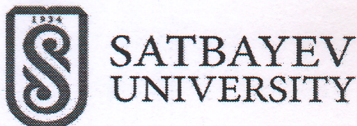


MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
KAZAKH NATIONAL RESEARCH TECHNICAL UNIVERSITY named after K. I. SATPAEV



APPROVED
Chairman of the Board-
Rector of KazNRTU named after K. Satpaeva
Begentaev M.M.
2021 y.

MODULAR EDUCATIONAL PROGRAM for admission for the 2021-2022 academic year

Educational program 7M05301 - "Applied and engineering physics"

Group of educational programs M090 - "Physics"

Form of study: daytime Study duration: 2 years Academic degree: Master of Engineering Science

Year of study	Discipline Code	Name of disciplines	semester	Cycle	Credits	Total hours	classroom volume lx / lab / pr	ISW (including ISWT) in hours	form of control	Competencies
Basic training module										
University component										
1	LNG210	Foreign language (professional)	1	BD IC	5	150	0/0/3	105	E	
1	HUM210	History and philosophy of science	1	BD IC	4	120	1/0/1	90	E	
1	HUM209	Higher education pedagogy	1	BD IC	4	120	1/0/1	90	E	
1	HUM208	Psychology of management	1	BD IC	3	90	1/0/1	60	E	
1	PHY292	Solid state physics and crystallography	1	BD IC	5	150	2/0/1	105	E	
1	PHY295	Methods for obtaining nanomaterials and nanostructures	2	BD IC	5	150	2/0/1	105	E	
Component of choice										
1	PHY291	Materials science and technologies of advanced materials	1	BD OC	5	150	2/0/1	105	E	
Profile training module										
Component of choice/University component										
1	PHY293	Numerical methods for solving physical problems	1	PD IC	5	150	2/0/1	105	E	
1	PHY294	Fundamentals of nanotechnology	1	PD IC	5	150	2/0/1	105	E	
1	PHY296	Physics of the atom and atomic nucleus	2	PD IC	5	150	2/0/1	105	E	
1	PHY297	Practical aspects of X-ray diffractometry	2	PD IC	5	150	2/0/1	105	E	
Component of choice										
2	PHY255	Semiconductor structures	3	PD OC	5	150	2/0/1	105	E	
2	PHY298	Application of quantum-dimensional structures in micro- and nanoelectronic devices	3	PD OC	5	150	2/0/1	105	E	
2	PHY299	Spectral methods for studying low-dimensional objects	3	PD OC	5	150	2/0/1	105	E	
2	PHY700	Low-dimensional carbon materials. Production, properties, application	3	PD OC	5	150	2/0/1	105	E	
2	PHY701	Study of nanomaterials using electron and probe microscopy	3	PD OC	5	150	2/0/1	105	E	
Practice-oriented module										
1	AAP244	Pedagogical practice	2	BD IC	4				Report	
2	AAP236	Research practice	4	PD OC	7				Report	
Science-research module										
1	AAP242	Research work of a master's student, including an internship and a master's thesis	1	NIRM	6				Report	
1	AAP242	Research work of a master's student, including an internship and a master's thesis	2	NIRM	6				Report	
2	AAP242	Research work of a master's student, including an internship and a master's thesis	3	NIRM	6				Report	
3	AAP242	Research work of a master's student, including an internship and a master's thesis	4	NIRM	6				Report	
Final certification module										
Required component										
2	ECA205	Registration and defense of a master's thesis	4	IA	12				Defense of dissertations	

The number of credits for the entire period of study

Discipline cycles	Credits
Cycle of basic disciplines (BD IC, BD OC)	35
Cycle of majors (PD OC, PS OC)	52
Total theoretical training:	87
MSSR	24
Registration and defense of a master's thesis	12
TOTAL:	123

The decision of the Academic Council of KazNRTU named after K. Satpaeva. Protocol № 3 of "25" 06 2021 y.

Decision of the Academic Council of the M&M Institute. Protocol № 10 of "10" 06 2021 y.

Vice-rector for academic affairs

Zhautikov B.A.

Director of the M&M Institute

Rysbekov K.B.

Head of the MNnEP Department

Kakimov U.K

Representative of the Specialty Council from employers

Serikkanov A.S.