

	<p>МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РЕСПУБЛИКИ КАЗАХСТАН MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN</p> <p>«Astana IT University»</p>	<p>PW-AITU-8</p>
<p>Модель выпускника</p>	<p>Graduate model of «Astana IT University»</p>	<p>Редакция Editorial Board 1</p>

Отформатировано: английский (США)

Отформатировано: английский (США)

«УТВЕРЖДАЮ» APPROVED BY»

Ректор Rector of «Astana IT University»

Қ. Қожахмет K. Kozhakhmet

« ____ » _____ 2019 г.

Отформатировано: английский (США)

Отформатировано: английский (США)

GRADUATE MODEL "ASTANA IT UNIVERSITY"
(Bachelor degree, specialization 6B06201 "Telecommunication systems")

Nur-Sultan, 2019

<p>ДП-AITU-8</p>	<p>Модель выпускника «Astana IT University».</p>	<p>1 стр. / 12</p>
------------------	--	--------------------

CONTENTS

Introduction	3
1 Telecommunication systems. Development and prospects	4
2 Components when forming a model of an educational program graduate	7
2.1 Educational programme objectives	7
2.2 Objectives of the Educational Programme.....	7
2.3 General and professional competencies	7
2.4 Matrix of correlation of educational program results with the competences to be formed	8
2.5 Personal qualities of telecommunication specialist.....	8
Conclusion.....	10
Attachment 1	12

INTRODUCTION

The development of a competence model of a graduate becomes an unconditional condition for the implementation of the main directions of the Bologna process and a requirement of the modern labor market. The competency model of a graduate (bachelor's degree) is designed to answer the question of what professional tasks a specialist of a certain rank (position), this or that profile should be able to solve. The formation of a modern graduate model that meets the needs of stakeholders and all interested parties is the main strategic goal of "Astana IT University" and is provided with the necessary resources for the educational process, including personnel, educational and methodological, information and material and technical support. The university pursues a targeted personnel policy and systematic improvement of the material and technical base of the university to ensure the quality of training a graduate - bachelor, in demand in the labor market.

The normative-legal base of the model of the graduate - bachelor on specialities of the University is based on the following documents:

The Law of the Republic of Kazakhstan "On Education" № 319-III of July 27, 2007 (as amended and supplemented on 11.07.2017).

The government program of education development of RK for 2011-2020, approved by the Decree of the President of RK № 1118 from 07.12.2011.

GMSHE of higher and postgraduate education № 604 from 31. 10. 2018.

Rules "Organization of educational process on credit technology of education" (№ 152 from 20.04.2011 with amendments and additions № 563 from 12. 10. 2018).

Typical rules of activity of educational organizations that implement educational programs of higher education. Resolution No. 181 of the Government of the Republic of Kazakhstan dated 7 April 2017. Qualification directory of positions of managers, specialists and other employees, approved by Order of the Minister of Labor and Social Protection of the Republic of Kazakhstan from May 21, 2012 № 201-p-m as amended on 17.04.2013).

1 TELECOMMUNICATIONS SYSTEM. DEVELOPMENT AND PROSPECTS

Telecommunications - the field of science and technology, which includes a set of technologies, means, methods and methods of human activity aimed at creating conditions for exchange of information at a distance.

Telecommunication systems - set of interrelated technical means united by common purposeful rules of interaction and providing information exchange at a distance.

EP purpose - training of highly qualified specialists for innovative and knowledge-intensive sectors of economy in the field of telecommunications with theoretical and practical knowledge, skills and abilities necessary for their implementation in professional activity, meeting the needs of domestic and world markets of intellectual labour.

Objectives of EP:

- Training of a new competitive generation of technical specialists in the field of radio engineering, electronics and telecommunications for the labor market, proactive, able to work in a team with high personal and professional competence;
- integration of educational and scientific activities;
- establishment of partnership with leading universities of near and far abroad in order to improve the quality of education, to support technical and cultural relations;
- expansion of relations with customers of educational services, employers in order to determine the quality requirements for the training of specialists, holding courses, seminars, workshops, internships, production practices.

Skills that encompass technical knowledge and management capabilities can provide a graduate with long-term career security, high earning potential and jobs that offer interesting, diverse jobs.

IT professions are expected to grow rapidly over the next few years. According to the U.S. Bureau of Labor Statistics (BLS), vacancies in the IT sector are expected to grow by 13% over the period 2016-2026, approximately twice as fast as the overall labor market growth of 7%.

While virtually every industry today requires telecommunications specialists, as most companies use telecommunications and network equipment, there is a need for specialists who know how to configure, design systems, ensure fault tolerance, reliability and information security. Branches include, but are not limited to the following branches:

- Telecom companies
- Connection
- Ministry of Defense
- Healthcare
- Production

The objects of professional activity of a specialist in the field of education "Telecommunication systems" are:

- stationary and field communication nodes;
- stationary and movable means of channel formation;
- multi-channel telecommunications systems;
- technological systems, technical means providing transmission, radiation and reception of signs, signals, written text, images, sounds on radio, satellite, wire, troposphere, radio relay channels and communication paths;
- communication networks and switching systems.

Work in IT management gives the opportunity to solve problems and work with teams of technological specialists. Employers also offer high growth rates and the potential for high salaries.

Here are a few career paths available to graduates of the bachelor's degree telecommunications systems program:

- Telecommunications Specialist
- Communication Engineer
- Network Administrator
- Electronics Engineer

The training of the specialist in the domain of the specialty "Telecommunication systems" implies the formation of certain professional competences, which include the knowledge and skills in the operation, repair and maintenance of means; ensuring the required level of serviceability and combat readiness of telecommunication equipment, etc.

Specialist in telecommunications

A telecommunications specialist is a mid-level professional who installs, diagnoses, dismantles and performs routine work on telecommunications equipment.

His duties also include:

- ❖ Ongoing operation and maintenance of the switching subsystem equipment and other related network and server equipment and network platforms in order to maintain the quality indicators of the switching subsystem operation within the limits of normative values
- ❖ Monitoring of equipment operation, analysis of statistical data on network operation, development of optimization proposals in order to ensure high quality service provided to subscribers, optimal use of equipment resources.
- ❖ Network registration of new network elements and codes
- ❖ Making changes in the routing of signal and voice traffic on the equipment of switching subsystems and network platforms
- ❖ Updating of communication organization schemes
- ❖ Error detection, analysis and diagnosis
- ❖ Collection and analysis of emergency message statistics from all network elements, finding out the reasons for their occurrence, reporting on emergency situations.
- ❖ Database control and administration of switching subsystem equipment.

Communication Engineer

Specialist in charge of radio equipment and communications. The profession is suitable for those interested in physics, mathematics and drawing.

At present, the level of development of radio engineering and telecommunications indicates a high need for information and communication. To find out about an event or news, just turn on the TV, radio or internet. This is why the profession of communications engineer is becoming particularly important. The concept of "communication" is extensive and includes local networks and the Internet, telephone and cellular communications, satellite dishes, PBX, IP-telephony.

The duties of a communications engineer include:

- obtaining the documentation that allows carrying out the works at a particular site;
- carrying out activities to prepare the working area and working materials;

ДП-АІТУ-8	Модель выпускника «Astana IT University».	5 стр. / 12
-----------	---	-------------

- installation of cable equipment (Internet, telephone and local area networks), connection of stations, substations, users;
- testing, adjustment and repair, troubleshooting work;
- monitoring the operation of radio equipment and communications;
- monitoring the organization's compliance with safety rules and procedures for radio exchange, as well as the development of health and safety instructions;
- development of normative materials, which set the terms of preventive inspections.

System engineer

A specialist who configures and maintains internal computer networks, office equipment and PCs, he also trains and helps employees use the software.

Often this specialty is confused with the profession of a programmer, but they have only IT orientation in common. A system engineer can do programming and administration, but this job is not part of his direct duties.

A system engineer should have a good understanding of local networks, PCs, and special programs that meet the requirements of the company he works for. This specialist's low qualifications and negligence can lead to material losses to the company or leakage of valuable information.

Peculiarities of the profession

The specifics of the profession directly depend on the company in which the specialist works. It is his responsibility:

- Designing the configuration of internal computer networks;
- local network maintenance;
- protection of information data, in particular, installation of antiviruses and other software;
- software upgrade;
- controlling the operation of computer programs and eliminating errors in their operation;
- analysis of system maintenance costs, reporting and finding ways to optimize costs;
- sometimes a specialist repairs PCs and other office equipment.

He is also responsible for consulting company employees to help them use computer programs and equipment. To work in this area you need higher technical education and a mathematical mind.

Training as a system engineer

To work as a system engineer it is necessary to have not just a higher technical education, because the representative of the profession must be a specialist in computer technology, programming, computer science and other IT-directions.

1. CONSTITUENT COMPONENTS IN THE FORMATION OF A MODEL OF AN EDUCATIONAL PROGRAM GRADUATE.

ДП-АИТУ-8	Модель выпускника «Astana IT University».	6 стр. / 12
-----------	---	-------------

The key components of forming the model of an educational program alumni include information about the goals and objectives of the educational program, objects, types and directions of professional activity, specialist competence model (Attachment 1), including descriptors, type of competencies in accordance with the educational program, the results of the educational program.

2.1 Objectives of the educational programme:

Training of highly qualified specialists for innovative and knowledge-intensive sectors of the economy in the field of telecommunications, possessing theoretical and practical knowledge, skills and abilities necessary for their implementation in professional activity, meeting the needs of domestic and world markets of intellectual labour.

2.2 Objectives of the Educational Program:

Training a new competitive generation of technical specialists in the field of radio engineering, electronics and telecommunications for the labor market, who are proactive, able to work in a team with high personal and professional competence;

Integration of educational and scientific activities;

Establishment of partnership with leading universities of near and far abroad in order to improve the quality of education, to support technical and cultural relations;

Expansion of relations with customers of educational services, employers in order to determine the requirements to the quality of training of specialists, holding courses, seminars, workshops, internships, production practices.

2.3 General and professional competences

General and professional competences as learning outcomes are the knowledge, skills and abilities acquired at the end of a discipline or course and reflecting the requirements.

General competencies:

Possess the necessary knowledge of information technology and general subjects and understand the possibility of their application in the field of information technology.

Know how to process, analyse and present data and be able to use it to drill down into different areas.

The ability to analyze the requirements for the subject area, the possibility of building or modernizing information technology when justifying the results of analysis using research methods and simulation tools.

Ability to be competent in the choice of methods of ICT and mathematical modeling to solve specific engineering problems, the ability to be ready to identify the natural scientific essence of the problems arising in the course of professional activity, and the ability to attract the appropriate mathematical apparatus for its decision.

Professional competencies:

ДП-АИТУ-8	Модель выпускника «Astana IT University».	7 стр. / 12
-----------	---	-------------

Ability to find (choose) optimal solutions when creating new products taking into account requirements of quality, cost, terms of performance, competitiveness and environmental safety.

Understanding of information systems architecture

Ability to apply theories and methods of theoretical and applied telecommunications, systems and management strategies, quality management of innovative IT projects

Ability to solve professional problems on the basis of history and philosophy of innovations, mathematical methods and models for IT innovations management, computer technologies in the innovation sphere.

Ability to form and develop communicative skills and competences in the field of organization, planning and production management, ability to apply the acquired knowledge to comprehend the environmental reality, ability to generalize, analyze, predict when setting goals in the professional sphere and choose the ways of their achievement using the scientific methodology of research.

Ability to develop the plan and the program of the organization of works on product development

Ability to conduct feasibility studies of innovative IT projects and programs

Ability to apply the theory and methods of mathematics for construction of qualitative and quantitative models of objects and processes in natural-science sphere of activity, ability to choose and apply the suitable equipment, tools and methods of researches for the decision of problems in the chosen subject area, ability to adjust and adjust hardware-software complexes, ability to interface hardware and software as a part of information and automated systems.

2.4 Матрица соотношения результатов обучения образовательной программы с формируемыми компетенциями
2.4 Matrix of correlation of educational program results with the competences to be formed

	LO1	LO2	LO3	LO4	LO5	LO6	LO7	LO8	LO9	LO10	LO11	LO12
<u>НКРС</u> 1	V											V
<u>НКРС</u> 2		V				V	V					
<u>НКРС</u> 3		V	V	V	V							
<u>НКРС</u> 4				V	V	V	V					
<u>НК</u> <u>5PC5</u> <u>НКРС</u> 6				V								V
<u>НКРС</u> 7						V	V					V
<u>НКРС</u> 8								V	V	V	V	V

2.5. Personal qualities of a specialist in telecommunication systems

Due to the huge growth in the digitalization of organizations around the world, there is a high need for telecommunications specialists to manage companies on time, within budget. Today's large number of experienced engineers and telecommunications systems specialists is leading to fierce competition in the market. These are some of the skills (personal qualities) that you need to possess in order to be a competitive telecoms specialist:

Analytical skills: ability to carry out system analysis of information; systematize information; compare data; abstract information; design the result.

Diagnostic skills: the ability to structure the received information; to carry out innovative and combined processes connected with the ability of forecasting; to define strategic, tactical and operational goals; to formulate and solve professional tasks; to choose, modify and develop new methods of work; to use positive experience; to make managerial decisions; to diagnose possible variants of decisions.

Verbal and non-verbal skills: the ability to build business relations with colleagues; to establish cooperation with partners; to formulate professional tasks; to master oral and written speech; to be fluent in European language; to grasp the thought and essence on the fly; to navigate in what is already known and what is not yet known; to think strategically and logically anticipate the development of events; to solve non-standard problems using original techniques and means; to determine what is important in extreme situations.

Prognostic skills: self-confidence in own actions in accordance with the evaluation of everything that happens; manifestation of extroversion and domination as a condition of purposefulness, management, modeling of information, energy mobilization, manifestation of perseverance, activity, ability to withstand the load, persistence in performing complex tasks.

Corrective skills: the ability to carry out self-analysis, self-correction; to determine the trajectories of self-development and self-education; to comprehend own professional and personal possibilities.

CONCLUSION

Kazakhstan's market economy is increasingly moving from a natural form of organization to a planned one. IT management by results becomes the leading doctrine of management in business. Many companies consider organizational "culture as an important regulatory mechanism in the organizational environment". In this regard, employers' attitude towards company employees has changed.

However, professional knowledge and experience is not the only requirement for a specialist to enter a company. The latter is especially true for young graduates, whose knowledge acquired in universities has not been confirmed by experience in solving production or management tasks. The lack of such experience dramatically reduces the benefits for young people in hiring and determining the cost of their work. The risks for employers are too great. This is on the one hand. On the other hand, an important criterion for the successful completion of a job competition is the assessment of the personal potential of a young graduate. What is the concept of potential, which is the guarantor of investment in the formation of the HR reserve? What do employers expect from young specialists who have just graduated? What can make inexperienced graduates competitive in the eyes of employers?

- The desire to use young energy, activity, openness to new, dynamism;
- Ability to use young potential at a lower cost;
- Easy integration into the organizational culture of the enterprise;
- In spite of all this, a graduate should have a basic knowledge of information technology, business etiquette, etc.;
- Despite the recognition of the undoubted advantages of young specialists, employers are in no hurry to hire them in their enterprises. What do young graduates lack besides experience, according to their employers?
- There is no stability or reliability in them. Young graduates, especially those who haven't worked at all before, quickly change their first job, considering it to be the first and not the last one, a place where they can break at first. This is why employers are not in a hurry to invest money, time, effort in those who can quickly leave;
- Young people lack responsibility. Those who have not had experience before, have no formed habit to go to work and perform the assigned tasks, to observe elementary norms of business etiquette. They are focused on themselves, not on business (free time and pastime in general are more important than the essence of the company);
- There is no ability to work for results (which means to "hold" the goal, find ways to overcome obstacles on the way to it, to be independent and persistent). They do not see the relationship between their work and the result (including financial) of the company's activity, they do not see how other stages and links of the whole enterprise depend on the work entrusted to them;
- There is no adequacy in perceiving themselves as an employee: exaggerated expectations both in terms of wages and in terms of the evaluation of their work and the nature of the work they want to do.

On the basis of the above, it can be concluded that, in addition to special knowledge, the personal qualities of the potential employee (receptivity, dynamism, willingness to learn, readiness to start small) are the key points of principle for employers in hiring or not hiring a young graduate. And even the presence of previous experience, according to employers' answers, is necessary as a kind of "social work experience", as an indicator of responsibility and reliability. As for higher education, employers regard it as a sign that distinguishes a graduate from those who do not have higher education.

Thus, employers consider a young graduate as a whole as a source of activity, dynamism and modern knowledge for the enterprise, on the one hand, and on the other hand, as an alarming combination of lower responsibility and higher ambitions. When employers decide whether or not to hire a young graduate, they proceed in principle from one of two market advantages:

Special knowledge for which market demand is high and which cannot be compensated for by personal qualities (IT knowledge). Special knowledge makes graduates of certain specialties competitive a priori.

Special personal qualities, which are required in a market economy and which distinguish one graduate from a number of his or her classmates (those who have the same knowledge but do not have the necessary qualities). These qualities can make their carriers competitive even if they have obtained a speciality for which the supply exceeds the demand.

Приложение Attachment 1

Компетентностная модель выпускника (бакалавр) Competent model of the graduate (Bachelor of IT management)

