SHAKARIM UNIVERSITETI

SEMEY

«Information and communication technologies»

«Информационно-коммуникационные технологии» на английском

ZENKOVICH KULKEN UALIEVNA

ЗЕНКОВИЧ КУЛЬКЕН УАЛИЕВНА

NAME OF DISCIPLINE: «INFORMATION AND COMMUNICATION TECHNOLOGIES»

NUMBER OF CREDITS 3 (1+1+1)
LECTURE 15
PRACTICAL LESSONS 15
LABORATORY WORK 15
EXAMINATION TEST

Subject:

1. Основные направления развития ИКТ. Стандартизация в ИКТ (ICT in Core Sectors of Development. ICT Standardization)
2. Введение в компьютерные системы. Архитектура компьютерных систем. (Introduction to computer systems. Architecture of computer systems)
3. Операционные системы и программное обеспечение (Computer Software. Operating systems. Desktop applications)
4. Человеко-компьютерное взаимодействие (Human-computer interaction)
5. Базы данных (Databases)
6. Анализ и управление данными (Data Analysis and Data Management)
7. Сети и телекоммуникация (Networking and telecommunications)
8. Кибербезопасность, этика и доверие (Cyber Security, Ethics and Trust)
9. Интернет технологии (Internet Technology)
10. Облачные и мобильные технологии (Cloud and Mobile technology)
11. Мультимедийные технологии (Multimedia technologies
12. Smart технологии (Smart technology)
13. Е-технологии. Е-бизнес. Е-образование. Социальные сети. Е-правительство. (E-technology. E-business. E-Learning. Social networks. E-gov.)
14. Информационные технологии в профессиональной сфере. Промышленные ИКТ. (IT in professional sphere. Industrial ICT.)
15. Перспективы развития ИКТ (Perspectives of ICT development)

LITERATURE

1 Main literature

1.1 June J. Parsons, New Perspectives on Computer Concepts 18th Edition—Comprehensive, Thomson Course Technology, a division of Thomson Learning, Inc Cambridge, MA, COPYRIGHT © 2016; ISBN-10: 1-4239-0610-1, ISBN-13: 978-1-4239-0610-0.

1.2 Reema Thareja Fundamentals of Computers. – Oxford University press: Oxford, 2014. - 288p

1.3 George Beekman. Computer Confluence: Exploring Tomorrow's Technology. ISBN 0130661880, 9780130661883. Prentice Hall, 2003

1.4 Симонович С.В. и др. Информатика. Базовый курс: учебное пособие для высших технических учебных заведений. – СПб.: Питер, 2011. – 639 с.

2 Additional literature

2.1 Thomas M. Connolly, et al. Database Systems: A practical approach to Design, Implementation, and Management. 4th Edition ISBN: 0321210255 Addison-Wesley, 2004

2.2 H. L. Capron. Computers: Tools for an Information Age. Addison-Wesley, 1998.

2.3 Roqers Y., H. Sharp, J. Preece. Interaction design beyond human - computer interaction - Third Edition.- Italy: WILEY & Sons Ltd, 2011.- 585 p.

2.4 Ducket, J. Beginning Web Programming with HTML, XHTML, and CSS: 2th ed. / Jon Ducket.- U.S.A: Wiley Publishing. Inc, 2008.- 739c. ISBN 978-1-0-470-25931-3.

2.5 Stephen P Borgatti, Martin G. Everett, Jeffrey C. Johnson Analyzing Social Networks Paperback, 2013

2.6 Уша Рани Вьясулу Редди. Серия учебников по ИКТР для молодежи. Учебник 1: Введение в ИКТ для развития. UN-APCICT/ESCAP 2011

2.7 Дейтел Х. М., Дейтел П. Дж., Чофнес Д. Р. Операционные системы. Часть 1. Основы и принципы. – М.: Бином-Пресс, 2011. – 677 с.

2.8 Ярочкин В.И. Информационная безопасность: Учебник для вузов. – М.: Акад. Проект, 2008. – 544 с.

2.9 Голицына О.Л. Базы данных: Учебное пособие. – М.: Форум, 2012. – 400 с.

2.10 Keith Worden, W.A. Bullough, J. Haywood. Smart Technologies. World Scientific Pub Co Inc (April 14, 2003)

Lecture 1.
ICT in Core Sectors of Development.
ICT Standardization

1. **Definition of ICT. Subject ICT and its purposes**
2. **Main directions of development of ICT**
3. **Standardization in ICT. ICT and program of the UN of the Sustainable Development of the Millennium (SDG)**

Vocabulary

1.	Information	информация
2.	Communication	коммуникация, связь
3.	Technology	технологии
4.	create	создавать, творить
5.	Store	хранить, запоминать
6.	exchange	обмен
7.	media services	медиа-услуги
8.	Applications	приложения
9.	electronic government	электронное правительство
10.	Recommendations	Рекомендации
11.	standardization	Стандартизация

1. Definition of ICT

ICT is an acronym that stands for **Information Communications Technology**

ICT is the technology required for information processing, in particular, the use of electronic computers, communication devices and software applications to convert, store, protect, process, transmit and retrieve information from anywhere, anytime.

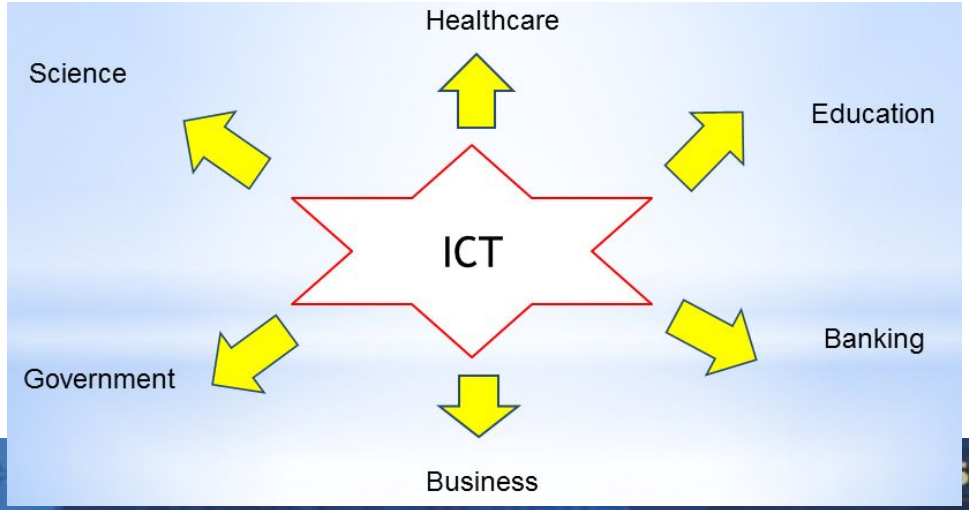
- **INFORMATION** Information refers to the knowledge obtained from reading, investigation, study or research. The tools to transmit information are the telephone, television and radio. Information is knowledge and helps us to fulfill our daily tasks.

- **COMMUNICATION** Communication is an act of transmitting messages. It is a process whereby information is exchanged between individuals using symbols, signs or verbal interactions. Communication is important in order to gain knowledge.

- **TECHNOLOGY** Technology is the use of scientific knowledge, experience and resources to create processes products that fulfill human needs.

2. Main directions of development of ICT

- **ICT development** includes many types of infrastructure and services, ranging from telecommunications, such as voice, data, and media services, to specific applications, such as banking, education, or health, to the implementation of electronic government (e-government).
- *Each of these types has its own trends that vary across countries and regions. One of the most positive trends has been observed in voice communications.*



3. Standardization in ICT. ICT and program of the UN of the Sustainable Development of the Millennium (SDG)

ICT standardisation is the voluntary cooperation for the development of technical specifications that outlines the agreed properties for a particular product, service, or procedure.

3. Standardization in ICT

The Study Groups of ITU's Telecommunication Standardization Sector (ITU-T) assemble experts from around the world to develop international standards known as **ITU-T Recommendations** which act as defining elements in the global infrastructure of information and communication technologies (ICTs). Standards are critical to the interoperability of ICTs and whether we exchange voice, video or data messages, standards enable global communications by ensuring that countries' ICT networks and devices are speaking the same language.

Recommendations are standards that define how telecommunication networks operate and interwork.

ITU-T Recommendations are non-binding, however they are generally complied with due to their high quality and because they guarantee the interconnectivity of networks and enable telecommunication services to be provided on a worldwide scale.

The European standardisation organisations:

- ETSI – the European Telecommunications Standards Institute
- CEN – the European Committee for Standardization
- CENELEC – the European Committee for Electrotechnical Standardization

ICT and program of the UN of the Sustainable Development of the Millennium (SDG)

Sustainable Development Goals

- **Goal 1:** *Eradicate* extreme *poverty and hunger*
- **Goal 2:** Achieve universal primary education
- **Goal 3:** Promote gender equality and empower women
- **Goal 4:** *Reduce* child *mortality* rate
- **Goal 5:** Improve maternal health
- **Goal 6:** Combat HIV/AIDS, malaria, and other diseases
- **Goal 7:** Ensure environmental *sustainability*
- **Goal 8:** Develop a global partnership for development

Goals


1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
THE GLOBAL GOALS
For Sustainable Development
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE AND JUSTICE STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS

The role of ICT in the UN Sustainable Development Goals

The goals were created through a collaboration of the UN Development Programme (UNDP) and the UN Development Group (UNDG), which commenced an unprecedented global conversation among a diverse group of stakeholders over the last three years. The 17 goals are very ambitious, aiming to end poverty, extreme hunger, ensure quality education for everyone, improve healthcare, end gender inequality, protect, restore and promote sustainable use of ecosystems, etc. to improve social and economic development and end inequality.

ICTs have incredible potential to improve development outcomes in both the developing and the developed world, and it is self-evident that digital inclusion is necessary for sustainable development in the 21st century.

- ICTs enhance our capability to measure progress toward all the SDGs, evaluate the methods used to achieve them, learn what is working and not working, and improve the timeliness and quality of decision making.
- ICTs provide opportunities to streamline and enhance the efficiency and effectiveness of the activities we undertake across the development landscape.
- ICTs provide access to a whole new range of digitally-enabled products and services which strengthen local economies, local innovation and local communities.

ICTs are already empowering billions of individuals around the world – by helping them make better-informed decisions, by providing access to education resources and health information, and by delivering services such as mobile banking, e-government and social media networks.