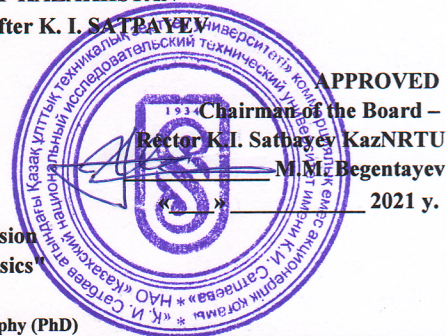


MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN
KAZAKH NATIONAL RESEARCH TECHNICAL UNIVERSITY named after K. I. SATPAYEV



SATBAYEV
UNIVERSITY



APPROVED

Chairman of the Board –
Rector K.I. Satpayev KazNRTU
M.M. Begentayev
2021 y.

WORKING CURRICULUM for 2021-2022 academic year admission
Educational program 8D05301 - "Applied and engineering physics"
Group of Educational programs D090 - "Physics"

Full-time study Study duration : 3 years Academic degree: Doctor of Philosophy (PhD)

Year of study	Code	Name of discipline	semester	Cycle	Total Credits	Total hours	classroom volume lec/lab/pr	IWS (including IWS/ST), in hours	form of control	Competencies
Basic training module										
University component										
1	LNG305	Academic writing	1	BD IC	5	150	0/0/3	105	E	
1	MET322	Scientific research methods	1	BD IC	5	150	2/0/1	105	E	
Component of choice										
1	PHY319	Physics and technology of energy conservation and renewable energy	1	BD OC	5	150	2/0/1	105	E	
Profile training module										
Component of choice										
1	PHY320	Semiconductor heterostructures and devices based on them	1	PS OC	5	150	2/0/1	105	E	
1	PHY321	Computer simulation of engineering tasks	1	PS OC	5	150	2/0/1	105	E	
Practice-oriented module										
1	AAP350	Pedagogical practice	2	BD	10				Report	
2	AAP355	Research practice	3	PS	10				Report	
Research module										
1	AAP345	Doctoral student research work, including internship and doctoral dissertation	2	DSRW	24				Report	
2	AAP345	Doctoral student research work, including internship and doctoral dissertation	3	DSRW	24				Report	
2	AAP346	Doctoral student research work, including internship and doctoral dissertation	4	DSRW	25				Report	
3	AAP346	Doctoral student research work, including internship and doctoral dissertation	5	DSRW	25				Report	
3	AAP346	Doctoral student research work, including internship and doctoral dissertation	6	DSRW	25				Report	
Final certification module										
Required component										
3	ECA303	Writing and defending a doctoral dissertation	6	FA	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)	25
Cycle of special disciplines (PS IC, PS OC)	20
Total of theoretical study :	45
DSRW	123
Writing and defending a doctoral dissertation	12
TOTAL:	180

The decision of the Academic Council of KazNRTU named after K. Satpayev. Minutes No. 3 dated "25" 06 2021

Decision of the Academic Council of the Institute MnM. Minutes No. 10 dated "10" 06 2021

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.