

MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF
KAZAKHSTAN
NON-PROFIT JSC "ALMATY UNIVERSITY OF POWER ENGINEERING
AND TELECOMMUNICATIONS NAMED AFTER GUMARBEK
DAUKEYEV"
INSTITUTE OF COMMUNICATION AND SPACE ENGINEERING
DEPARTMENT OF ELECTRONIC ENGINEERING



«AGREED»
Head of Department IT
«Saiman» Corporation
Zikirbay K.Y.
«05» 2025

«APPROVED»
Rector of AUETC named
after Gumarbek Daukeyev
Nygymetov Gani
Saktaganovich
«05» 2025

MODULAR EDUCATIONAL PROGRAM
«8D07104 - INSTRUMENTATION»

Field of education (according to the classifier of 13.10.2018): 8D07 - Engineering, manufacturing and construction industries

Direction of training (according to the classifier from 13.10.2018): 8D071 - Engineering and Engineering

Duration of training - 3 years

Awarded academic degree - Doctor of Engineering and Technology

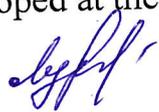
Qualification level according to the National Qualifications Framework:

Level 8

Almaty 2025 г.

The educational program was developed: on the basis of the laws of the Republic of Kazakhstan and regulatory documents: The State mandatory standard of higher Education, the State mandatory standard of postgraduate education (Decree of the Government of the Republic of Kazakhstan dated 23.08.2012 No. 1080), Standard rules for the organization of higher and postgraduate education (Decree of the Government of the Republic of Kazakhstan dated 17.05.2013 No. 499), Rules for the organization of the educational process on credit technology of education (order of the Ministry of Education of the Republic of Kazakhstan dated 20.04.2011 No. 152)

The educational program was developed at the Department of Electronic Engineering.

Head of the educational program  S.A. Yussupova

The EP was reviewed and approved at the meeting of the Department of "Electronic Engineering " Protocol No. of

Head of the Department of ER 

The EP was reviewed and approved at a meeting of the Scientific and Methodological Council of the Institute of Communications and Space Engineering Protocol No. of

Director of ICSE 

The EP was reviewed and approved by the Academic Council of the Gumarbek Daukeev AUE (Protocol No. of " ").

List of designations and abbreviations

HE	- Higher education
SMSE	- State mandatory standard of education
EQF	- European Qualification Framework
HK3	- National Classifier of Occupations
RK	- Republic of Kazakhstan
NQF	- National Qualifications framework
NQS	- National qualifications system
GEM	- General educational module
EP	- Educational program
GED	- General education disciplines
RC	- Required component
HSC	- High school component
BD	- Basic disciplines
PD	- Profile disciplines
IET	- Individual educational trajectory
IQF	- Industry qualifications framework
PS	- Professional standard
PE	- Postgraduate education
ON	- Competencies
LR	- Learning result
CP	- Course paper
CGW	- Calculation and graphic work
RWS	- Research work of students
CED	- Catalog of elective disciplines

1. Passport data of OP "8D07104 - Instrumentation"

№	Field name	Note
1	Registration number	8D07100108
2	Code and classification of the field of education	8D07 - Engineering, manufacturing and construction industries
3	Code and classification of training areas	8D071 - Engineering and Engineering
4	Group of educational programs	D103 - Mechanics and metalworking
5	Name of the educational program	8D07104 - Instrumentation
6	Type EP	New EP ;
7	The purpose of the educational program	Training of highly qualified specialists in the field of electronics and possessing theoretical and practical knowledge, skills and abilities necessary for their implementation in professional activity, who are competitive specialists in demand in the domestic and international labor markets.
8	ISCED level	ISCED 8 Doctorate or its equivalent
9	The level of the NRK	8
10	ORC Level	8
11	Distinctive features of the OP	No;
	Partner University (SOP)	No;
	Partner University (DDOP)	No;
12	List of competencies	LR-1. Demonstrate the ability to improve and develop their intellectual and general cultural level, independently acquire and use new knowledge and skills in practice, expand and deepen their scientific worldview, freely use a foreign language as a means of business communication. LR -2. Demonstrate the ability to actively social mobility, to independently learn new research methods, to change the scientific or industrial profile of their professional activities in the process of changing socio-cultural and social conditions of activity. LR -3. Demonstrate skills and abilities in the organization of research work, in team management, in assessing the quality of performance results, take the initiative, resolve problematic situations. LR -4. Analyze scientific and technical information, plan and set research objectives, formalize and present the results of scientific research, analyze, synthesize and summarize information. ON -5. Demonstrate the ability to use theoretical and practical knowledge in solving professional problems, apply modern research methods, conduct technical tests and scientific experiments. ON -6. Formulate tasks for the development of design solutions related to the modernization of control and measuring equipment, measures to improve operational characteristics and reliability, increase environmental safety. LR-7. Demonstrate readiness to participate in the development of projects of objects and systems using design automation tools, advanced experience in their development, to carry out technical calculations on projects, technical and economic analysis of the effectiveness of design solutions, to use application software for calculating parameters and selecting equipment.
13	Learning result	

		<p>LR-8. Develop measures to improve production technology and modernize control and measuring equipment of enterprises in various sectors of the economy.</p> <p>LR-9. Demonstrate the ability to use renewable energy sources in industrial and transport process control systems .</p> <p>LR-10. Demonstrate readiness for pedagogical activity in the field of professional training. (appendix 2.1)</p>
14	Form of training	Day Form of training time
15	Language of instruction	Kazakh, Russian, English
16	Volume of loans	180
17	Academic degree awarded	Doctor of Engineering and Technology
18	Availability of an appendix to the license for the direction of training	License number KZ80LAA00018161 Date of license issue 05.05.2020
19	Availability of EP accreditation	There are
	Name of the accreditation body	IAAR NU "Independent Accreditation and Rating Agency"
	Validity period of accreditation	05.04.2024-04.04.2029
20	Information about the disciplines	Information about the disciplines university component/component for the choice of General education disciplines, BD, PD

2. Matrix of correlation of learning outcomes according to the educational program as a whole with the competencies being formed

№	Name of the discipline	LR1	LR2	LR3	LR4	LR5	LR6	LR7	LR8	LR9	LR10
1	Educational Practice	v	v								
2	Academic writing			v	v						
3	Methods of scientific research	v	v								
4	Altera FPGA based Mechatronic Systems/ Mechatronic systems on FPGA controllers				v	v					
5	IP - pneumatic control/ IP-control of electro- pneumatic drives of SCADA systems.					v	v				
6	Educational Practice							v	v		
7	Research practice								v	v	
8	Research practice					v		v			
9	Research work of a doctoral student, including internship and completion of a doctoral dissertation (RWD)								v		v
10	Research work of a doctoral student, including internship and completion of a doctoral dissertation (RWD)							v	v		
11	Research work of a doctoral student, including internship and completion of a doctoral dissertation (RWD)					v	v				
12	Research work of a doctoral student, including internship and completion of a doctoral dissertation (RWD)						v	v			
13	Research work of a doctoral student, including internship and completion of a doctoral dissertation (RWD)			v	v						
14	Fuzzy neural networks/ Fuzzy logic based neural networks							v		v	
15	Quantum programming / KUKA Industrial Robots							v		v	