling Station 2.MeasuringStation 3.JoinigStation 4.PackagingStation.	2	2	
2	Introduction to TIAPortal - an overview of the components and functions. Project creation, hardware and network configuration.	4	1	3
3	Overview of programming: basic functions, addressing, variables. Working with organization blocks (interrupts, error handling, startup type). Code Creation.	4	1	3
4	Logic programming of industrial controllers, logical operators. Data input-output. Basics of LAD, controller S7-300 313C-2 DP, simulation.	2		2
5	Working with memory and data types. Timers in programming Siemens industrial controllers. Independent work, programming of the operator panel. Counters and work with them. Counter - an element for measuring the quantity.	2	1	1
6	Processing station WSI programming.	4	1	3
7	Measuring station WSI programming.	4	1	3
Total		36	11	25


Discussed and approved at an expanded meeting of the IT&A department

Minutes № 8 « 24. 03 » 2022

Head of Department:  Uderbayeva N.K.

Discussed and approved at an expanded meeting of the EMC

Minutes № 8 « 28. 03 » 2022

Head of UMS:  Gerauf I.I.