

## **TO THE PROBLEM OF THE CONTENT OF THE DISCIPLINE «INFORMATION AND COMMUNICATION TECHNOLOGIES»**

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The aim of modern higher professional education in the context of the transition to an information society is to prepare a competent specialist.

In this regard, the model curricula and plans are regularly updated and improved in Kazakhstan. In 2016 the model curricula and model plans were introduced in all bachelor degree specialties. The discipline «Information and communication technologies» was introduced into the plans for preparing students in all specialties [1].

The volume of the credits – 3. Assignment of this discipline is training of students owning skills of application of the modern information technologies in the sphere of professional area.

As a result of study of this discipline students will be capable: to define the main tendencies in the field of information communication technologies, to know what economic and political factors promoted development of information communication technologies, to use information resources for search and information storage, to know features of different operating systems, to work with electronic spreadsheets, to execute consolidation of data, to build diagrams, to work with databases, to apply methods and means of information protection, to project and create simple web sites, to make processing of vector and bitmap images, to create the multimedia presentations, to use different social platforms for communication, to know architecture, to be able to calculate and evaluate performance measures of supercomputers, to use different forms of e-learning for extension of professional knowledge, to use different cloud services.

There are 15 themes according to the thematic workplan of the discipline «Information and communication technologies». Each theme includes 1 hour of lecture, 1 hour of laboratory work and 1 hour of independent work supervised the teacher.

The presented themes cover a very wide range of issues of ICT technologies; many of them deserve special attention. For example, 8 themes such as «Architecture of computer systems», «Operating systems», «Human-computer interaction», «Database systems», «Networks and telecommunications», «Cybersafety», «Internet technologies», «Multimedia technologies» are presented as specific disciplines in students' model curricula in the specialties 5B060200-Informatics, 5B070300-Information systems, 5B070500-Mathematical and computer modeling. In particular students who concentrate on the core business of IT technology. These topics are very complicated for example for students of humanities.

More time available is needed to in the model curriculum.

For example, according to the theme «Database systems» it's necessary to cover the following questions: Bases of database systems: concept, characteristic, architecture. Data models. Normalization. Integrity constraint on data. Query tuning and their processing. Fundamentals of SQL. Parallel processing of data and their restoration. Design and development of databases. Technology of programming of ORM. The distributed, parallel and heterogeneous databases. According to the theme «Networks and telecommunications» it's necessary to cover the following questions: End devices, data transfer devices, transmission medium. Types of networks. Stack protocols: TCP/IP, OSI. IP addressing. Local and wide area networks. Wire and wireless network technologies. DHCP protocol. Technologies of connection to the Internet. Telecommunication technologies. According to the theme «Cybersafety» it's necessary to cover the following questions: Security risks of information and their classification. Industry of cybersafety.

Cybersafety and control of the Internet. Malicious applications. Measures and means of information protection. Standards and specifications in information security field. The acts of the Republic of Kazakhstan governing legal relations in the sphere of information security. Digital signature. Encoding. The content of these questions is quite large and complicated. Examining their content requires more than 1 hour of time available. And it concerns all themes. Therefore, it is possible to consider these themes only very superficially during classwork.

Thus, the content of the discipline «Information and communication technologies» will form only general concepts on the required themes. Students can obtain a deep knowledge of the discipline only within the frame self-study.

### **References**

1. Standard training program on the cycle of general education disciplines information and communication technologies (for all specialties and the directions of preparation of a bachelor degree). - Al-Farabi Kazakh National University, Almaty, 2016.