MINISTRY OF SCIENCE AND HIGHER EDUCATION OF THE REPUBLIC OF KAZAKHSTAN
NON-PROFIT JOINT STOCK COMPANY «ALMATY UNIVERSITY OF POWER ENGINEERING AND TELECOMMUNICATIONS NAMED AFTER GUMARBEK DAUKEEV»
INSTITUTE OF AUTOMATION AND INFORMATION TECHNOLOGIES

«Agreed»
«ITPARTNER.KZ» LLC co-founder and technical director

I. Kemelbekov
«12» 05 2025

«Approved»
AUPET Rector

G. Nygymetov
«__» _____ 2025

MODULAR EDUCATIONAL PROGRAM
DIRECTION 6B06103 – COMPUTER SYSTEMS AND SOFTWARE
HIGHER EDUCATION

Field of education (according to the classifier of 13.10.2018): 6B06 - Information and communication technologies
Direction of training (according to the classifier of 13.10.2018): 6B061 - Information and communication technologies
Group of educational programs: B057 - Information technologies

Duration of study - 3 years
Awarded academic degree: *Bachelor in Information and Communication Technologies*
Qualification level in accordance with the national qualifications framework: Level 6.

Almaty 2025

Training trajectories (specialty):

1. Computer engineering
2. Multimedia technologies

The EP is developed on the basis of: the National Qualifications Framework, Approved by the protocol of March 16, 2016 by the Republican tripartite commission on social partnership and regulation of social and labor relations; Sectoral qualifications framework "Information and communication technologies", Approved by the protocol of the meeting of the Sectoral Commission in the field of information, informatization, communications and telecommunications dated December 20, 2016 No. 1; State compulsory standard of higher education, Approved by the Decree of the Government of the Republic of Kazakhstan dated 08.23.2012 No. 1080 (amended by the decree of the Government of the Republic of Kazakhstan. Order of the Minister of Education and Science of the Republic of Kazakhstan dated October 31, 2018 No. 604. Registered in the Ministry of Justice of the Republic of Kazakhstan from November 1, 2018 No. 17669.); Professional standards or standard projects.

The educational program was developed at the Department of IT engineering.

Head of the educational program Sametova A.A., master of natural science, senior lecturer

The EP was reviewed and approved at the meeting of the Department of IT Engineering and AI Department on 04.03.2025, protocol No. 8.

Head of the Department of IT Engineering and AI _____ Utegenova A.

The EP was reviewed and approved at a meeting of the educational and methodical commission of the Institute of Automation and Information Technologies (protocol No. 9 from 12.05.2025).

Head of the IA&IT _____ Fedorenko I.

The EP was reviewed and approved by the Scientific and Methodological Council of AUPET(protocol No. 11 dated 23.05.2025).

Educational program passport

№	Field name	Notes
1	Registration number	6B06100020
2	Code and classification of the field of education	6B06 Information and communication technology
3	Code and classification of training areas	6B061 Information and communication technology
4	Group of educational programs	B057 - Information Technology
5	Name of educational program	6B06103 – Computer systems and software
6	Type of EP	Current EP
7	Purpose of EP	Training of qualified specialists in the field of development of hardware and software for accelerated innovative development of the economy of the Republic of Kazakhstan
8	ISCE level	ISCE 6 *Baccalaureate* or its equivalent
9	NQF level	6
10	SQF level	6
11	Distinctive features of EP	No
	Partner university (JEP)	No
	Partner university (AEP)	No
12	The list of competencies	ON-1. Know socio-humanitarian, historical, environmental, economic sciences, and be able to apply in professional activities. ON-2. Know the fundamentals of physical and mathematical sciences, mathematical and computer modeling, be able to apply this knowledge in solving engineering problems ON-3. To know the basics of operating systems, to be able to draw up programs for solving engineering problems, apply innovative ICTs, and develop system software. ON-4. Know the methods of developing databases and database protection systems, be able to develop databases, expert systems, artificial intelligence systems. ON-5. Know the basics of designing computer networks, be able to design computer networks and network protection systems, configure network equipment. ON-6. Know the methods of developing web applications, graphic applications, be able to design and develop web applications, information security systems in web applications ON-7. Know the basics of electronics, circuitry, be able to design electronic circuits and electronic devices, program electronic devices ON-8. Know the methods of developing mobile applications, games, computer graphics, be able to develop software applications for mobile devices. ON-9. Acquire a wide range of lexical and grammatical structures of the language for communication purposes, understand social, legal, and ethical norms, the basics of sustainable development and anti-corruption culture, and apply this knowledge in professional practice. ON-10. Implement and apply artificial intelligence systems in practice; develop systems for data collection, storage, analysis, and management using Big Data, data mining, and cloud computing technologies. (appendix 1)
13	Learning outcomes	
14	Form of learning	Full-time, distance

№	Field name	Notes
15	Language of learning	Russian, Kazakh, English
16	Credits	240
17	Awarded Academic Degree	Bachelor in the field of information and communication technologies on the educational program “6B06103 - Computer engineering and software”
18	Availability of an appendix to the license for the training	License №KZ80LAA00018161 Date of issue 05.05.2020
19	Availability of accreditation of EP	Yes
	Name of accreditation body	IAAR Non-profit organization "Independent agency for accreditation and rating"
	Accreditation Duration	05.04.2024-04.04.2029
20	Information about disciplines	Information about disciplines of UC/OC GED, BD, PD (Appendix 1)
21	Professional activity	field of science and technology, which includes a combination of technologies, means, methods and methods of human activity, allowing for the exchange of information at a distance using technical means
22	Types of professional activity	production and technological; service and operational; organizational and management; assembly and commissioning; settlement and design; experimental research
23	Modular Curriculum	Given in appendix 2

2. Matrix of correlation of learning outcomes for the educational program as a whole with the developed competencies

№	Name of disciplines	ON 1	ON 2	ON 3	ON 4	ON 5	ON 6	ON 7	ON 8	ON 9	ON 10
1	History of Kazakhstan	v									
2	Kazakh (Russian) language	v									
3	Foreign language	v									
4	Physical education	v									
5	Information and communication technologies			v							
6	Module social-floor characters (cultural studies, psychology)	v									
7	Philosophy	v									
8	Module social-floor characters (sociology, political science)	v									
9	University Component Module (Fundamentals of Economics and Law, Entrepreneurship, and Financial Literacy)	v									
10	Calculus I		v								
11	Calculus II		v								
12	Physics 1		v								
13	Physics 2		v								
14	Linear Algebra		v								
15	Probability Theory and Elements of Mathematical Statistics		v								
16	Sustainable Development: Ethics, Inclusion, and Safety	v								v	
17	Industrial Internship			v		v	v				
18	Python Programming Technologies			v							
19	Object-Oriented Programming and Software Application Development Technologies	v									
20	Electronics and Digital Circuitry							v			
21	Operating Systems and Computer Networks			v							
22	System Programming			v							
23	The basics of Big Data				v						v
24	Web-technologies and Server-side Web-programming			v							
25	Fundamentals of scientific research and academic writing	v									
26	Artificial Intelligence			v	v						v
27	Software Development Tools			v			v				
28	Analysis and design of software applications			v			v				
29	Pre-diploma practice practice				v	v			v		
30	Basics of algorithmization and programming								v		v
31	Architecture and organization of computer systems					v		v			
32	3D technologies								v		

34	Server databases				v						
35	Database				v						
36	Business application development technologies			v							
37	Internet entrepreneurship						v				
38	Introduction to the specialty			v							
39	Deep Learning with Python and Java			v							v
40	Design of data warehouses based on modern DBMS				v						
41	Modern DBMS in corporate systems				v						
42	Development of client-side web applications						v				
43	Component-based approach to programming			v							
44	Development of artificial intelligence systems				v						
45	Development of expert systems				v						
46	Administering llnux-based HPC systems			v							
47	Cloud computing and server system administration			v							
48	Development of software applications based on Android								v		
49	Development of software applications based on IOS								v		
50	Information security and information protection					v					
51	Cryptographic methods and means of information protection					v					
52	Technology Startup Development			v							v
53	Introduction to Blockchain										v
54	Design of geographic information systems			v		v					
55	Fundamentals of Robotics Device Programming			v				v			
56	Technologies of 3D modeling and augmented reality			v		v					
57	Game application development technologies								v		
58	Programming arduino microcontroller boards			v				v			
59	CISCO-Based Computer Network Security					v					