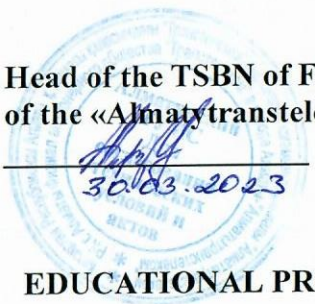
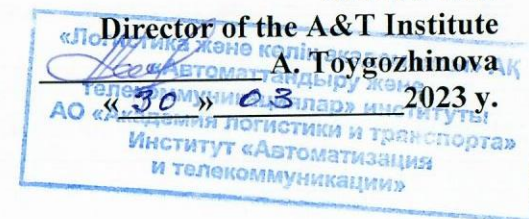


Head of the TSBN of FOCL  
of the «Almaty transtelecom» branch  
Myrzabayev A A.



APPROVED

Director of the A&T Institute  
A. Toygozhinova  
2023 y.



CATALOG OF ELECTIVE SUBJECTS

EDUCATIONAL PROGRAM: 7M06233- Radio engineering, electronics and telecommunications

Degree to be conferred: master

Period of study: 1.5 years old

Year of admission: 2023 y.

Module	Cycle	Comp onent	Name of discipline	Overall labor intensity		Term	Learn ing outco mes	Brief description of the discipline	Prerequisites	Postrequests
				in academic hours	in academic credits					
1	2	3	4	5	6	7	8	9	10	11
Module 4- Professional competencies	BD	EC	Lean manufacturing	270	9	2	LO 7	Studies the basics of organization management based on the principles of lean production: minimizing all types of losses in the course of activity, achieving the maximum possible result in the shortest possible period of time, rational use of all types of resources, improving aspects of the organization's activities, involving employees in technological processes; formation of lean thinking among future managers, correlated with the ideas of concepts relevant to the modern world sustainable development and conscious consumption	Design and technical operation of VSP/Reliability of VOLS	Production practice, Final certification
			SMART technologies in transport				LO 7	The intellectual technologies used in railway transport are considered and studied. The basic concepts of the current state and prospects for the development of railway transport infrastructure based on SMART technologies are described. Familiarization of students and the formation of skills for assessing the improvement of operational safety of railway infrastructure facilities, taking into account the development of computer technologies, software and artificial intelligence	Design and technical operation of VSP/Reliability of VOLS	Production practice, Final certification

1	2	3	4	5	6	7	8	9	10	11
Module 4- Professional competencies	PD	EC	New generation network technologies	270	9	1	LO 8	It consists in mastering by undergraduates the principles of building architectures and the principles of operation of modern and promising network technologies for various purposes, the basics of their design, management methods and network analysis	Bachelor's degree disciplines	Production practice, Final certification
			Algorithms and architectures for digital computing				LO 8	Familiarization of undergraduates with the basic principles of building real-time information and control systems (IUS RV), the organization of computing in IUS RV, typical architectures of computing blocks and data transmission networks in IUS RV, basic algorithmic tasks that arise when planning calculations and information exchange in IUS RV, examples of algorithms for solving quiet problems	Bachelor's degree disciplines	Production practice, Final certification
	PD	EC	Artificial intelligence technologies	180	6	2	LO 6	Formation of the foundations of theoretical knowledge and practical skills of future specialists in the field of basic artificial intelligence strategies: expert systems and artificial neural networks, and the latter is given dominant attention as the most effective strategy with the largest number	Theory and practice of innovation in infocommunications	Production practice, Final certification
			Sensor networks				LO 6	It is aimed at familiarizing undergraduates with modern approaches to the construction of wireless sensor networks: their classification, principles of functioning, deployment. The course includes the study of the main modern wireless communication standards, and the construction of wireless network configurations based on them, designed to monitor a variety of parameters and quantities	Theory and practice of innovation in infocommunications	Production practice, Final certification



1	2	3	4	5	6	7	8	9	10	
Module 4- Professi onal compet encies	PD	EC	Design and technical operation of the VSP	180	6	1	LO 3, LO 4	The study of the basics of VSP design, the issues necessary for the design of the content of the general explanatory note, estimate documentation and working drawings, calculation of the length of the regeneration site, the list of regulatory and technical documentation required for the design. Much attention is paid to the organization of the construction of the fiber optic cable, all types of laying and installation of the OK, issues of technical operation and organization of maintenance of the fiber optic cable. A special place is occupied by types and means of measurement	Bachelor's degree disciplines	Production practice, Final certification
			Reliability of VOLS				LO 3, LO 4	Practical and theoretical training of undergraduates in the field of reliability and the field of measurement methods of VOLS, the physical foundations of metrology and standard measurement methods, the analysis of emerging errors, the main scientific and technical problems, strategies and innovations in the development of measurements in VOLS. Within the framework of the discipline, interactive teaching methods, computational and analytical method, case-task method, game methods are used	Bachelor's degree disciplines	Production practice, Final certification
	PD	EC	GSM mobile multichannel technologies	180	6	2	LO 5	The methods and methods of building GSM cellular systems, signal modulation methods used in cellular communication systems are considered, special attention is paid to the principles of building cellular communication systems and issues related to the compaction and separation of channels, the issues of building traffic channels and management, the organization of the terrestrial interface are studied, GSM/GPRS cellular communication systems are considered in detail, CDMA 2000, UMTS/HSDPA, LTE	Theory and practice of innovation in infocommunications, Bachelor's degree disciplines	Production practice, Final certification
			Services of cellular communication companies				LO 5	It gives an idea of the trends in the development of cellular network technologies, the patterns of their development, modern wireless radio communication technologies, technologies for accessing the transmission medium in cellular systems, as well as the right choice of the right technology when solving technical problems in production, the technical characteristics of multichannel cellular systems and various services of cellular communication companies	Theory and practice of innovation in infocommunications, Bachelor's degree disciplines	Production practice, Final certification
<b>Total</b>			<b>1080</b>	<b>36</b>						

Head of the Department "ICT"



D.T. Kasymova