№	Статья и ссылка	Аннотация
1.	Akhmetzhanova, S., & Adilova, A. (2021). MODELING OF THE INFORMATION-ANALYTICAL SYSTEM OF ACCOUNTING OF SCIENTIFIC WORKS OF UNIVERSITY EMPLOYEES. *Scientific Journal of Astana IT University*, (5), 4-10. Available: https://doi.org/10.37943/AITU.2021.24.37.001	The article describes development of an information system for storing the results of scientific work of the Taraz Regional University named after M. H. Dulaty. Today, such works are organized in a non-automated way. In addition, this leads to a number of anomalies, namely: errors in data entry, their duplication, complexity of preparing reports, difficulties in finding the necessary information because of the complexity of the information system. In order to solve such problems and to improve data quality it is necessary to create a research analytical information system that allow to reduce manual workload and use simple and convenient access system to stored information using various queries. The aspects of creating a research information system described in the article can be implemented in any higher educational institution of the Republic of Kazakhstan. In order to create an information system, a functional model was created using the Fusion Process Modeler 4.0 CASE-system. After the decomposition of the diagram, five functions were identified: "Accounting the research staff", "Research", "Accounting the publications", "Dissertation defense", "Reporting". Modern tools are used in the development of a system for analyzing and monitoring the research activities of TarRU: PHP scripting language, which is widely used for web applications, JavaScript, which is well known as a scripting language for interactivity on web pages in browsers, Microsoft SQL Server relational database management system.
2.	Biloshchytska, S., Biloshchytskyi, A., Omirbayev, S., Mukhatayev, A., Faizullin, A., & Kassenov, K. (2021). A CONCEPTUAL MODEL AND PROCESS MANAGEMENT METHOD OF THE PLANNING AND MONITORING OF THE WORKLOAD IN THE EDUCATIONAL ENVIRONMENT. *Scientific Journal of Astana IT University*, (5), 11-32. Available: https://doi.org/10.37943/AITU.2021.22.54.002	The article formulates the aims of HEI's activities, as well as approaches to managing all actions that ensure the achievement of the stated aims. The process approach is defined as the main one in the university management system. It is shown that the main directions of improving the activities of the university are the transition to the application of the process approach to the management of HEI and its informatization. On this basis, it is necessary to develop new, more modern university management systems that meet the contemporary requirements for the governance of multifunctional facilities and implement them in the form of process systems. We propose a conceptual model of the implementation of the functions to plan the educational process. The effects on planning functions are presented and the interrelation of these functions in the traditional form of planning is described. The tasks are formulated that need to be solved for modeling and optimizing business processes of planning and monitoring the academic workload to create an effective information technology for automating the functions of information processing. We propose a structural model for the implementation of information and procedural components of IT for planning and monitoring the educational environment. The implementation of this model in software provides the calculation of the optimal planned workload of students and teachers, considering the conditions in which the educational process is implemented.
3.	Burbekova, S. (2021). FORMATION OF COMMUNICATIVE COMPETENCIES OF FUTURE IT SPECIALISTS. *Scientific Journal of Astana IT University*, (5), 33-39. https://doi.org/10.37943/AITU.2021.80.15.003	The purpose of the study is aimed at performing a verification of the teaching conditions for effective communicative competence formation of the future IT professionals. Creating conditions of success, motivation enhancement, use of engaging group work, encouraging students' participation in project work are the key factors and conditions for effective communicative competence formation. Scientific literature analysis, «communicative competence» concept clarification; analysis of pedagogical conditions of IT students' communicative competence formation is discussed in details. Research methodology used is questionnaire, interview, quantitative and qualitative data analysis and processing of the results as well as analysis of class observation in AITU done within the IT students' communicative competencies research. The national technological development strategy focuses both on the development of science-intensive technologies and technological cooperation and partnership. The need of society in IT specialists with a high personal and professional culture is determined by the need of a sufficient level of communicative competence to build professional relationships in workplace.
4.	Bushuyeva, N., Bushuiev, D., & Bushuyeva, V. (2021). MODELLING OF EROSION OF THE AGILE LEADERSHIP PROJECT MANAGER COMPETENCES. *Scientific Journal of Astana IT University*, (5), 40-51. Available: https://doi.org/10.37943/AITU.2021.53.86.004	The structure and functions of mechanisms of development and erosion of competencies in innovative projects of implementation of information and communication technologies are considered. The factors of development and erosion of competencies are determined and a model of competence and competency assessment for the successful implementation of information and communication technologies is identified, for example, for master's degree in project and program management. The proposed model of competence development of the project team for the creation and implementation project is based on the balance of factors of development of competencies of the innovation project and their erosion in the process of

		implementation. Investigation of factors of development and erosion of competencies in the management of innovative projects can adequately respond to changing the profile of competencies of innovation projects. At the same time, the analysis allows the project manager to form effective programs for acquiring certain competencies for team members and other interested parties. The proposed model of the factors of development and erosion of the system of competencies is tested on the examples which confirmed its adequacy and effectiveness.
5.	Bushuyev, S., Murzabekova, S., & Khussainova, M. (2021). COMPETENCE APPROACH IN AGILE TRANSFORMATION OF EDUCATION ESTABLISHMENT. *Scientific Journal of Astana IT University*, (5), 52-62. Available: https://doi.org/10.37943/AITU.2021.97.75.005	The subject of the article is development of project, programs and project portfolios management systems with drivers of innovation in Agile transformation of Education Establishment is considered. Substantial changes in the environment require further research into the effectiveness of the application of existing agile methodologies, knowledge systems and competencies of project managers and their leadership. The foundations of environmental change lie in changing the decision-making paradigm in innovation project and programs management in Agile transformation of Education Establishment. The goal is to explore modern approaches to leadership formation when applying agile methodologies of its specificity from the point of view of decision-making processes in project management. The problems of leadership creation and development in the application of agile project management methodologies for the implementation of information and communication systems are considered. The results of studies were conducted on the basis of a competency-based approach modelled by the International Project Management Association. The content model of competency of the leader applying agile management is presented. Conclusion: The Agile leadership and leadership behaviour patterns are formed in a project management behavioural competency system based on agile technology methods and tools. These competencies included: Self-reflection and self-management, Personal integrity and reliability, Personal communication, Relationships and interaction, Leadership, Teamwork, Conflicts and crises, Inventiveness, Reconciliation, and Orientation to results. The patterns of project managers' behaviour as agile leaders in project product creation and agile project management are explored. The differences in the behaviour patterns of leaders and agile leaders were examined by behavioural competencies within the identified key competency indicators. Such patterns allowed the authors to identify bottlenecks in the application of agile project management methodologies in the context of the development of innovative products of innovation systems.
6.	Danchenko, E., Bakulich, O., Teslenko, P., Bedrii, D., Bielova, O., & Semko, I. (2021). Information technology of integrated risk management of scientific projects under uncertainty and behavioral economy. *Scientific Journal of Astana IT University*, (5), 63-76. https://doi.org/10.37943/AITU.2021.69.52.006	The relevance of the topic is that currently the development of information technology allows to implement integrated risk management of scientific projects, which, in turn, expands the range of opportunities for project managers to manage integrated human risks, conflicts and factors of behavioral economics. This study aims to develop the structure of the information base for integrated risk management of scientific projects under uncertainty conditions and behavioral economics. To achieve this goal it is necessary to perform the following tasks: • to analyze information technologies that can be used to create information bases for risk management of scientific projects; • to develop a scheme for the implementation of information technology for integrated risk management of scientific projects under uncertainty conditions and behavioral economics; • to develop an algorithm for filling the information technology for integrated risk management of scientific projects under uncertainty conditions and behavioral economics. The information technology of integrated risk management of scientific projects in the conditions of uncertainty and behavioral economy which will be constructed on the basis of the developed structure of information base IRMSP is offered. The research was conducted within the framework of project management methodology using information technology tools. Thus, the structure of information technology of integrated risk management of scientific projects under uncertainty conditions and behavioral economics, as well as the scheme of its implementation was designed, which in turn will allow the head of the scientific project and his team to implement the IRMSP methodology developed by the authors in order to ensure the successful and timely implementation of the scientific project to meet the needs of its stakeholders.

7.	Kalikova, A. (2021). Statistical analysis of random walks on network. *Scientific Journal of Astana IT University*, (5), 77-83. https://doi.org/10.37943/AITU.2021.99.34.007	This paper describes an investigation of analytical formulas for parameters in random walks. Random walks are used to model situations in which an object moves in a sequence of steps in randomly chosen directions. Given a graph and a starting point, we select a neighbor of it at random, and move to this neighbor; then we select a neighbor of this point at random, and move to it etc. It is a fundamental dynamic process that arises in many models in mathematics, physics, informatics and can be used to model random processes inherent to many important applications. Different aspects of the theory of random walks on graphs are surveyed. In particular, estimates on the important parameters of hitting time, commute time, cover time are discussed in various works. In some papers, authors have derived an analytical expression for the distribution of the cover time for a random walk over an arbitrary graph that was tested for small values of n. However, this work will show the simplified analytical expressions for distribution of hitting time, commute time, cover time for bigger values of n. Moreover, this work will present the probability mass function and the cumulative distribution function for hitting time, commute time.
8.	Kurmangaliyev, A. (2021). ISSUES OF ICT INTEGRATION IN RURAL SECONDARY SCHOOLS OF KAZAKHSTAN. *Scientific Journal of Astana IT University*, (5), 84-93. https://doi.org/10.37943/AITU.2021.45.41.008	The problem with attaining education equality for various categories of the population has been one of the priority topics of social and political studies. Kazakhstan has recently stated the aim to ensure equal access for all participants in the educational process to the best resources and technologies. However, half of all state schools are in rural areas and supporting them is often inadequate in comparison to urban schools. These schools have minimal infrastructure, for example, a lack of proper Internet access and professional development opportunities for teachers. The barriers to information and communication technologies in education seem to be one of the main issues for teaching staff in rural settings. The purpose of this research was to explore the issues of ICT integration in teaching and learning processes among secondary school teachers. This multiple case study explored the experiences of eight instructors from three rural schools through semi-structured interviews, lesson observations, and curriculum analysis. The results reveal evidence of the very poor quality of the Internet in visited rural schools. The findings also demonstrate that teachers often have to use their personal mobile phones at work despite the ban from administration. This, along with the poor technological capability of the schools, negatively affects the educational process in visited schools.
9.	Serbin, V., & Zhenisserov, U. (2021). ANALYSIS OF MACHINE LEARNING METHODS FOR PREDICTIONS OF STOCK EXCHANGE SHARE PRICES. *Scientific Journal of Astana IT University*, (5), 94-100. https://doi.org/10.37943/AITU.2021.47.22.009	Since the stock market is one of the most important areas for investors, stock market price trend prediction is still a hot subject for researchers in both financial and technical fields. Lately, a lot of work has been analyzed and done in the field of machine learning algorithms for analyzing price patterns and predicting stock prices and index changes. Currently, machine-learning methods are receiving a lot of attention for predicting prices in financial markets. The main goal of current research is to improve and develop a system for predicting future prices in financial markets with higher accuracy using machine-learning methods. Precise predicting stock market returns is a very difficult task due to the volatile and non-linear nature of financial stock markets. With the advent of artificial intelligence and machine learning, forecasting methods have become more effective at predicting stock prices. In this article, we looked at the machine learning techniques that have been used to trade stocks to predict price changes before an actual rise or fall in the stock price occurs. In particular, the article discusses in detail the use of support vector machines, linear regression, and prediction using decision stumps, classification using the nearest neighbor algorithm, and the advantages and disadvantages of each method. The paper introduces parameters and variables that can be used to recognize stock price patterns that might be useful in future stock forecasting, and how the boost can be combined with other learning algorithms to improve the accuracy of such forecasting systems.