第 49 卷第 03 期
2022 年 3 月

湖南大学学报（自然科学版）
Journal of Hunan University（Natural Sciences）

Vol. 49. No. 03.
March 2022

Open Access Article

INFORMATION TECHNOLOGY IN TECHNICAL SYSTEMS

Mir-Khusan Kadirov
Department Information Technologies, Tashkent State Technical University named after Islam Karimov, Tashkent, Uzbekistan, mirxusan.qodirov@tdtu.uz

Zoxidjon Tulyaganov
Department Information Technologies, Tashkent State Technical University named after Islam Karimov, Tashkent, Uzbekistan, zohidtulyaganov7@gmail.com

Nodirakhon Tojikhujaeva
Department Information Technologies, Tashkent State Technical University named after Islam Karimov, Tashkent, Uzbekistan, nodira.tojixujaeva_9@tdtu.uz

Nazimakhan Karimova
Department Information Technologies, Tashkent State Technical University named after Islam Karimov, Tashkent, Uzbekistan, nozimaxon.karimova_6@tdtu.uz

Feruza Zokirova
Department Information Technologies, Tashkent State Technical University named after Islam Karimov, Tashkent, Uzbekistan, fzokirova002@gmail.com

Annotation. This article is brought to your attention for students of technical universities technical higher education of students institutions in the curricula of undergraduate programs in full with the content of the existing subject "Computer Science «created in the hope of familiarity, otherwise "Informatics" requiring a repetition of a major part of the science reaches "Computer Science" and "Information Technology" (courses) are logically connected to each other it has long been thought that it should be. But, unfortunately, so far “Informatics” and “Information technologies ”from school it is unfortunate that the concept of teaching has not been developed. To date, in education "Informatics" and "Information technologies ”for continuous teaching of sciences We believe that conditions exist, the main ones the following: volume, content, importance and “Informatics” and Logical connection of "Information Technology" disciplines availability of the program; in a specialized program of sciences, ie specific features of undergraduate majors the possibility of teaching taking into account; information technology in the program of sciences the possibility of taking into account the development of sox. "Computer Science" and "Information Technology" module as one of the specific features of teaching system can be shown because this system is students takes into account the diversity of knowledge. Module Another positive feature of the system is the science expand, change,

Received: December 29, 2021 / Revised: January 23, 2021 / Accepted: February 27, 2021 / Published: March 09, 2022

About the authors：Mir-Khusan Kadirov

Corresponding author- Email: mirxusan.qodirov@tdtu.uz

improve the content and adding new module elements, as well as the module between which it is possible to move to new stages.

Key words: Science, improve, system, technology, condition.

注解。本文提请您注意技术大学的学生技术高等教育的学生机构在本科课程的课程中完整包含现有学科“计算机科学”**的内容，希望熟悉，否**则“**信息学**”**需要科学的主要部分的重复达到**“计算机科学”**和**“**信息技**术”（课程）在逻辑上相互联系，长期以来一直认为它应该是。但不幸的是，到目前为止，“**信息学**”**和**“**信息技**术” ”**从学校很**遗憾，教学的概念还没有发展起来。迄今为止，在教育“**信息学**”**和**“**信息技**术”**用于科学的持**续教学我们认为条件存在，主要有以下几点：数量，内容，重要性以及“**信息学**”**和**“**信息技**术”**学科的**逻辑联系程序的可用性；在科学的专业课程中，即本科专业的具体特点，考虑到教学的可能性；科学计划中的信息技术考虑到sox发展的可能性。 “计算机科学”**和**“**信息技**术”**模**块作为教学系统的具体特征之一可以表现出来，因为这个系统是考虑到学生知识的多样性。模块 **系**统的另一个积极特点是科学扩展、改变、改进内容和添加新的模块元素，以及模块之间可以移动到新的阶段。

关键词：科学、改进、制度、技术、条件。

Introduction. Information technology (IT) involves the study and application of computers and any type of telecommunications that store, retrieve, study, transmit, manipulate data and send information. Information technology involves a combination of hardware and software that is used to perform the essential tasks that people need and use on the everyday basis. Most IT professionals work with an organization and technically understand what they need in order to meet their needs, showing them what the current technology is that is available to perform their required tasks, then their current implementing technology in the setup, or creating a whole new set up. Information technology in today’s world understates the scope of the critical career field. There is much-unexpected importance of Information Technology. The 1958 article published in the Harvard Business Review refers to information technology that consists of three basic parts: computational data processing, decision support, and business software. Information technology refers to anything related to computing technology, such as networking, hardware, software, the Internet, or people working with these technologies. Many companies now have IT departments to manage computers, networks and other technical areas of their businesses. IT jobs include computer programming, network administration, computer engineering, web development, technical support, and many other related occupations. Since we live in the “world of information”, information technology has become a part of our daily lives. In the coming decades, many corporations will create so-called “IT departments” to manage computer technologies related to their business. Whatever these departments are working or will, work became the real definition of information technology.

The Information Technology program is designed to provide the basic foundation, skills, and knowledge for computer networking, applications, and support, along with an introduction to programming. Students will develop the skills necessary to prepare for certification exams and will learn how to develop, support, and integrate computing systems. They will acquire network planning and management skills and the ability to provide technical support. The program will provide hands-on experience in computer systems support and skill in network setup and maintenance. Since antiquity, TRM has been used by many people to treat and prevent both human and animal diseases [3]. Indeed traditional medical practices have been an important component in the healthcare system in Tanzania [4]. Previous studies reports that the practice of TRM is largely attributed to cultural, accessibility and affordability preferences [5,6] and has gained its preeminence in the provision of primary healthcare for local communities around the world thus reports from World Health Organization (WHO) indicate that 80% of the population in Latin America, Asia and Africa directly or indirectly depend on herbal remedies [7–9]. Furthermore, twenty five to thirty percent (25- 30%) of the current modern drugs are directly or indirectly derived from the traditionally known and used medicines that include Phytomedicine or medicinal plants [10–12]. Moreover, TRM can be exploited for possible commercialization by local communities [13].

Main part. Nowadays, it is hard to imagine starting a business in any field and managing it without a computer. In order to be a literate person in the 21st century, it is necessary to be computer literate and master information technologies. Every professional, regardless of the field in which he works, must have knowledge of the means of information production and methods of their use in order to perform his duties at the level of modern requirements. Therefore, the radical reforms being carried out in the field of education in the independent Republic, including the "National Training Program", are based on the prospects of social and economic development of the country, the needs of society, modern achievements in science, culture, technology and It is planned to reconsider the issue. In all educational institutions of the country today great attention is paid to the development of computer technology and the introduction of the Internet in the educational process, which is a global information network. The legal basis for this is the Decree of the President "On further development of computerization and introduction of information and communication technologies", the Cabinet of Ministers of May 23, 2001 "Development of computer and information technologies in 2001-2005, ensuring wide access to the Internet in international information systems" "is shown in the programs. That is why we pay a lot of attention to the teaching of computer science and information technology in our educational institutions. According to the requirements of the time, computer technology is developing rapidly today. Data management is especially important today. The demand for data management systems is growing day by day. We have to work on a large database and information. The rapid changes in the development of society are also affecting the field of computer science, of which it is a part. The impact is so strong that changes in information technology are changing and

enriching over the months, not years. There have been great advances and changes in information technology. The advent of new information technology or computer technology has radically changed the way we serve in this field. Imagine, until recently, solving a problem on a computer required algorithms, one of the programming languages, entering the program into computer memory, analyzing its errors and results. This work was done only by specialists. However, the growing number of non-experts in this field has created certain difficulties for the society. Information technology is a set of specific technical software tools that we use to solve a variety of life-related problems related to data processing. In particular, one of the most basic types of information is economic information. What sets it apart from ordinary information is that it relates to large groups of people, organizations, enterprises, and management processes in other economic structures. Informatics in the broadest sense is the only field of science, technology and production, that is, the processing, storage and transmission of information in all areas of human activity using computers and telecommunications. The name of the science of computer science means the interpretation and analysis of information from the Latin language, which studies the methods of collecting and processing information, the laws of the information process. The term computer science originated in the 1960s. The role of computer technology and other technical means in the emergence and development of computer science is invaluable, because information is processed directly under the auspices of computer technology, and this science has its own special, new, non-standard methods and techniques. So, informatics is a science that deals with the search, collection, storage, processing and use of information in various spheres of human activity. The main thing for computer science is information. It has been disguised as a basic concept in computer science. What is information? Information is a set of information that can be received by all our senses and the degree to which they are interconnected. The information will be in the form of a message. A message is a collection of information, such as speech, text, images, tables, numerical data, and so on. is the type of view. Human beings receive information through the senses through external influences. These are: taste, smell, hearing, sight, skin and body. There is a great need for media to collect, process and transmit information. Transmission means - satellite, television.

Conclusion. The introduction of information systems can yield the following results: to have rational options for solving management problems through the introduction of mathematical methods and intelligent systems; to save employees from performing difficult and monotonous work in exchange for automation; ensuring the reliability of information;

transfer data from paper to magnetic media; improving the flow of information in the institution and the structure of record keeping; reduction of production costs and services.

References

1. Bernardini A, Antonacci F, Sarti A (2018) Wave digital implementation of robust first-order differential microphone arrays. IEEE Signal Process Lett 25(2):253–257. https://doi.org/10. 1109/LSP.2017.2787484

2. Bernardini A, D'Aria M, Sannino R (2017) Beamforming method based on arrays of microphones and corresponding apparatus. US Patent US9913030B2

3. Bernardini A, D'Aria M, Sannino R, Sarti A (2017) Efficient continuous beam steering for planar arrays of differential microphones. IEEE Signal Process Lett 24(6):794–798. https:// doi.org/10.1109/LSP.2017.2695082

4. Bernardini A, Maffezzoni P, Daniel L, Sarti A (2018) Wave-based analysis of large nonlinear photovoltaic arrays. IEEE Trans Circuits Syst I Regul Pap 65(4):1363–1376. https://doi.org/ 10.1109/TCSI.2017.2756917

5. Bernardini A, Maffezzoni P, Sarti A (2019) Linear multi-step discretization methods with variable step-size in nonlinear wave digital structures for virtual analog modeling. IEEE/ACM Trans Audio Speech Language Process 27(11):1763–1776. https://doi.org/10.1109/TASLP. 2019.2931759

6. Bernardini A, Sarti A (2016) Dynamic adaptation of instantaneous nonlinear bipoles in wave digital networks. In: Proceedings of the 24th European signal processing conference Budapest, Hungary. https://doi.org/10.1109/EUSIPCO.2016.7760406

7. Bernardini A, Sarti A (2017) Biparametric wave digital filters. IEEE Trans Circuits Syst I Regul Pap 64(7):1826–1838. https://doi.org/10.1109/TCSI.2017.2679007

8. Bernardini A, Sarti A (2017) Canonical piecewise-linear representation of curves in the wave digital domain. In: Proceedings of the 25th European signal processing conference (EUSIPCO), pp 1125–1129. Kos, Greece. https://doi.org/10.23919/EUSIPCO.2017.8081383

9. Bernardini A, Sarti A (2019) Towards inverse virtual analog modeling. In: Proceedings of the 22nd conference digital audio effects, Birmingham, UK. Paper number #8

10. Bernardini A, Sarti A, Maffezzoni P, Daniel L (2018) Wave digital-based variability analysis of electrical mismatch in photovoltaic arrays. In: Proceedings of the IEEE international symposium on circuits and systems (ISCAS), pp 1–5. Florence, Italy. https://doi.org/10.1109/ISCAS. 2018.8351026

11. Bernardini A, Vergani AE, Sarti A (2019) Wave digital modeling of nonlinear 3-terminal devices for virtual analog applications. Springer circuits, systems, and signal processing (CSSP) (Submitted)

12. Bernardini A, Werner KJ, Maffezzoni P, Sarti A (2018) Wave digital modeling of the diodebased ring modulator. In: Proceedings of the 144th convention audio engineering society, Milan, Italy. Convention paper #10015

13. Bernardini A, Werner KJ, Sarti A, Smith III JO (2015) Modeling a class of multi-port nonlinearities in wave digital structures. In: Proceedings of the European signal processing conference, Nice, France. https://doi.org/10.1109/EUSIPCO.2015.7362466

14. Bernardini A, Werner KJ, Sarti A, Smith III JO (2015) Multi-port nonlinearities in wave digital structures. In: Proceedings of the IEEE International Symposium on Signals, Circuits and Systems, Ia¸si, Romania. https://doi.org/10.1109/ISSCS.2015.7203989

15. Bernardini A, Werner KJ, Sarti A, Smith III JO (2016) Modeling nonlinear wave digital elements using the Lambert function. IEEE Trans Circuits Syst I Regul Pap 63(8):1231–1242. https://doi.org/10.1109/TCSI.2016.2573119

16. Bernardini A, Werner KJ, Smith III JO, Sarti A (2019) Generalized wave digital filter realizations of arbitrary reciprocal connection networks. IEEE Trans Circuits Syst I Regul Pap 66(2):694–707. https://doi.org/10.1109/TCSI.2018.2867508

17. Borra F, Bernardini A, Antonacci F, Sarti A (2019) Uniform linear arrays of first-order steerable differential microphones. IEEE/ACM Trans Audio Speech Language Process 27(12):1906– 1918. https://doi.org/10.1109/TASLP.2019.2934567

18. Mir-khusan Kadirov, Zoxidjon Tulyaganov, Nodirakhon Tojikhujaeva, Nazimakhan Karimova. Development of an algorithm for implementing mandatory and role-based access control. International Journal of Emerging Trends in Engineering Research (IJETER), Vol. 8, Issue 4, India 2020, P.1027-1033. https://doi.org/10.30534/ ijeter/2020/ 12842020

19. Mir-khusan Kadirov, Dilfuza Tadjibaeva, Alisher Rasulev, Farida Islomova. Joint Implementation of Mandated and Role-Based Delimitation of Access to Information Flows in Infocommunication Systems. International Journal of Emerging Trends in Engineering Research (IJETER), Vol. 8, Issue 5, India 2020. P. 1892-1896. https://doi.org/10.30534/ijeter/2020/68852020