MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE REPUBLIC OF KAZAKHSTAN
K. ZHUBANOV AKTOBE REGIONAL UNIVERSITY

"APPROVED"
by the Decision of the Board of Directors of NAO
K.Zhubanov Aktobe Regional
University
(Protocol no. ___ of "___" _____ 202__ .)

MODULAR EDUCATIONAL PROGRAM

The code and name of the field of education: 6B01-Pedagogical Sciences
The code and name of the training area: 6B015-Teacher training in science subjects
OP code and name: 6B01512 – Physics (IP)
Degree of education: Bachelor's degree
Degree awarded: Bachelor of Education in the educational program 6B01512 – Physics (IP)
Total credits:
240 Academic credits(s) / 240 ECTS

Year of admission: 2024

THE COMPILERS:

Full name	Job title	Contact information
Employee Tleumagambetova Karakoz Ensegenovna	Director of the Aktobe Regional Specialized Physics and Mathematics Boarding School in Aktobe	+7 7132 90 93 31, +7 702 251 56 04
Employee Toishimanova Marzhankul Keneshbaevna	Director of MGA "Specialized gymnasium No. 21 named after Al-Farabi" Aktobe	+7 7132 44 58 80, +7 702 329 69 97
Employee Daribayeva Gulnaziya Zhanuzakovna	Director of MGA "Gymnasium No. 51" Aktobe	+7 7132 50 17 65
Teacher Kenzhebayeva Adela Akmaralovna	Lecturer of the Department of Physics, Master of Physics	+7 705 598 9840
Student Kuandykkyzy Dilnur	3rd year student of EP 6B01502-Physics	+7 707 298 7359
The reviewer Zhanaydarov Zhasulan Toremuratovich	Director of MGA "Kargala Secondary School" named after M. Arynov	+7 701 272 57 74

1. The university's mission, vision, and values

MISSION:
Formation of a qualified specialist and a "perfect personality" who has absorbed national values

VISION:
A multidisciplinary classical university that provides the western region of Kazakhstan with qualified specialists and has become the core of applied science

VALUES:

- Academic success
- Integrity
- Openness and cooperation
- The highest quality of education
- Social activism and civic initiative
- Leadership and creativity
- Respect and consideration for people
- The unity of science and innovation

2. The graduate model

- Has deep knowledge and understanding of the field being studied
- Ready for professional self-realization in the modern world
- Enterprising, able to make decisions and create new opportunities
- Adaptive to global challenges
- A person with high intelligence
- Has global citizenship

3. Passport of the educational program

Scope of application	educational institutions (schools, lyceums, gymnasiums, educational institutions of technical and vocational education), research organizations in the field of physics, pedagogy, psychology and teaching methods, management organizations (departments of education, government bodies of the relevant profile, organizations, institutions and enterprises related to the application of physical and mathematical research methods)
The code and name of the educational program	6B01512 - Physics (IP)
Regulatory and legal support	1. The Law of the Republic of Kazakhstan "On Education" dated June 27, 2007 No. 319-III (with amendments and additions dated 02/23/2024 No. 64-VIIII). 2. "Rules for the organization of the educational process on credit technology of education" (Order of the Minister of Education and Science of the Republic of Kazakhstan dated April 20, 2011 No. 152 (with amendments and additions dated April 5, 2023 No. 145). 3. The State mandatory standard of higher and postgraduate education. Order No. 2 of the Ministry of Science and Higher Education of the Republic of Kazakhstan dated 07/20/2022 (with amendments and additions dated 02/20/2023 No. 66). 4. Classifier of training areas with higher and postgraduate education (Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 13, 2018 No. 569). (with amendments and additions dated 05/16/2023, No. 218). 5. Standard Rules for the activities of educational organizations implementing educational programs of higher and (or) postgraduate education (Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 30, 2018, No. 595. (with amendments and additions dated 12.10.2023, No. 526). 6. Standard curricula of the cycle of general education disciplines for organizations of higher and (or) postgraduate education (Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 603). (with amendments and additions dated 07/13/2023, No. 314). 7. On the approval of methodological recommendations for the implementation of ECTS principles in the educational process and the expansion of academic freedom. Order of the Minister of Science and Higher Education of the Republic of Kazakhstan dated February 12, 2024 No. 57. 8. Coding system of academic disciplines of higher and postgraduate education. State Standard of the Republic of Kazakhstan 5.05.001-2005. 9. Methodological recommendations on the organization and conduct of pedagogical practice for

	students in the field of education "Pedagogical Sciences" (Order of the Ministry of Internal Affairs of the Republic of Kazakhstan dated March 27, 2023 No. 125. 10. Regulations on the organization and conduct of professional practice and the definition of organizations as bases of practice (Protocol No. 5 dated 11/30/2022). 11. Regulations on the construction of a modular educational program (Protocol No. 53 dated 11.11.2022). 12. Regulations on the introduction of multilingual education (Protocol No. 5 dated 11/30/2022). 13. Code of Academic Integrity for students, teachers and staff of the K. Zhubanov ARU (decision of the Academic Council, Protocol No. 13 dated 08/12/2020). 14. Professional standard: for teachers (teaching staff) of higher and (or) postgraduate education organizations. Order No. 591 dated 11/20/2023
A map of the training profile within the framework of the educational program	
The purpose of the educational program	Training of physics teachers with competencies in new fields that meet modern educational challenges and form the competencies necessary for teachers of the 21st century who live and work in a world of variability, uncertainty, complexity, ambiguity.
Qualification characteristics of the graduate	
Degree awarded	Bachelor of Education in the educational program 6B01512 - Physics (IP)
List of specialist positions	- physics teacher in secondary schools; - physics teacher in secondary vocational schools; - research teacher; - a methodologist in the departments of education.
Area of professional activity	- general education organizations, including multilingual ones: schools, lyceums, gymnasiums,

	educational institutions and centers; - institutions of technical and vocational education; - organizations, institutions and enterprises related to the use of physical research methods.
Functions and types of educational activities	Functions of educational activity: - education in the educational system; - scientific and research work in areas related to the use of physics; - education and upbringing in the field of education in accordance with the requirements of educational standards; - formation of an educational environment to ensure the quality of education, including through the use of information technology; - development of programs in the education system; - organization of interaction with state and public educational organizations, children's groups and parents (legal representatives); - self-management and management of the school staff to solve the tasks of professional activity; - formation and solution of scientific tasks in the field of science and education; - the application of scientific and methodological research methods in professional activities. Types of educational activities: - education: educational institutions of state and non-state financing, schools, lyceums, gymnasiums, colleges, educational institutions of technical and vocational education; - scientific research: scientific and research centers in the field of physics, pedagogy, psychology and teaching methods; - organizational and educational: public administration organizations, education departments; - management organizations: government agencies, departments of education;

4. Expected learning outcomes from educational programs

LO1 – Possess intercultural and communicative competence, apply skills for independent continuation of further education and build professional relationships in teaching and social activities; purposefully use means and methods to ensure the preservation and strengthening of health in professional activities
LO2 – To collect and interpret information for the formation of knowledge, taking into account social, ethical and scientific considerations, critically evaluate their values, attitudes, ethical principles and teaching methods, and set new goals for their own pedagogical development;
LO3 - To critically select theoretical knowledge based on advanced physics concepts using various information and communication technologies and use the knowledge to improve physics education and their own professional growth.;
LO4 - Understand the psychological and pedagogical problems of teaching and educating students with disabilities in inclusive education, to take into account the diverse abilities of students in the learning process, and to ethically support their psychological well–being in a life and educational context.;
LO5 – Recognize and understand fundamental scientific concepts that have fundamental methodological and theoretical significance for understanding and mastering the physical sciences, to argue for their own position of applying and integrating knowledge from other fields of science to solve global and local problems of physics;
LO6 – To holistically and objectively cover the main stages of the history, evolution of the forms of statehood and civilization of the Kazakh people, to know the methods of scientific research and academic writing, to understand the importance of principles and culture of academic honesty;
LO7 - Demonstrate strong academic and practical knowledge in the field of physics, operate with forms and methods of scientific knowledge, various ways of exploring the world around them, and understand the role of science in the development of society;
LO8 - To conduct scientific research in the chosen field of experimental and (or) theoretical physical research using modern instrumentation and information technology, taking into account domestic and foreign experience;
LO9 - Apply modern methods of processing, analyzing and synthesizing physical information in their chosen field of physical research, operate with basic mathematical concepts and operations and are able to apply them to solving physical problems, implement analytical and technological solutions in the field of experimental and theoretical physics;
LO10 - Conduct integrated lessons with elements of STEM learning, to use CLIL technologies of subject-language teaching of natural subjects;
LO11 - Work in interdisciplinary teams, have the skills to apply scientific knowledge in solving social problems;
LO12 - Understand the scientific principles and logic of developing a school physics course, apply various learning technologies in their diversity and place.

6. Modular curriculum for educational programs "6B01502-Physics"
2024-2028 (full-time education, first higher education, 4 years of study)

Cycle / Component	Code of the discipline	Name of the discipline	Semester	Academic credit	ECTS credit number	Form of assessment	Course paper	Budgeted student workload hours							Breakdown of the educational programme by year of study and semester							
								Total number of hours	Total contact hours	Contact classes			Independent study		1 course		2 course		3 course		4 course	
										lectures	practical/seminar classes	laboratory classes	IWST	IWS	1st Semester	2nd Semester	3rd Semester	4th Semester	5th Semester	6th Semester	7th Semester	8th Semester
1. Historical and Ideological competence module (10 academic credits)																						
GED MK	KT 1101	History of Kazakhstan	2	5	5	SE		150	45	30	15		25	80		5						
GED MK	Phil 2101	Philosophy	3	5	5	exam		150	45	30	15		25	80			5					
2. Socio-political education module (8 academic credits)																						
GED OK	Aleu 2102	Sociology	3	2	2	exam		60	30	15	15		10	20			2					
GED MK	Psych 2103	Psychology	3	2	2	exam		60	30	15	15		10	20			2					
GED MK	Maden 2104	Cultural studies	4	2	2	exam		60	30	15	15		10	20				2				
GED MK	Sayas 2105	Political Science	4	2	2	exam		60	30	15	15		10	20				2				
3. Instrumental Communication module (32 academic credits)																						
GED MK	ShT	Foreign language	1,2	10	10	exam		300	90		90		50	160	5	5						

	1102																					
GED MK	K(O)T 1103	Kazakh (Russian) language	1,2	10	10	exam		300	90		90		50	160	5	5						
GED MK	AKT 1104	Information and communication technologies	1	5	5	exam		150	45	15	20	10	25	80	5							
DVO	QTIK	Business communication in Kazakh	6	3	3	exam		90	30		30		15	45						3		
BD VK	IShT 3201	Advanced foreign language	6	4	4	exam		120	40		40		20	60						4		
4. 4. Healthy Lifestyle, Healthy Module (8 academic credits)																						
GED MK	DSh 1105	Physical culture	1,2,3,4	8	8	report		240	240		240				2	2	2	2				
5.1. Interdisciplinary competencies , education module (9 academic credits)																						
BD VK	Abai 1206	Abai studies	2	2	2	exam		60	20	10	10		10	30	2							
DVO	UT	National education	2	2	2	exam		60	20	10	10		10	30		2						
GED KV	EQO 3102	Fundamentals of Research in Ecology and Safe Living	5	5	5	exam		150	45	15	30		25	80					5			
5.2. Interdisciplinary competencies , education module (9 academic credits)																						
BD VK	Abai 1206	Abai studies	2	2	2	exam		60	20	10	10		10	30	2							
DVO	FE UT	National education	2	2	2	exam		60	20	10	10		10	30		2						

GED KV	QS Zh 31 02	Research Skills in Law and Anti-Corruption	5	5	5	exam		150	45	15	30		25	80					5			
5.3. Interdisciplinary competencies , education module (9 academic credits)																						
BD VK	Abai 1206	Abay studies	2	2	2	exam		60	20	10	10		10	30	2							
DVO	ut	National education	2	2	2	exam		60	20	10	10		10	30		2						
GED KV	EKZT 3102	Research Methods in Economics and Entrepreneurship	5	5	5	exam		150	45	15	30		25	80					5			
6. Educating learners persons as support (22 academic credits)																						
BD VK	BBP 2206	Psychology, Interaction and Communication in Education	3	5	5	exam		150	45	15	30		25	80			5					
BD VK	BTT 2207	The Science of Education and Key Learning Theories	3	4	4	exam		120	40	15	25		20	60			4					
BD VK	Physi1207	Age and physiological features of the development of children	2	3	3	exam		90	30	15	15		15	45		3						

BD VK	IBB 3203	Inclusive Education Environment	5	4	4	exam		120	40	15	25		20	60					4			
BD KV	OZhD 3204	Teaching planning and individualizati on of learning	6	4	4	exam		120	40	15	25		20	60						4		
DVO	PP	Introduction to the teaching profession	2	2	2	repor t		60	60							2						
7. Receiving education for training and assessment (17 academic credits)																						
BD KV	OAT 2208	Teaching Methods and Technologies	4	5	5	exam		150	45	15	30		25	80				5				
BD VK	BD 3205	Assessment and development	5	4	4	exam		120	40	15	25		20	60					4			
BD	PP	Pedagogical approaches	6	6	6	repor t		180	180		180									6		
DVO	PP	Pedagogical and psychological assessment	4	2	2	repor t		60	60									2				
8. Teacher reflexive practices like (32 academic credits)																						
BD VK	PZ 2209	Pedagogical Research	4	5	5	exam		150	45	15	30		25	80				5				
BD KV	ZDI 4201	Research, Development and Innovation	7	4	4	exam		120	40	15	25		20	60							4	

BD VK	FOA 3206	Methods of teaching physics: specific issues	5	5	5	exam		150	45	15	30		25	80					5			
BD KV	BB CT 420 2	Digital Technologies in Education	8	3	3	exam		90	30	15	15		15	45								3
BD	PP	Innovation and Research in Education	8	15	15	repor t		450	450		450										7	8
9. General Physics: World Environments , Physical Laws (30 academic credits)																						
PD VK	Mech 1308	Mechanics	1	6	6	exam		180	60	30	20	10	30	90	6							
PD KV	MoF 1309	Molecular Physics	2	5	5	exam		150	45	30	10	5	25	80		5						
PD VK	EM 2310	Electricity and Magnetism	3	7	7	exam		210	70	35	25	10	35	105			7					
PD VK	Opt 2311	Optics	4	6	6	exam		180	60	30	20	10	30	90				6				
PD VK	AYaE BF 3307	Physics of the Atom and Atomic Nucleus	5	6	6	exam		180	60	30	20	10	30	90					6			
10. In Research Physics: Observation, Experiment, hypothesis (15 academic credits)																						
PD VK	MP 2312	Practicum in Mechanics	3	3	3	exam		90	30		30		15	45			3					
PD VK	MFP 2313	Practicum in Molecular Physics	4	3	3	exam		90	30		30		15	45				3				

PD VK	EMP 3308	Practicum in Electricity and Magnetism	5	3	3	exam		90	30		30		15	45					3			
PD VK	OpP 3309	Practicum in Optics	6	3	3	exam		90	30		30		15	45						3		
PD VK	AYaEB FP 4303	Practicum in Physics of the Atom and Atomic Nucleus	7	3	3	exam		90	30		30		15	45							3	
11.1. Fundamental Physics (15 academic credits)																						
PD KV	MFA 3310	Methods of Mathematical Physics	5	3	3	exam		90	30	15	15		15	45					3			
PD KV	TF 3311	Theoretical Physics 1	6	6	6	exam		180	60	30	30		30	90						6		
BD KV	TF 4204	Theoretical Physics 2	7	6	6	exam		180	60	30	30		30	90							6	
11.2. Fundamental Physics (15 academic credits)																						
PD KV	AF 3310	Special Functions and their Applications	5	3	3	exam		90	30	15	15		15	45					3			
PD KV	TM 3311	Theoretical mechanics	6	6	6	exam		180	60	30	30		30	90						6		
PD KV	MicF 4304	Physics of Micro-objects	7	6	6	exam		180	60	30	30		30	90							6	

12.1 Interdisciplinary interactions and interactions (31 academic credits)

PD KV	SAAG 1310	Linear algebra and Analytic geometry	1	5	5	exam		150	45	15	30		25	80	5							
PD KV	MT 2314	Mathematical analysis	2	5	5	exam		150	45	15	30		25	80		5						
PD KV	Astr 4305	Astronomy	8	3	3	exam		90	30	15	15		15	45								3
PD KV	Bagd 2315	Programming	4	5	5	exam		150	45	15	20	10	25	80				5				
BD KV	GBBZhT 4206	Project-Based Approach in Scientific Education	7	5	5	exam		150	45	15	30		25	80							5	
BD KV	BBMR 4207	Educational Mechatronics and Robotics	8	4	4	exam		120	40	15	20	5	20	60								4
PD KV	Elect Select 4308	Electronics	8	4	4	exam		120	40	15	20	5	20	60								4
12.2. Interdisciplinary Interactions and Interactions (31 academic credits)																						
PD KV	AST 1310	Algebra and Number Theory	1	5	5	exam		150	45	30	15		25	80	5							
PD KV	MLDM 2314	Mathematical Logic and Discrete Mathematics	2	5	5	exam		150	45	30	15		25	80		5						
PD KV	KP 4310	Cosmology problems	8	3	3	exam		90	30	15	15		15	45								3
PD KV	KG 2315	Computer Graphics	4	5	5	exam		150	45	15	20	10	25	80				5				
PD KV	Ste 4306	STEAM Physics	7	5	5	exam		150	45	30	15		25	80							5	
PD KV	FTDB 4307	Physics and Knowledge of Sustainable Development	8	4	4	exam		120	40	15	20	5	20	60								4

PD KV	RN 4308	Fundamentals of Radio Electronics	8	4	4	exam		120	40	15	20	5	20	60								4
13.1. Physics training : Theory and Technology (12 academic credits)																						
BD KV	FEP 3212	Practicum in Solving Physics Problems 1	6	4	4	exam		120	40		40		20	60						4		
BD KV	FEP 4209	Practicum in Solving Physics Problems 2	7	5	5	exam		150	45		45		25	80							5	
BD KV	MFE 3213	Physics Experiment in Schools	6	3	3	exam		90	30		30		15	45						3		
13.2. Physics training : Theory and Technology (12 academic credits)																						
BD KV	FP 3212	Physics Practicum 1	6	4	4	exam		120	40		40		20	60						4		
BD KV	FP 4209	Physics Practicum 2	7	5	5	exam		150	45		45		25	80							5	
BD KV	MET 3213	Experimental Techniques in Schools	6	3	3	exam		90	30		30		15	45						3		
Final Assessment (12 academic credits)																						
	IA	Final Assessment	8	12	12	SE		360	360		360											8
Total****																						
	Total	GED TK cycle		5	5			150	45	15	30		25	80					5			
	Total	GED MK cycle		**51**	**51**			**1530**	**675**	**135**	**530**	**10**	**215**	**640**	17	17	11	6	0	0	0	0
	Total	**GED cycle**		56	56			1680	720	150	560	10	240	720	**17**	**17**	**11**	**6**	**5**	**0**	**0**	**0**
	Total	BD VK cycle		36	36			1080	345	115	230	0	180	555	2	3	9	5	13	4	0	0

	Total	BD KV cycle		34	34			1020	330	90	240	0	170	520	0	0	0	5	0	11	15	3
	Total	BD cycle		**21**	**21**			**630**	**630**	**0**	**630**	**0**	**0**	**0**	0	0	0	0	0	6	7	8
	Total	**BD cycle**		91	91			2730	1305	205	1100	0	350	1075	**2**	**3**	**9**	**10**	**13**	**21**	**22**	**11**
	Total	PD VK cycle		40	40			1200	400	125	235	40	200	600	6	0	10	9	9	3	3	0
	Total	PD KV cycle		45	45			1350	425	225	175	25	225	700	5	10	0	5	3	6	5	11
	Total	PD cycle																				
	Total	**PD cycle**		85	85			2550	825	350	410	65	425	1300	**11**	**10**	**10**	**14**	**12**	**9**	**8**	**11**
	Total	DVO cycle		**9**	**9**			**270**	**170**	**10**	**40**	**0**	**25**	**75**	0	4	0	2	0	3	0	0
	Total	**DVO cycle**		9	9			270	170	10	40	0	25	75	**0**	**4**	**0**	**2**	**0**	**3**	**0**	**0**
		TOTAL CREDITS		**240**	**240**			**7320**	**3210**	**705**	**2430**	**75**	**1015**	**3095**	**30**	**30**	**30**	**30**	**30**	**30**	**30**	**30**

8.1 Educational program card

Cycle/component	**Code of Disciplines**	**Name of disciplines**	**Semester**	**Academic credit**	**ECTS**	**Learning outcomes**
1	**2**	**3**	**4**	**5**	**6**	**7**
1. Module of historical and philosophical competencies, 10 academic credits						
GED/OK	IK 1101	History of Kazakhstan	2	5	5	LO 2; LO 6
GED/OK	Phil 2101	Philosophy	3	5	5	LO 2; LO 5; LO 7
2. Socio-political knowledge module, 8 academic credits						
GED/OK	Soc 2102	Sociology	3	2	2	LO 1; LO 2
GED/OK	Psych 2103	Psychology	3	2	2	LO 2; LO 4

GED/OK	Kult 2104	Cultural studies	4	2	2	LO 1; LO 2
GED/OK	Pol 2105	Political Science	4	2	2	LO 2; LO 5
3. Instrumental and communicative module, 32 academic credits						
GED/OK	IYa 1102	Foreign language	1,2	10	10	LO 1; LO 9
GED/OK	K(R)Ya 1103	Kazakh (Russian) language	1,2	10	10	LO 1; LO 9
GED/OK	IKT 1104	Information and communication technologies	1	5	5	LO 3; LO 9
DVO	DKKya	Business communication in Kazakh	6	3	3	LO 1; LO 9
BD VK	PIYa 3201	Advanced foreign language	6	4	4	LO 1; LO 9
4. Healthy Lifestyle Module, 8 academic credits						
GED/OK	FK 1105	Physical culture	1,2,3,4	8	8	LO 1
5.1. Module for the formation of interdisciplinary competencies, 9 academic credits						
BD VK	Abai 1206	Abay studies	2	2	2	LO 2; LO 6
DVO	NV	National education	2	2	2	LO 2; LO 6
GED/KV	OIEB 3102	Fundamentals of Research in Ecology and Safe Living	5	5	5	LO 5; LO 6; LO 9
5.2. Module for the formation of interdisciplinary competencies, 9 academic credits						
BD VK	Abai 1206	Abay studies	2	2	2	LO 2; LO 6
DVO	NV	National education	2	2	2	LO 2; LO 6
GED/KV	INPAK 3102	Research Skills in Law and Anti-Corruption	5	5	5	LO 5; LO 6; LO 9
5.3. Module for the formation of interdisciplinary competencies, 9 academic credits						
BD VK	Abai 1206	Abay studies	2	2	2	LO 2; LO 6
DVO	NV	National education	2	2	2	LO 2; LO 6
GED/KV	MIEP 3102	Research Methods in Economics and Entrepreneurship	5	5	5	LO 5; LO 6; LO 9
6. Support for students as individuals, 22 academic credits						
BD VK	PVKO 2206	Psychology, interaction and communication in education	3	5	5	LO 1; LO 2; LO 4
BD VK	NOKTO 2207	The science of education and key learning theories	3	4	4	LO 1; LO 2; LO 9
BD VK	VFOR 1207	Age and physiological features of the development of children	2	3	3	LO 1; LO 2; LO 4
	IOS 3203	Inclusive educational environment	5	4	4	LO 1; LO 2; LO 4
BD KV	PPIO 3204	Teaching planning and individualization of learning	6	4	4	LO 3; LO 5; LO 11
DVO	PP	Introduction to the teaching profession	2	2	2	LO 2; LO 10; LO 12
7. Teaching and Assessment for Learning, 17 academic credits						
BD KV	MTP 2208	Teaching methods and technologies	4	5	5	LO 3; LO 5; LO 11
BD VK	OR 3205	Assessment and development	5	4	4	LO 1; LO 2; LO 4
BD	PP	Pedagogical approaches	6	6	6	LO 2; LO 10; LO 12

DVO	PP	Psychological and pedagogical assessment	4	2	2	LO 2; LO 10; LO 12
8. Teacher as a reflective practitioner, 32 academic credits						
BD VK	PI 2209	Pedagogical research	4	5	5	LO 1; LO 2; LO 4
BD KV	IRI 4201	Research, development and innovation	7	4	4	LO 1; LO 2; LO 4
BD VK	MOF 3206	Methods of teaching physics: specific issues	5	5	5	LO 5; LO 10; LO 12
BD KV	CTO 4202	Digital education technologies	8	3	3	LO 5; LO 10; LO 12
БД	PP	Innovation and Research in Education	8	15	15	LO 2; LO 10; LO 12
9. General Physics: Physical Laws in the world around us, 30 academic credits						
PD VK	Mech 1308	Mechanics	1	6	6	LO 7; LO 8; LO 9
PD KV	MF 1309	Molecular Physics	2	5	5	LO 7; LO 8; LO 9
PD VK	EM 2310	Electricity and magnetism	3	7	7	LO 7; LO 8; LO 9
PD VK	Opt 2311	Optics	4	6	6	LO 7; LO 8; LO 9
PD VK	FAAYa 3307	Physics of the atom and atomic nucleus	5	6	6	LO 7; LO 8; LO 9
10. Research in physics: observation, experiment, hypothesis (15 academic credits)						
PD VK	PMec 2312	Practicum in Mechanics	3	3	3	LO 7; LO 8; LO 9
PD VK	PMol 2313	Practicum in Molecular Physics	4	3	3	LO 7; LO 8; LO 9
PD VK	PEl 3308	Practicum in Electricity and Magnetism	5	3	3	LO 7; LO 8; LO 9
PD VK	POp 3309	Practicum in Optics	6	3	3	LO 7; LO 8; LO 9
PD VK	PFAt 4303	Practicum in Physics of the Atom and Atomic Nucleus	7	3	3	LO 7; LO 8; LO 9
11.1. Fundamental Physics, 15 academic credits						
PD KV	MFA 3310	Methods of mathematical physics	5	3	3	LO 7; LO 8; LO 9
PD KV	TF 3311	Theoretical Physics-1	6	6	6	LO 7; LO 8; LO 9
BD KV	TF 4204	Theoretical Physics-2	7	6	6	LO 7; LO 8; LO 9
11.2. Fundamental Physics, 15 academic credits						
PD KV	SF 3310	Special functions and their applications	5	3	3	LO 7; LO 8; LO 9
PD KV	TM 3311	Theoretical mechanics	6	6	6	LO 7; LO 8; LO 9
PD KV	FM 4304	Physics of Micro-objects	7	6	6	LO 7; LO 8; LO 9
12.1. Interdisciplinary interactions, 31 academic credits						
PD KV	LAAG 1310	Linear algebra and analytic geometry	1	5	5	LO 7; LO 8; LO 9
PD KV	MT 2314	Mathematical analysis	2	5	5	LO 7; LO 8; LO 9
PD KV	Astr 4305	Astronomy	8	3	3	LO 7; LO 8; LO 9
PD KV	Prog 2315	Programming	4	5	5	LO 8; LO 9; LO 10
BD KV	PPNO 4206	Project-Based Approach in Scientific Education	7	5	5	LO 5; LO 11; LO 12

BD KV	OMR 4207	Educational mechatronics and robotics	8	4	4	LO 8; LO 9; LO 10
PD KV	Electr 4308	Electronics	8	4	4	LO 7; LO 8; LO 9
12.2. Interdisciplinary interactions, 31 academic credits						
PD KV	ATCh 1310	Algebra and number theory	1	5	5	LO 6; LO 8; LO 10
PD KV	MLDM 2314	Mathematical Logic and discrete Mathematics	2	5	5	LO 7; LO 8; LO 9
PD KV	PK 4305	Cosmology problems	8	3	3	LO 7; LO 8; LO 9
PD KV	KG 2315	Computer graphics	4	5	5	LO 6; LO 8; LO 10
PD KV	Ste 4306	STEAM Physics	7	5	5	LO 5; LO 11; LO 12
PD KV	FOUR 4307	Physics and Knowledge of Sustainable Development	8	4	4	LO 8; LO 9; LO 10
PD KV	OR 4308	Fundamentals of radio electronics	8	4	4	LO 7; LO 8; LO 9
13.1. Theory and technology of teaching physics, 12 academic credits						
BD KV	PRFZ 3212	Practicum in Solving Physics Problems 1	6	4	4	LO 5; LO 10; LO 12
BD KV	PRFZ 4209	Practicum in Solving Physics Problems 2	7	5	5	LO 5; LO 10; LO 12
BD KV	ShFE 3213	Physics Experiment in Schools	6	3	3	LO 5; LO 10; LO 12
13.2. Theory and technology of teaching physics, 12 academic credits						
BD KV	FP 3212	Physics Practicum 1	6	4	4	LO 5; LO 10; LO 12
BD KV	FP 4209	Physics Practicum 2	7	5	5	LO 5; LO 10; LO 12
BD KV	MET 3213	Experimental Techniques in Schools	6	3	3	LO 8; LO 9; LO 11
Final certification						
	IA	Final Assessment	8	12	12	

8.2 The matrix of the relationship between discipline and learning outcomes

№	learning outcomes / Name of the discipline	LO 1	LO 2	LO 3	LO 4	LO 5	LO 6	LO 7	LO 8	LO 9	LO 10	LO 11	LO 12
1	History of Kazakhstan		+				+						
2	Philosophy		+			+		+					
3	Sociology	+	+										
4	Psychology		+		+								
5	Cultural studies	+	+										
6	Political Science		+			+							
7	Foreign language	+								+			
8	Kazakh (Russian) language	+								+			

9	Information and communication technologies			+						+			
10	Business communication in Kazakh	+								+			
11	Advanced foreign language	+								+			
12	Physical culture	+											
13	Abay studies		+				+						
14	National education		+				+						
15	Fundamentals of research in ecology and safe living					+	+			+			
16	Research Skills in Law and Anti-Corruption					+	+			+			
17	Research Methods in Economics and Entrepreneurship					+	+			+			
18	Psychology, interaction and communication in education	+	+		+								
19	The science of education and key learning theories	+	+							+			
20	Age and physiological features of the development of children	+	+		+								
21	Inclusive educational environment	+	+		+								
22	Teaching planning and individualization of learning			+		+						+	
23	Teaching methods and technologies			+		+						+	
24	Assessment and development	+	+		+								
25	Pedagogical approaches	+	+		+								
26	Research, development and innovation	+	+		+								
27	Methods of teaching physics: specific issues					+					+	+	
28	Digital Technologies in Education					+					+	+	
29	Mechanics							+	+	+			
30	Molecular Physics							+	+	+			
31	Electricity and magnetism							+	+	+			
32	Optics							+	+	+			
33	Physics of the atom and atomic nucleus							+	+	+			
34	Practicum in Mechanics							+	+	+			
35	Practicum in Molecular Physics							+	+	+			
36	Practicum in Electricity and Magnetism							+	+	+			
37	Practicum in Optics							+	+	+			
38	Practicum in Physics of the Atom and Atomic Nucleus							+	+	+			
39	Methods of mathematical physics							+	+	+			
40	Theoretical Physics-1							+	+	+			
41	Theoretical Physics-2							+	+	+			

42	Special functions and their applications							+	+	+			
43	Theoretical mechanics							+	+	+			
44	Physics of microobjects							+	+	+			
45	Linear algebra and analytic geometry							+	+	+			
46	Mathematical analysis							+	+	+			
47	Astronomy							+	+	+			
48	Programming								+	+	+		
49	Project-Based Approach in Scientific Education					+						+	+
50	Educational mechatronics and robotics								+	+	+		
51	Electronics							+	+	+			
52	Algebra and number theory						+		+		+		
53	Mathematical Logic and discrete Mathematics							+	+	+			
54	Cosmology problems							+	+	+			
55	Computer graphics						+		+	+			
56	STEM Physics					+						+	+
57	Physics and Knowledge of Sustainable Development								+	+	+		
58	Fundamentals of radio electronics							+	+	+			
59	Practicum in Solving Physics Problems 1					+					+		+
60	Practicum in Solving Physics Problems 2					+					+		+
61	Physics Experiment in Schools					+					+		+
62	Physics Practicum 1					+					+		+
63	Physics Practicum 2					+					+		+
64	Experimental Techniques in Schools								+	+		+	
65	Final Assessment												
		14	**15**	**3**	**7**	**16**	**8**	**24**	**29**	**37**	**11**	**7**	**7**

9. Summary table showing the amount of credits disbursed in the context of the modules of the full-time educational program (first higher education)

Course of study	Semester	Number of modules to be mastered	Number of subjects studied			Number of credits KZ						Total hours	ECTS	Quantity		
			BK	BK	BK	Theoretical training	Educational practice, industrial practice	Pre-graduate practice	Physical education	Final certification	Total			Total	exam	differentiated credit
1	1	5	2	1	4	30				2		900	30	7	6	1
1	2	7	1	2	4	30		2		2		900	30	8	7	1
2	3	6	4	0	4	30				2		900	30	8	7	1
2	4	7	3	2	3	30		2		2		900	30	8	7	1
3	5	7	4	0	1	30						900	30	7	7	0
3	6	6	2	3	0	30		6				900	30	7	7	0
4	7	5	2	6	0	30		7				900	30	5	5	0
4	8	2	0	7	0	30		8			8	900	30	5	5	0
Total:		**45**	**18**	**21**	**16**	**240**	**0**	**25**	**0**	**8**	**8**	**7200**	**240**	**55**	**51**	**4**

10. Resource provision of the educational program

The resource provision is based on the requirements for the conditions for the implementation of bachelor's degree programs in the field of training 6B01512 - Physics(IP):

- staffing;
- educational, methodological and informational support;
- material and technical support.

Staffing

The implementation of the basic bachelor's degree program is provided by the scientific and pedagogical staff of K. Zhubanov Aktobe Regional University, who have a higher basic education corresponding to the profile of the discipline taught, and who are systematically engaged in scientific and methodological activities.

The share of full-time teachers in the Department of Physics, including in the cycles of basic and core disciplines of the state mandatory standard is 80%.

Educational, methodological and informational support

Educational, methodological and informational support includes: the standard and working curriculum of the discipline, the UMKD, syllabus, control and measuring materials, active handouts, didactic materials, normative documents regulating the types of educational activities.

The educational program in the specialty 6B01512 - Physics(IP) is provided with educational and methodological documentation and materials for all academic disciplines of the curriculum, including the standard and working curriculum of the discipline, UMKD, syllabus, control and measuring materials, active handouts, didactic materials, etc.

Every student has access to the Internet, including the university's electronic library, the Russian Library of Economics, KazNEB, Clarivate Analytics, Scopus, Springer, and the resources of the university's scientific library. The library's collection is equipped with printed and electronic publications, educational and scientific literature in all disciplines of the specialty. In addition, students have contractual access to the AF RNTB foundation, including access to the RSL dissertation fund. The educational, methodological and informational support of the educational process meets the requirements of higher education.

Logistics and technical support

When implementing the general education program, the material and technical base is used to ensure that all types of classes are provided for in the work curriculum and comply with current sanitary and fire safety rules and regulations.

The material and technical base is provided by the presence of classrooms, specialized classrooms equipped with interactive whiteboards and laboratories, computer classes for conducting classes on OP 6B01512 - Physics(IP).

The Department of Physics has the following educational laboratories: mechanics, molecular physics, electricity and magnetism, optics, physics of the atom and atomic nucleus, astronomy, theory of electrical circuits, robotics and methods of teaching physics. The department also has scientific laboratories on radiation physics of materials, nanotechnology, polymer and composite materials. All laboratories are equipped with modern digital equipment that allows conducting practical and laboratory classes according to the latest achievements of science and technology.

11. Characteristics of the environment of the K.Zhubanov ARU, ensuring the development of general cultural and socio-personal competencies of students

The University has all the necessary conditions and opportunities to ensure the formation and development of general cultural and socio-personal competencies of graduates.

An integral part of the educational process is educational work, the purpose of which is the formation of a professional, harmoniously developed and morally stable personality. Special attention in educational work is focused on issues of academic discipline, culture of behavior, appearance of students, education of patriotism, citizenship, sense of responsibility, decency, honesty, loyalty to professional duty, law-abiding, respectful attitude to each other and others. Educational work is carried out in the following areas::

- fostering civic and spiritual and moral culture;
- fostering aesthetic culture;
- physical education and healthy lifestyle formation;
- fostering an ecological culture;
- labor education.

As a basic normative document for the organization of the educational process at the university, the "Concept of educational work" and intra-university normative documents have been developed, such as the Regulation "On Self-government", the Regulation "On the organization of educational work at the ARU named after K.Zhubanov", the Regulation "On the Council for the Prevention of Offenses", the Regulation "On the Council of Curators", Regulations "On curatorial work", Regulations "On the school of legal knowledge", Regulations "On the sports club", Regulations "On the debate club", etc.

To organize educational work at the university, the Department for educational work and youth policy has been established, which includes the department for work with students and youth organizations and the department for socio-cultural work. In addition, the university has a student administration, a student dormitory Council, the Headquarters of student labor groups, a Board of Curators, a sports club, and a Board for prevention of offenses, etc.

There is a sufficient material and technical base at the university for organizing cultural activities and forming a healthy lifestyle.:

- Youth Palace;
- The Palace of Students;
- Two sports complexes;
- Sports facilities;
- 3 separate gyms;
- A stadium with a running track and a grass soccer field;
- Tennis court;
- Shooting range;
- Student multidisciplinary polyclinic.

For the harmonious development of personality, contributing to the strengthening of moral, civil, patriotic and general cultural competencies of students and undergraduates, the K.Zhubanov ARU operates the Debate Club "Rhetor" "Zaman Bizdiki", the school of legal knowledge, the student theater "Zhubanov Zhastary", the Club of Young Poets "Taraza", "English-club", Educationclub, Universialprogrammer-club, KVN Club, Femida Student Law Clinic, Umitin Uzilmesin Charity Club, Zhubanov Zhyluy Volunteer Club, ARSU STAR and Big Fam dance clubs, Mansap School of Public Service, sports sections, etc.

Educational work is carried out in a complex of information and propaganda, individual psychological, legal, socio-economic, moral and ethical, cultural and leisure, mass sports and other events.

AGREED

Director of the Aktobe Regional Specialized Physics and Mathematics Boarding School in Aktobe	Tleumagambetova Karakoz Yensegenovna
Director of MGA "Specialized gymnasium No. 21 named after Al-Farabi" Aktobe	Toishimanova Marzhankul Keneshbaevna
Director of MGA "Gymnasium No. 51" Aktobe	Daribayeva Gulnaziya Zhanuzakovna