



«APPROVED»
Decision of the Academic Council
NPJSC «KazNRTU»
named after K.Satbayev»
dated 06.03.2025 Minutes № 10

WORKING CURRICULUM

Academic year

2025-2026 (Autumn, Spring)

Group of educational programs

B057 - "Information technologies"

Educational program

6B06106 - "Information Systems"

The awarded academic degree

Bachelor of information and communications technologies

Form and duration of study

full time - 4 years

Discipline code	Name of disciplines	Block	Cycle	Total ECTS credits	Total hours	lek/lab/pr Contact hours	in hours SIS (including TSIS)	Form of control	Allocation of face-to-face training based on courses and semesters								Prerequisites	
									1 course		2 course		3 course		4 course			
									1 sem	2 sem	3 sem	4 sem	5 sem	6 sem	7 sem	8 sem		
CYCLE OF GENERAL EDUCATION DISCIPLINES (GED)																		
M-1. Module of language training																		
LNG108	Foreign language		GED, RC	5	150	0/0/45	105	E	5									
LNG104	Kazakh (russian) language		GED, RC	5	150	0/0/45	105	E	5									
LNG108	Foreign language		GED, RC	5	150	0/0/45	105	E		5								
LNG104	Kazakh (russian) language		GED, RC	5	150	0/0/45	105	E		5								
M-2. Module of physical trafning																		
KFK101	Physical culture I		GED, RC	2	60	0/0/30	30	E	2									
KFK102	Physical culture II		GED, RC	2	60	0/0/30	30	E		2								
KPK103	Physical culture III		GED, RC	2	60	0/0/30	30	E			2							
KFK104	Physical culture IV		GED, RC	2	60	0/0/30	30	E				2						
M-3. Module of information technology																		
CSE677	Information and communication technology		GED, RC	5	150	30/15/0	105	E				5						
M-4. Module of socio-cultural development																		
HUM137	History of Kazakhstan		GED, RC	5	150	15/0/30	105	GE	5									
HUM120	Module of socio-polidical knowledge (sociology, political science)		GED, RC	3	90	15/0/15	60	E			3							
HUM134	Module of socio-political knowledge (cultural studies, psychology)		GED, RC	5	150	30/0/15	105	E				5						
HUM132	Philosophy		GED, RC	5	150	15/0/30	105	E				5						
M-5. Module of anti-corruption culture, ecology and life safety base																		
HUM136	Fundamentals of anti-corruption culture and law	1	GED, CCH	5	150	30/0/15	105	E			5							
MNG489	Fundamentals of economics and entrepreneurship	1	GED, CCH	5	150	30/0/15	105	E			5							
CHE656	Ecology and life safety	1	GED, CCH	5	150	30/0/15	105	E			5							
MNG564	Basics of Financial Literacy	1	GED, CCH	5	150	30/0/15	105	E			5							
CYCLE OF BASIC DISCIPLINES (BD)																		
M-6. Module of physical and mathematical training																		
MAT101	Mathematics I		BD, UC	5	150	15/0/30	105	E	5									
MAT102	Mathematics II		BD, UC	5	150	15/0/30	105	E		5								MAT101
PHY468	Physics		BD, UC	5	150	15/15/15	105	E		5								

CSE603	Discrete Mathematics		BD, UC	5	150	30/0/15	105	E		5								MAT102, CSE616
MAT103	Mathematics III	1	BD, CCH	5	150	15/0/30	105	E		5								MAT102
SEC525	Optimization methods and operations research	1	BD, CCH	5	150	15/0/30	105	E		5								
SEC517	Statistics and data analysis		BD, UC	4	120	15/15/15	75	E					4					

M-7. Module of basic training

CSE155	Algorithmization and Programming		BD, UC	5	150	15/15/15	105	E	5									
CSE678	Algorithms and Data Structures		BD, UC	5	150	15/15/15	105	E		5								
CSE665	Fundamentals of information systems		BD, UC	4	120	15/15/15	75	E		4								
AAP173	Practical training		BD, UC	2				R		2								
CSE127	Object oriented programming		BD, UC	5	150	15/15/15	105	E		5								CSE164, MAT101
SEC522	Database and SQL language		BD, UC	6	180	30/15/15	120	E		6								
SEC506	Web programming		BD, UC	5	150	15/15/15	105	E			5							
CSE681	Operating systems		BD, UC	5	150	15/15/15	105	E			5							CSE624
CSE122	Computer Networks		BD, UC	5	150	15/15/15	105	E			5							CSE677
SEC527	Database administration		BD, UC	4	120	15/15/15	75	E				4						
CSE524	Basics of cybersecurity		BD, UC	5	150	15/15/15	105	E				5						
SEC523	Databases and web service development	1	BD, CCH	5	150	15/15/15	105	E				5						
CSE831	Fundamentals of Artificial Intelligence	1	BD, CCH	5	150	15/0/30	105	E				5						
CSE879	Inclusive education	1	BD, CCH	5	150	15/30/0	105	E				5						
CSE571	Devops engineering	2	BD, CCH	5	150	15/15/15	105	E				5						
SEC507	Business process analysis	2	BD, CCH	5	150	15/15/15	105	E				5						
CSE581	Information systems architecture	2	BD, CCH	5	150	15/15/15	105	E				5						
SEC502	Development of IS prototype	2	BD, CCH	5	150	0/0/45	105	E				5						
SEC518	Integration of information systems		BD, UC	5	150	15/15/15	105	E					5					
SEC519	Continuous integration and deployment of CI/CD	1	BD, CCH	5	150	15/15/15	105	E					5					
CSE575	Business Process Modeling	1	BD, CCH	5	150	15/15/15	105	E					5					
SEC508	Design patterns	1	BD, CCH	5	150	15/15/15	105	E					5					
SEC503	Query language and report development	1	BD, CCH	5	150	0/0/45	105	E					5					
SEC533	IT Project Management		BD, UC	6	180	30/15/15	120	E						6				
SEC510	The basics of students' research work	1	BD, CCH	5	150	15/15/15	105	E						5				
CSE551	Capstone project 1	1	BD, CCH	5	150	0/0/45	105	E						5				
MNG563	Fundamentals of sustainable development and ESG projects in Kazakhstan	1	BD, CCH	5	150	30/0/15	105	E						5				

M-8. Module of professional activity

CSE830	Startups and technology entrepreneurship	1	BD, CCH	5	150	15/0/30	105	E									5	
SEC532	Capstone project 2	1	BD, CCH	5	150	0/0/45	105	E									5	
MNG562	Legal regulation of intellectual property	1	BD, CCH	5	150	30/0/15	105	E									5	
NSE428	Communication skills	2	BD, CCH	4	120	30/0/15	75	E									4	
MNG801	Design Thinking	2	BD, CCH	4	120	15/0/30	75	E									4	

CYCLE OF PROFILE DISCIPLINES (PD)

M-8. Module of professional activity

AAP102	Production practice I		PD, UC	2				R				2						
SEC515	Development of cross-platform mobile applications		PD, UC	5	150	15/15/15	105	E					5					
CSE570	Fundamentals of cloud computing		PD, UC	4	120	15/15/15	75	E					4					
AAP183	Production practice II		PD, UC	3				R					3					

CSE573	Virtualization and containerization systems	1	PD, CCH	5	150	15/15/15	105	E						5			
SEC511	Data visualization and reporting	1	PD, CCH	5	150	15/15/15	105	E						5			
SEC529	Distributed data processing systems	1	PD, CCH	5	150	15/15/15	105	E						5			
SEC501	Development of IS for trade automation	1	PD, CCH	5	150	0/0/45	105	E						5			
CSE594	IT audit and control	2	PD, CCH	5	150	30/0/15	105	E						5			
CSE596	Emerging technologies in information systems	2	PD, CCH	5	150	15/15/15	105	E						5			
SEC521	VBA Business Modeling	2	PD, CCH	5	150	15/15/15	105	E						5			
CSE569	IT infrastructure		PD, UC	6	180	30/15/15	120	E						6			
SEC528	Development of an IS business specification		PD, UC	5	150	15/15/15	105	E						5			
SEC520	System design	1	PD, CCH	5	150	15/15/15	105	E						5			
SEC512	Automation of business processes	1	PD, CCH	5	150	15/15/15	105	E						5			
CSE585	Digital transformation technologies	1	PD, CCH	5	150	15/0/30	105	E						5			
SEC504	Development of IS for accounting of finances	1	PD, CCH	5	150	0/0/45	105	E						5			
SEC505	PL/SQL programming	2	PD, CCH	5	150	0/0/45	105	E						5			
SEC524	Programming in T-SQL	2	PD, CCH	5	150	0/0/45	105	E						5			
SEC509	UI/UX design		PD, UC	5	150	15/15/15	105	E							5		
SEC514	Artificial intelligence and machine learning		PD, UC	6	180	30/15/15	120	E							6		
M-9. Module of final attestation																	
ECA103	Final examination		FA	8												8	
Additional type of training (ATT)																	
AAP500	Military training																
Total based on UNIVERSITY:										27	33	31	29	28	32	32	28
										60		60		60		60	

Number of credits for the entire period of study					
Cycle code	Cycles of disciplines	Credits			
		Required component (RC)	University component (UC)	Component of choice (CCH)	Total
GED	Cycle of general education disciplines	51	0	5	56
BD	Cycle of basic disciplines	0	86	34	120
PD	Cycle of profile disciplines	0	36	20	56
Total for theoretical training:		51	122	59	232
FA	Final attestation				8
TOTAL:					240

Decision of the Educational and Methodological Council of KazNRTU named after K.Satpayev. Minutes № 3 dated 20.12.2024

Decision of the Academic Council of the Institute. Minutes № 4 dated 22.11.2024

Signed:

Governing Board member - Vice-Rector for Academic Affairs

Uskenbayeva R. K.

Approved:

Vice Provost on academic development

Kalpeyeva Z. B.

Head of Department - Department of Educational Program Management and Academic-Methodological Work

Zhumagaliyeva A. S.

acting Director of Institute - Institute of Automation and Information Technologies

Chinibayev Y. T.

Department Chair - Cybersecurity, information processing and storage

Satybaldiyeva R. Zh.

Representative of the Academic Committee from Employers

Mamyrbayev O. Z.

____ Acknowledged ____

