

APPROVED

Basic professional educational program - Bachelors'
course program
by Academic Council of PNRPU
(minutes from 25.11.2021 № 3)



APPROVED BY

(Signature)
Vice-rector for Academic Affairs

N.V.Lobov
2021.

CURRICULUM

Level of higher education	Bachelors' course
Qualification	Bachelor
Form of education	Full-time
Duration of training	4 years
Field of studies	Mechatronics and Robotics

Head of Educational and Methodological Department,
Candidate of Sciences, Associate professor

D.S.Repetsky

Summary indicators

Field of studies: 15.03.06 Mechatronics and Robotics

Year of studies	Total workload according to the types of academic work, AH						Total workload, CU	Practices (distributed)					Practices (E, P)				Preparation for GQW defense			State exam and defence of GQW			Total	
	Class	SIW	Exam	Total	including CW	CU		Class	SIW	Total	including CW	CU	Week	AH	incl. CEAP	CU	Week	AH	CU	Week	AH	CU	AH	CU
1	814	1166	108	2088	864	58	0	0	0	0	0	2	108	2	3	0	0	0	0	0	0	2196	61	
2	800	1072	108	1980	860	55	0	0	0	0	2	108	2	3	0	0	0	0	0	0	2088	58		
3	774	954	180	1908	837	53	0	0	0	0	6	324	6	9	0	0	0	0	0	0	2232	62		
4	520	776	72	1368	549	38	60	156	216	68	6	4	216	4	6	4	216	6	2	108	3	2124	59	

Part of educational cycle	Distribution of credit nits according to educational cycles										
	Disciplines (modules)		Practicals, RW			SFC		Optional courses		Total	
	not less	Plan	not less	Plan	not less	Plan	Plan	Plan	not less	Plan	
Total	160	204	20	27	9	9	1		240	241	
Accuracy of CU calculation	0,25								Without optional courses	240	
									Subject to study, CU	241	

Volume of basic (compulsory) part, excluding State Final Certification, %	62,75
Volume of students' and teachers' contact work during classes, %	
Module: Robotics in computer-aided manufacturing	42,35
Percent of lectures in total volume of classroom studies	
Module: Robotics in computer-aided manufacturing	35,01

Disciplines (modules), practicals, state final certification

Field of studies 05.03.06 "Mechatronics and Robotics"

Department	Index of the course	Name of the discipline	Type of control of the interim assessment according to semesters					Total workload according to the types of academic work AH, including:					Distribution of total workload according to the types of academic work in semesters, AH																								Total workload, CU											
			Exams	Graded test	Test	Course project	Course work	in all	Interim assessment, in all from them contact work	Studies and practical training				1st year					2nd year				3d year				4th year																					
										Lectures	Laboratory work	Practicals	CIW	SIW	1 semester		2 semester			3 semester		4 semester		5 semester		6 semester		7 semester		8 semester																		
															Lectures	Laboratory work	Practicals	CIW	SIW	Lectures	Laboratory work	Practicals	CIW/CEAP	SIW/OFP	Lectures	Laboratory work	Practicals	CIW/CEAP	SIW/OFP	Lectures	Laboratory work	Practicals	CIW/CEAP	SIW/OFP	Lectures	Laboratory work		Practicals	CIW/CEAP	SIW/OFP								
Block 1. Disciplines (modules)																																																
Basic part (compulsory)							4608																																									
IYALP	B1.B.01.	Foreign language		2	1		216	4/4	90			82	8	122		41	4	61		41	4	61													6													
GUil	B1. B.02.	History		2			144	2/2	63	27		32	4	79					27	32	4	79													4													
FiP	B1. B.03.	Philosophy		1			144	2/2	63	27		32	4	79	27	32	4	79													4																	
SiP	B1. B04.	Social science		3			144	2/2	63	27		32	4	79						27	32	4	79													4												
EF	B1.B.05	Economics		4			144	2/2	63	27		32	4	79						27	32	4	79													4												
VM	B1.B.06	Mathematics	1, 3	2, 4			756	76/20	314	112		186	16	366	32	44	4	100	32	54	4	88	24	44	4	108	24	44	4	70													21					
PF	B1.B.07	Physics	1	2			324	38/10	120	48	36	32	4	166	24	18	16	2	84	24	18	16	2	82													9											
HBT	B1.B.08	Chemistry			1		108	2/2	46	18	16	8	4	60	18	16	8	4	60													3																
ITAS	B1.B.09	Computer science	2				180	36/8	54	18	32		4	90					18	32	4	90													5													
VMMB	B1.B.10	Theoretical mechanics		4			180	2/2	72	27		41	4	106						27	41	4	106													5												
OOS	B1.B.11	Ecology			2		108	2/2	45	16		27	2	61				16	27	2	61													3														
IYLP	B1.B.12	Russian language and culture of speech			2		108	2/2	36			32	4	70							32	4	70													3												
DGNG	B1.B.13	Engineering geometry and computer graphics		1			144	2/2	63	18	16	25	4	79	18	16	25	4	79													4																
MTO	B1.B.14	Materials science			5		108	2/2	45	16	9	18	2	61										16	9	18	2	61													3							
AT	B1.B.15	Metrology, standardization and certification			6		108	2/2	54	18	16	18	2	52													18	16	18	2	52													3				
BZH	B1.B.16	Life safety			7		108	2/2	45	27	16		2	61															27	16	2	61													3			
MSA	B1.B.17	Automatic control theory	5				144	36/8	66	36	16	10	4	42										36	16	10	4	42													4							
ITM	B1.B.18	Mechanical engineering	6				180	36/8	54	16	18	18	2	90														16	18	18	2	90													5			
MKMK	B1.B.19	Applied mechanics			7		108	2/2	45	16	9	18	2	61															16	9	18	2	61													3		
FK	B1.B.20	Physical training			1		72	2/2	28	8		16	4	42	8	16	4	42													2																	
ITAS	B1.B.21	Academic and research work		4	1, 2, 3		288	8/8	72			64	8	208		16	2	52		16	2	52		16	2	52		16	2	52													8					
ITAS	B1.B.22	Electronic Devices of Mechatronic and Robotic Systems			5		108	2/2	54	18	16	16	4	52										18	16	16	4	52													3							
MSA	B1.B.23	Electrically powered mechatronic and robotic systems		8			180	2/2	54	24	16	10	4	124																24	16	10	4	124													5	
ITAS	B1.B.24	Data bases		7			144	2/2	54	24	16	10	4	88															24	16	10	4	88													4		
ITAS	B1.B.25	Robotics design		7			144	2/2	54	24	16	10	4	88															24	16	10	4	88													4		
ITAS	B1.B.26	Fundamentals of identification		7			216	36/8	72	36	16	18	2	108															36	16	18	2	108													6		
Total on Block 1							4608	306/110	1789	628	264	787	110	2513	960					994				392				532				320				250				676				178				128

Department	Index of the course	Name of the discipline	Type of control of the interim assessment according to semesters					Total workload according to the types of academic work AH, including:						Distribution of total workload according to the types of academic work in semesters, AH																Total workload, CU																				
			Exams	Graded test	Test	Course project	Course work	in all	Interim assessment, in all/from them contact work	classroom work	Studies and practical training				1st year				2nd year				3d year				4th year																							
											Contact work, from them				1 semester		2 semester		3 semester		4 semester		5 semester		6 semester		7 semester		8 semester																					
											Lectures	Laboratory work	Practicals	CIW	SIW	Lectures	Laboratory work	Practicals	CIW/CEAP	SIW/OFP	Lectures	Laboratory work	Practicals	CIW/CEAP	SIW/OFP	Lectures	Laboratory work	Practicals	CIW/CEAP		SIW/OFP	Lectures	Laboratory work	Practicals	CIW/CEAP	SIW/OFP														
Block 2. Practicals																																																		
Basic part, compulsory						432																														12														
ITAS	B2.B.01	Practical training, introductory		2				108	2/2																											3														
ITAS	B2.B.02	Practical training, technological (engineering design)		4				108	2/2																										3															
ITAS	B2.B.03	Production training, research work		7, 8				216	2/2	60		56	4	152																		34	2	70		22	2	82	6											
Total of Block 2						432	6/6	60			56	4	258																			106		106		12														
Block 3. State Final certification																																																		
Basic part, compulsory						324																																												
ITAS	B3.B.01	Preparing for and taking state examination	8					54	8/8			10	36																											1,50										
ITAS	B3.B.02	Preparing for the defense of the graduate qualification work						216				8	208																											6										
ITAS	B3.B.03	Defense of the graduate qualification work						54	8/8			2	44																											1,50										
Total of Block 3						324	16/16					20	288																										9											
Total on disciplines (modules)						4608	306/110	1789	628	264	787	110	2513	960	994	392	532	320	250	676	178	128																												
According to curriculum:																																																		
Course projects																																																		
Course works																																																		
Exams						7								2		1		1		1		1																												
Tests						27								6		7		2		4		2		1		4																								

Notations: AH - academic hour
CU - credit unit
CIW - control of independent work
CEAP - control of educational activity during practical training
OFP - other forms of educational activity during practicals
CW - contact work
SIW - students' independent work

Elective disciplines (modules)

Field of studies: 15.03.06 Mechatronics and Robotics

Department	Index of the discipline	Name of the discipline	Type of control of the interim assessment according to semesters					Total workload according to the types of academic work AH, including:						Distribution of total workload according to the types of academic work in semesters, AH																Total workload, CU					
														Studies and practical training				1st year		2nd year				3d year				4th year							
			Exams	Graded test	Test	Course project	Course work	in all	Interim assessment, in all/from them contact work	classroom work	Contact work, from them				1 semester		2 semester		3 semester		4 semester		5 semester		6 semester		7 semester		8 semester						
											Lectures	Laboratory work	Practicals	CIW	Lectures	Laboratory work	Practicals	CIW	Lectures	Laboratory work	Practicals	CIW	Lectures	Laboratory work	Practicals	CIW	Lectures	Laboratory work	Practicals		CIW	Lectures	Laboratory work	Practicals	CIW
Block 1 (B1). Disciplines (modules)																																			
IYLP	B1.DV.01.1	Business foreign language		4	3			216	4/4	72			64	8	140																		6		
EUP	B1.DV.01.2	Economics and business		4	3			216	4/4	72			64	8	140																		6		
MiM	B1.DV.01.3	Innovative economy and techpreneurship		4	3			216	4/4	72			64	8	140																		6		
SiP	B1.DV.01.4	Business communication		4	3			216	4/4	72			64	8	140																		6		
SiP	B1.DV.01.5	Social adaptation of disabled persons		4	3			216	4/4	72			64	8	140																		6		
VM	B1.DV.02.1	Mathematics, special chapters			5			108	2/2	45	16		27	2	61							16	27	2	61								3		
OF	B1.DV.02.2	Physics, special chapters			5			108	2/2	45	16		27	2	61							16	27	2	61								3		
HTB	B1.DV.02.3	Chemistry, special chapters			5			108	2/2	45	16		27	2	61							16	27	2	61								3		
ITAS	B1.DV.02.4	Computer science as an application to the industry			5			108	2/2	45	16		27	2	61							16	27	2	61								3		
FK	B1.DV.03	Applied physical culture - elective vodules of the discipline according to the kinds of sport			1, 2, 3, 4, 5, 6			328	12/12	328			316			34		70				34		70			54		54						
Total on Block 1:								324	6/6	117	16		91	10	201							106	106	106								9			
Optional disciplines (OD):																																			
	OD.00	Optional diciplines			1			36	2/2	8	4		2	2	26	4	2	2	26														1		
Scientific library	OD. O. 01	Fundamentals of information and library culture			1			36	2/2	8	4		2	2	26	4	2	2	26														1		
Total on disciplines (modules)								324	6/6	117	16		91	10	201							106	106	106								9			
According to curriculum:																																			
Course projects																																			
Course works																																			
Exams																																			
Tests								3										1						1		1		1							