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## METHODS OF USING AND CREATING MASSIVE OPEN ONLINE COURSES IN THE EDUCATIONAL PROCESS

### ЖАППАЙ АШЫҚ ОНЛАЙН КУРСТАРЫН ҚҰРУ ЖӘНЕ ОҚУ ПРОЦЕСІНДЕ ҚОЛДАНУ ӘДІСТЕРІ

### СОЗДАНИЯ МАССОВЫХ ОТКРЫТЫХ ОНЛАЙН-КУРСОВ И МЕТОДЫ ИСПОЛЬЗОВАНИЯ В ОБРАЗОВАТЕЛЬНОМ ПРОЦЕССЕ

**Abstract.** The article discusses one of the most pressing problems that has been common in society lately – the method of distance education. The considered method of distance education, with the introduction of mass open online courses into the educational process, is the use of various advanced world online courses, the main purpose of which is to provide students with direct access to educational materials, as well as increase their ability as qualified specialists in addition to obtaining the necessary resources for their professional interests and The article discusses the integration of advanced educational programs into the educational process and ways to use the Open Edx platform in the development of a mass training course. Technological and methodological issues related to this process are analyzed. The role and importance of advanced training cases for users in the use of Distance Learning Technologies was discussed, and the cases of their use in the online form were analyzed. Here, using the Open Edx platform, work has been done to create a massive open online course in the field of programming and teaching the basics of programming to students and every applicant who wants to learn the programming language.

**Keywords:** MOOC, Open EdX, mass open online courses, e-learning, distance learning.

**Аңдатпа.** Мақалада соңғы кезде қоғамда жиі кездесетін өзекті мәселелердің бірі – қашықтықтан білім беру әдісі қарастырылады. Қарастырылып отырған қашықтықтан білім беру әдісі жаппай ашық онлайн курстарын оқу процесіне енгізе отырып, негізгі мақсаты-студенттердің оқу материалдарына тікелей қол жеткізуін қамтамасыз ете отырып, сондай-ақ оларды өздерінің кәсіби мүдделері үшін қажетті ресурстарды алумен қатар білікті маман ретінде қабілеттілігін арттыруға мүмкіндік беретін және әлемдік нарықта жоғары бәсекелестікке ие болу мүмкіндігін арттыру болып табылатын әртүрлі алдыңғы қатарлы әлемдік онлайн курстарын қолдану болып табылады. Мақалада білім беру процесіне алдыңғы қатарлы білім беру бағдарламаларын оқу процесіне интеграциялау және жаппай ашық оқыту курсы жасауда Open Edx платформасын қолданудың жолдары қарастырылады. Осы процеске байланысты технологиялық және

әдістемелік мәселелер талданады. Қашықтықтан оқыту технологияларын қолдану кезіндегі пайдаланушыларға арналған біліктілікті арттыру істерінің алатын орны, маңыздылығы туралы айтылып, оларды онлайн түрінде қолдану істері талданған. Мұнда Open Edx платформасын қолдана отырып студенттерге және программалау тілін үйренгісі келген әрбір талапкерлерге программалау тілі саласындағы білім беретін және программалаудың қыр-сырын үйрететін жаппай ашық онлайн курсын құру жұмысы жасалынған.

**Түйін сөздер:** MOOC, Open EdX, жаппай ашық онлайн курстар, электрондық оқу, ара қашықтықтан білім алу.

**Аннотация.** В статье рассматривается одна из самых актуальных проблем, распространенных в обществе в последнее время - метод дистанционного образования. Рассматриваемый метод дистанционного образования, с внедрением в образовательный процесс массовых открытых онлайн-курсов, представляет собой использование различных передовых мировых онлайн-курсов, основной целью которых является предоставление студентам прямого доступа к учебным материалам, а также повышение их способностей как квалифицированных специалистов в дополнение к получению необходимых ресурсов для своих профессиональных интересов и в статье обсуждаются вопросы интеграции передовых образовательных программ в образовательный процесс и способы использования платформы OpenEdx при разработке массового учебного курса. Анализируются технологические и методологические вопросы, связанные с этим процессом. Обсуждается роль и значение кейсов повышения квалификации пользователей в использовании технологий дистанционного обучения, анализируются случаи их применения в онлайн-форме. Здесь, используя платформу Open Edx, была проведена работа по созданию массового открытого онлайн-курса в области программирования и обучения основам программирования студентов и каждого желающего изучить язык программирования.

**Ключевые слова:** MOOC, Open EdX, массовые открытые онлайн-курсы, электронное обучение, дистанционное обучение.

*Introduction.* Education has changed dramatically over the past decade. Now it is very difficult to imagine the educational process without the internet. Therefore, the use of internet technologies is currently a rational, justified stage in the development of Education. The internet allows its users to enter into relations with each other, including "Teacher - Student", which has led to the emergence of a new learning environment and a new (innovative) form of the learning process. Universities are interested in finding effective educational models. This is necessary in order to attract not only from their own countries, but also foreign students. Such measures make it possible to increase the competitiveness of universities, which is due to high competition in the global market of educational services. In this regard, several types of training are being developed and applied in educational environments in the context of what is happening around the world. For distance education of students, such methods as uploading lessons to special platforms, e-mail, and using special conference organizing platforms are used. Since the 2020 academic year, our university has been working on the introduction of mass open online courses (MOOC) into the educational process. Millions of people are learning in thousands (more than 8,000) of MOOCs offered by prestigious universities (more than 700) worldwide. A MOOC (Massive Open Online Course) is a free, massive, open, online course, that allows unlimited participation [1]. One of the leading strategies for the development of education is to create the most accessible conditions for each case of obtaining education. In this regard, mass open online courses are becoming more and more popular, since the best educational institutions of the world are involved in their development. The first online courses were launched in September 2013, and since then more than three million people have already joined Future Learn. Any article, video or audio fragment allows students to leave comments and ask questions, teachers give their recommendations and answer students' questions [2].

Because of the coronavirus, all participants in the educational process were forced to start using modern technologies[3]. Modern society, developing at a high speed, is characterized by the transition to the information age, the development of information technologies and virtual

communications. These changes require paradigms and changes in the education system, the search for new approaches and technologies for teaching so that it meets the needs of a modern person. The year 2020 has become a great test for the whole world. New ways to implement socio-economic tasks had to be sought in all areas of professional activity, including educational[4].

Many educational institutions have created solutions to their increasing educational needs through the development of distance education programs[5].

The creation of an open educational space that provides free access to education and information exchange is the key to the well – being and success of each individual and the state on the path of self-improvement, without breaking away from work. An integral part of the formation of the information society is the development of an open model of Education. An open education system ensures continuous self-development with the exchange of information, material and human resources and constant contact with the external environment [6]. The development of Information Technologies has also had an impact on the traditional education system, as a result of which, after the e-learning system, the mobile education system, then education in social networks, and finally, a new direction that has recently become widespread – mass open online courses. The main goal of open education is to ensure the right of a person to education, the openness of which is expressed not only to students, but also reflects the openness of educational resources and the educational process. The diversity of tools, social networks and internet activities in online spaces is becoming an opportunity for open learning, which is developing as an integral part of the universe. Over the past decade, a number of higher education institutions (universities) have been taking advantage of the mass open online course (Moos – mobile open online course; Moos –mass open online course) for local and remote students to access new data, and this open model of education is making it easier for the public to learn. In general, this new technology is developing at a pace that is relevant to the education system. Mass open online course – a training course that uses e-learning technologies to enable mass interactive participation and open access over the Internet [7].

*Materials and methods.* Massive open online courses (MOOK) allow you to consolidate the knowledge gained with the help of exercises, including video, text, forum. Covers a wide range of teaching disciplines, and tens of thousands of users can also study with professors from anywhere in the world.

Distance learning technologies using the internet have been used both to create individual advanced training courses for users and for higher education. The main forms of distance learning are divided into online and offline. The following features of distance learning are highlighted:

- flexibility-students can learn at a convenient time and place;
- distance-students are not limited in distance and can study regardless of their place of residence;
- efficiency-the cost of long trips to an educational institution is significantly reduced, i.e. if we give an overview of the main tasks of the educational process using distance learning technologies [8, 9]:
- introduction of information technologies in the education system;
- privatization of the education system;
- improving the effectiveness and quality of Education;
- providing educational services to those for whom traditional forms of training are not available. An important quality of distance learning is the self-learning of students, that is, self-learning, since it is responsible for the effectiveness of its knowledge, the amount of knowledge gained

and long-term memory. The results of his independent work will depend on his direct intentions, as well as "the level of organization, discipline, diligence, abilities, culture of communication and technical capabilities."

– Let's consider and dwell on several principles that allow you to organize mass open online courses :

– To ensure a high level of quality of training courses in educational institutions (development, accreditation, knowledge control, etc.), mass open online courses are carried out on the basis of international experience (Edx, Coursera, Cisco, FutureLearn, etc.) with an assessment of the conformity of educational results and competencies of students.

– Educational organizations organize a massive open online course that provides a quality system of educational and methodological expertise and approbation of courses before posting them on the online platform.

– Assessment procedures on the online platform are subject to the following requirements:

1) when conducting events related to the assessment of training results, a person identification. The following technologies are used for identity identification [10,11]:

- e unique pattern of typing text on the keyboard (program that checks the speed of typing symbols, pressing keys on the keyboard, pressing between key combinations (depending on the search for letters on the keyboard) time, rhythm typing);

- e Certification Centers (conducting events at workplaces provided by an organization that provides; online proctoring (remote monitoring of students during events using cameras and means of transmitting the screen of the device on which the student is working);

- biometric technology (using automated means of identification and monitoring the event Conditions);

2) information on the educational achievements of students is accessed on the basis of a certificate of completion of the course (at the link indicated in the student's certificate or under the account).

- Trainees in online courses who have passed all control tasks and final exams are issued the appropriate certificates. Content of the Certificate:

- uniform identification of the identity of the student to whom the certificate was issued;

- the certificate contains a link to his / her electronic address located on the internet, on the domain associated with the online platform of the University;

- the certificate contains information about the level of assimilation of educational results (assessment criteria, curriculum or other data are recorded in the course information, or directly in the certificate or in the electronic version).

If there is a certificate confirming the results of training in an online course included in the list approved by universities (universities), the student hopes to include the studied discipline in the individual curriculum planned for the current or upcoming academic period.

The procedure and conditions for testing the results of mastering open online courses developed by universities of the Republic of Kazakhstan, requirements for the results of training on online platforms for open online courses sent for re-testing/re-certification are implemented within the framework of the agreement between universities on internal academic mobility of students.

Determination of the labor intensity of educational work of students under the IAP is carried out on the following basis [12]: a) when assessing the labor intensity of educational work of a student on an online platform, the European Credit Transfer System (ECTS – the European Credit Transfer System) is used; b) when recalculating online courses, the number of credits, trial units or academic hours specified in the issued certificate are re-recorded in strict accordance with the

academic disciplines included in the curricula and individual curricula of the specialty for the current or upcoming academic period selected by the student;

2) online courses in the implementation of combined learning technology recalculation of the number of credits is carried out using distance learning technology within the framework of a proportional ratio fixed in the structure of the discipline; 4) recalculation of credits is determined by the educational and methodological Commission of the University and published openly on the corporate portal (website) of the University [13].

The main goal of mass open online courses (MOOK) is to provide students with direct access to educational materials, as well as to provide the necessary resources at the disposal of teachers in order to use them for their professional interests. MOOK provides an opportunity to obtain a certificate from the institution that distributes its educational material. This, in turn, contributes to the acquisition of new knowledge and skills, increases the chances of getting a job.

There are many different distance learning systems. For example, through the Moodle distance learning system, you can organize Online training in a network environment using Internet technologies. The "Moodle" software package is considered a specialized educational process management system. The Moodle system refers to software, which in turn allows you to reduce financial costs. As a result, distance education has become much cheaper than traditional education. The diagram of functioning of the Moodle system is shown in Figure 1:



**Figure 1.** Moodle system operation diagram

The Massachusetts Institute of Technology and Harvard University have joined forces to create a free educational platform EDX in the MOOC format. One of the most popular massive open online platforms offering courses in linguistics, pedagogy and computer science is EDX [14].

Unlike the Coursera platform, this project is not based on commercial interests and works with open source. Within two years EDX has been visited by more than 3 million users, and the number of courses has reached three hundred.

According to the university leaders, the Internet platform will be used not only to create a global community of online students, but also to search for teaching methods and technologies. Online courses allow researchers to track student progress by identifying problems in the education system.

The EDX platform's technologies and teaching methods are not much different from other MOOC platforms. Lectures are divided into modules lasting 10 minutes and are replaced by exercises for better assimilation of the material. If the student receives an incorrect answer, the program analyzes the error and gives recommendations for its correction.

Some EDX courses use unique software specifically designed for specific topics or teaching methods.

Well-known IT companies are also involved, which use software when teaching students.

Students can now access VMware Workstation 9 and VMware Fusion 5. These programs allow them to manage various virtual machines on your computer, such as Linux, Windows and others.

EDX Management encourages the use of any tools that can help both students and teachers improve the learning process. The first feature of the EDX platform was the presence of quality in the foreground. EDX does not aim to be a strong platform. Their main task is to qualitatively consider education as a transformation into a basic education system. Students must come out of their "virtual walls", and any work the giver considers it a great honor to hire them. Therefore, very strict requirements are imposed on EDX courses. The second feature of the platform is the use of educational models. That is, for the mass involvement of students from different countries in the educational process, EDX Management uses hybrid models of virtual and real learning.

What is Open DX Studio? Open EDX Studio is considered a tool used to build courses. Open EDX includes two main components. Studio-x Blocks, a tool for managing parts of the personnel, with which the user can build in order. Each black is compatible with the SCORM standard, so in Open EDX materials include Camtasia, Articulate Storyline, Adobe Captivate and is easily copied from other systems, which gives greater flexibility in creating and organizing content.

Open EDX LMS is a program that allows teachers to manage courses, track student progress, measure their progress – a system that helps to measure the effectiveness of actions.

Processes implemented on the EDX platform: maintaining and registering a login-students, teachers, administrators, staff;

From the breadth of the course content-content creation, educational experience, course materials, assessment, discussion board, wiki pages and issuance of a certificate of completion of the course. The possibilities are shown in Figures 2, 3:



**Figure 2.** Course settings on the EDX platform

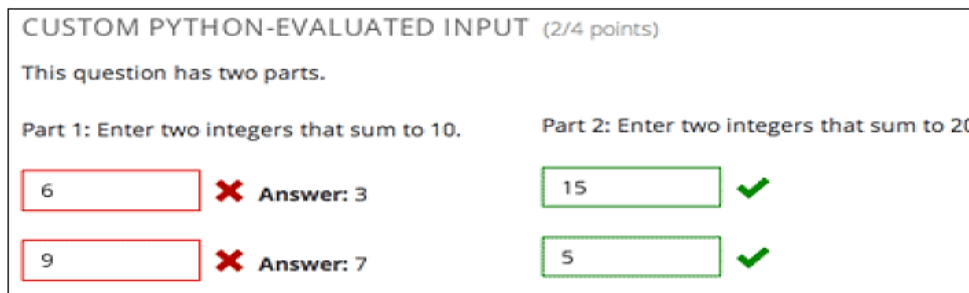


Figure 3. Discussion board

Educational analysis can include registration statistics, statistics of those who stopped taking the course, grades, and the page for creating these changes can be viewed in Figure 4:

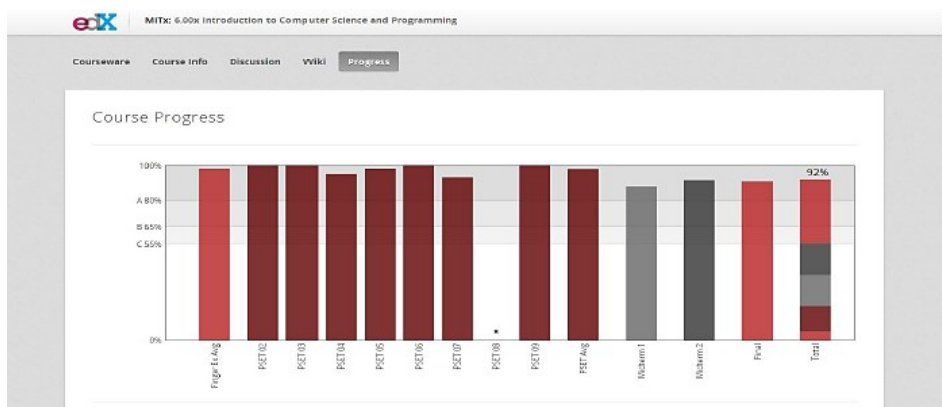
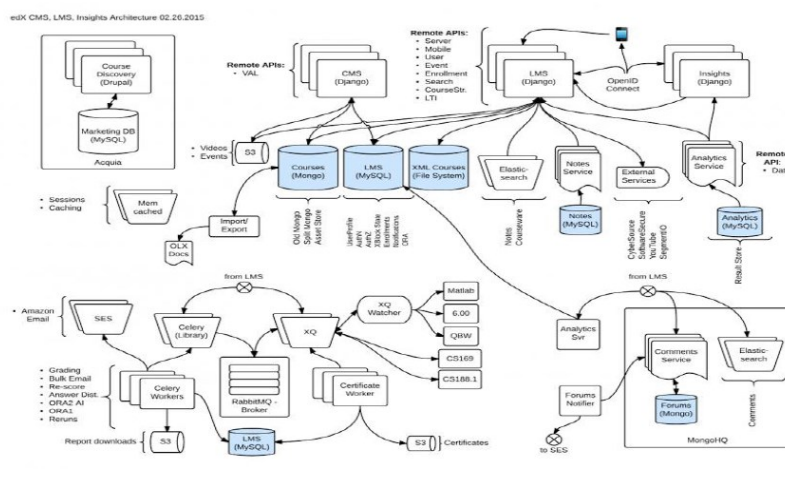


Figure 4. Education analysis

The architecture of the OpenEDX platform is shown in Figure 5:

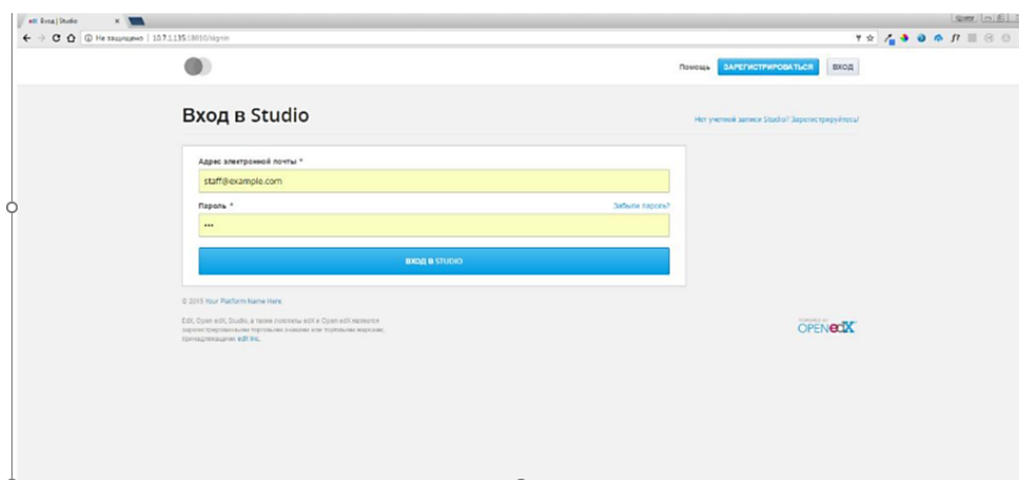


**Figure 5.** The architecture of the OpenEDX platform

EDX provides all the necessary information about student activities. Using reports in EDX, you can test the decisions students make to design the courses they are creating, helping them track how they are working. Using this technology, the course " Introduction to programming" was created.

*Results.* The creation of a massive open online course is carried out on the EDX platform. Basically, this platform consists of two parts:

- LMS-Learning Management System, that is, in this part, students register for the course and conduct the educational process;
- CMS is a Create management System, that is, Course authors can have the ability to create, modify a course with the permission of system administrators. The following Figure 6 shows the CMS.

**Figure 6.** Create management System

Not every user can create a course without administrator permission, even if they are registered to participate in the course. The administrator authorizes the course creator to enter the course content. To do this, the administrator adds the author of the course to the "course Team" section. This process is shown in Figure 7:



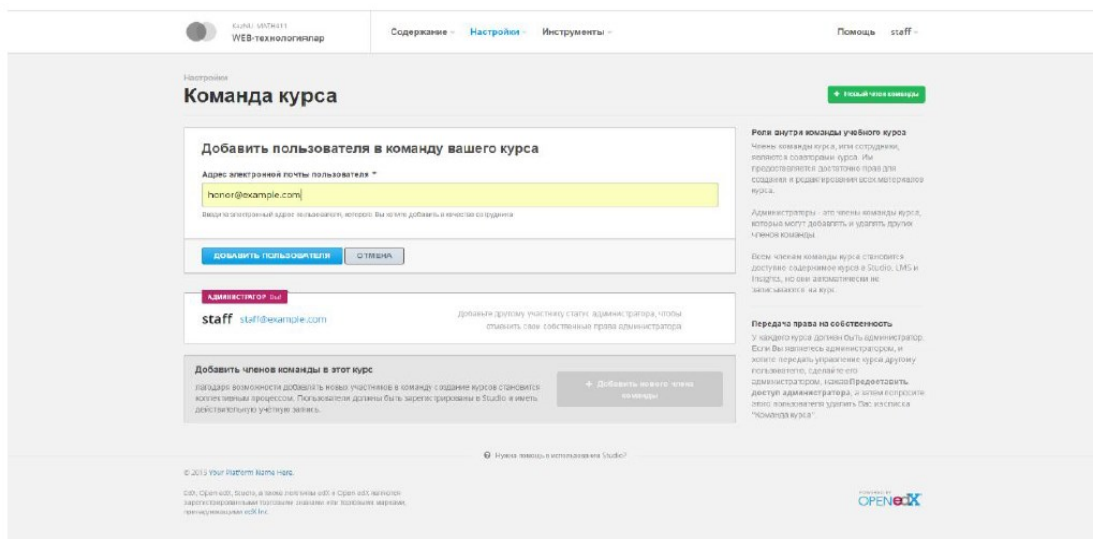


Figure 7. Course authorization page

The author of the course begins by creating the structure of the course. The structure of the course is shown in Figure 8:

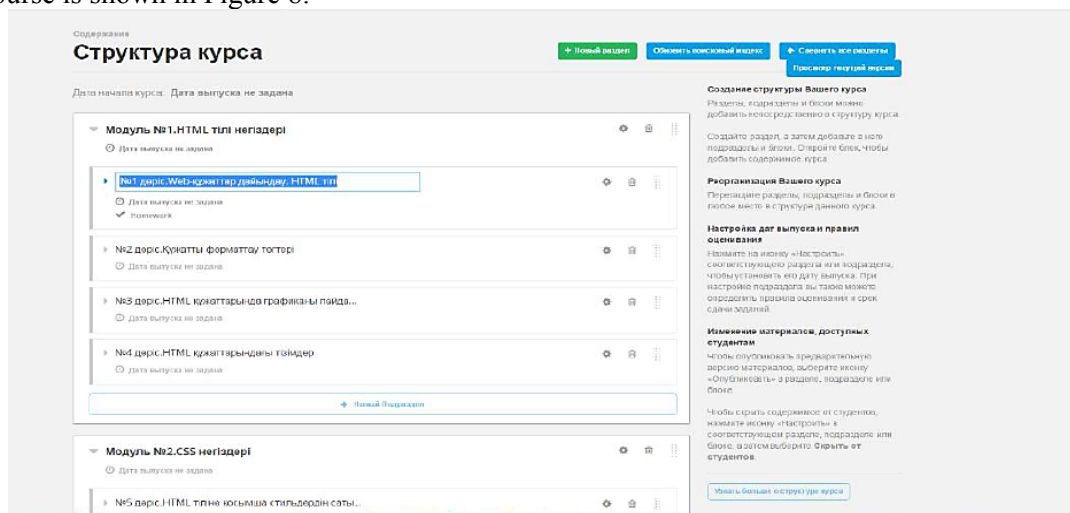


Figure 8. The structure of the course

The Edx platform will have 3 course levels. They include: section, department, block. In sections – modules, in department – lectures and blocks – tasks, discussions, video lectures, announcements and other materials are placed. The largest part of the course is covered by sections. And the department is made up of divisions. The sections display a list of lectures.

You can add video lectures to blocks. To do this, select the " video or video " part and adjust its settings. To insert a specific video, writes the URL on its YouTube page. At first, register on the YouTube page, insert the video into the same platform and display the link to the resulting video on the edX platform, specifying the "Access by Link" setting. Course Details page-shows

the information that is issued when registering for the course. In what language the course is compiled in this part, the main goals, relevance and objectives of the course are briefly outlined, information about the authors who make up the course and a description of the course are presented. This process can be seen in Figure 9:

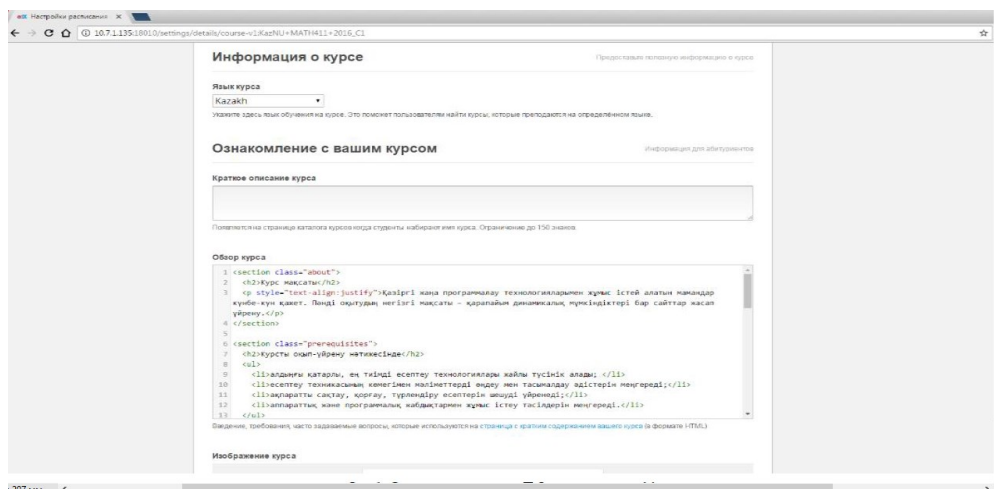


Figure 9. Course information

When the content of the course is ready, the import and export of the course is made, Open.kaznu.kz the Website is declared open for registration. This step can be seen in Figure 10:

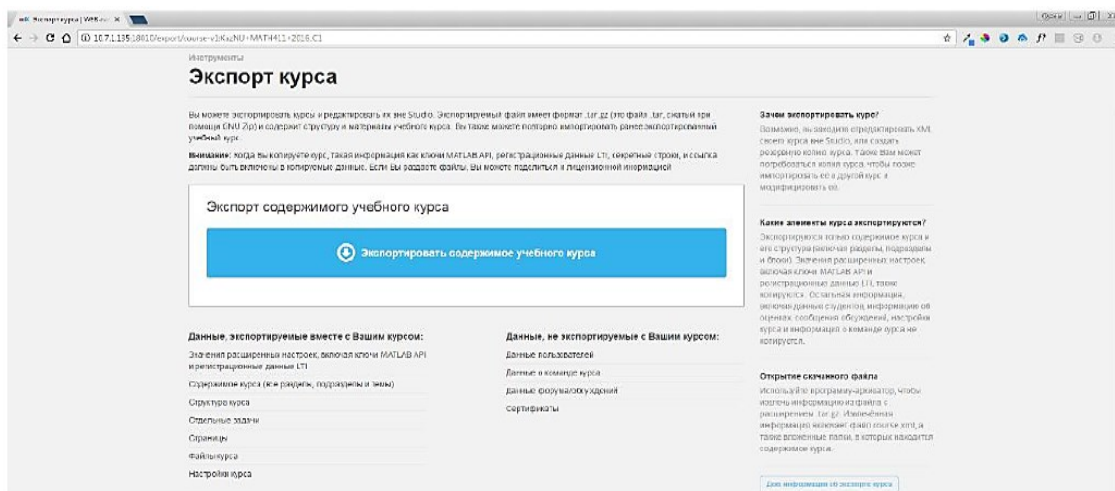
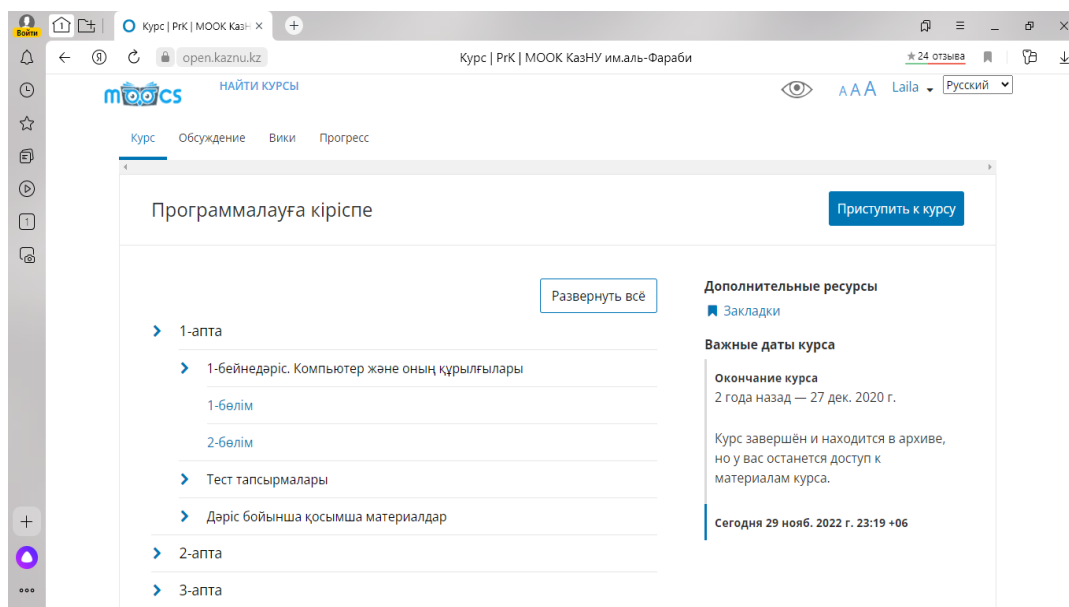


Figure 10. Course export page

The course "Introduction to programming" we offer for learning the basics of programming language. It fully covers the first module of the disciplines of Algorithms, Data Structure and programming and programming languages studied in The Bachelor's degree. This course is designed for students of any age who want to learn general programming languages. The course consists of tasks in the form of a presentation – lectures, in the form of a report – (reports are

taken from laboratory work) and tests with options for answers. Any student can register and study for the course. The purpose of the course is to form the basis of knowledge about operators, data structures and programming by analyzing the types of algorithms for compiling programs based on information technologies. It is known that there is a huge amount of information on programming, so it is worth starting the organization of a mass open online course with the provision of educational and methodological materials, in particular, with the definition of the purpose and objectives of the educational material, taking into account that its students have different features, and choosing a methodology by taking into account the peculiarities of the technical The preparation of the mass open online course " Introduction to programming " was divided into two stages: the preparatory stage and the compilation stage [15]. At the preparatory stage, the structure of the main materials is developed, divided into modules, texts are processed, video lectures are prepared on the course. As for the structure of the lecture, it is necessary to have a program of weekly lectures, divided into a 10-15-minute video Scene film explaining the content of the course.

Figure 11 shows the first page of the course. The course is conducted in Kazakh. Course <https://open.kaznu.kz> you can browse through the website. Currently, the course is integrated into the educational process at the Al-Farabi Kazakh National University, Faculty of Information Technology, that is, students are provided with course materials through integration into the discipline of "programming".



**Figure 11.** First page of the course "Introduction to programming"

According to the requirements of modern credit technologies, the duration of the process of teaching one discipline in general should not exceed 15 weeks per semester. According to the same time period, each week should have its own task, lecture texts and methodological materials will be provided to students in a timely manner, and the completed tasks will be completed in accordance with the requirements of the lesson. Since this course forms the first part of the above

subjects, it consists of 7 lectures, 7 Tests and several case tasks and independent work. Finally, those who have improved their knowledge through this course will answer the questions of tests that cover all topics. Expected learning outcomes:

1. Formation of the knowledge base using the analysis methodology during the presentation of devices and components of a computer system;
2. Formation of theoretical knowledge in the direction of number systems used in programs and their transformation through the method of presentation and analysis;
3. Development of programs in the course of familiarization with data types based on programming using information technologies;
4. Use the knowledge base to compile algorithms by systematizing the analysis of their main types;
5. Using schemes of algorithms for writing program operators based on the C++ and Python languages.

Indicators that allow you to achieve training results:

1. Providing a structural diagram of a computer system;
2. Determining the relationship between elements of a computer system;
3. Mastering the number systems used in programming;
4. Convert a number in one number system to another number system;
5. Master the basic concepts of programming;
6. Analysis of data types used in programming;
7. Distinguish between types of data types;
8. Mastering the features of data types used in programming, databases;
9. Determining the role of algorithms in programming using the concept of algorithms;
10. Analysis of the main types of algorithms using flowcharts;
11. Distinguish between algorithm types;
12. Mastering the code created on the basis of the algorithm;
13. Learn the difference between codes written in C++ and Python;
14. Give examples of coding in programming languages;

One of the main issues in mass open online courses is the assessment of student work. After the lecture, it is necessary to revise the tasks and adapt them to the online course. It is not possible to manually check hundreds or more tasks, at this time online platforms must improve the templates of programs that self-test the tasks provided by them in accordance with their goals. On online platforms, knowledge assessment can be carried out by testing or testing each other by students. It made it possible to understand that the prospects for the implementation of software systems that implement a wide range of open online courses are bright. This system consists of such advantages as a product of knowledge that requires the simultaneous participation of all students and the cost of its impact, thoughtful work of students during interviews and preparation for the competition, the flexibility of the entire teaching procedure. Students will have the opportunity to learn not in a strictly regulated time and place, but in a convenient, continuous way.

*Discussion.* In this work, using the capabilities of the OPEN EDX platform, a massive open online course "Introduction to programming" was developed and launched for use in the educational process [15]. In general, the following works were carried out and implemented:

- The lecture complex on the basics of programming has been fully compiled;
- Tests developed in accordance with the requirements of open online courses were systematized and posted on the university website in accordance with the topics;
- Case studies have been developed to test students' knowledge on this course;

– In accordance with the seven lessons shown in the course, video lectures organized on topics were filmed in full accordance with the requirements of the University's Distance Learning Department;

– Taking into account the specifics of the OPEN EDX platform from which the MOOK is being developed, an analysis of its applicability was carried out;

– After all the information materials were checked, they were launched on the platform of a massive open online course at the Kazakh National University as one of the first subjects in the field of programming disciplines in the state language used by 12 leading universities in the country. To date, this course has been integrated into the educational process. We are confident that this massive open online course will bring the education system to a new level through the use of modern information and communication technologies in teaching programming languages.

The Department of "Computer Sciences" of the Faculty of Information Technologies of the Al-Farabi Kazakh National University is widely introducing open online courses on the integration map into the educational process. One of the many features of this method is that the calculation of the certificate score obtained at the end of the course as an exam grade significantly reduces the load during the session.

In the system of professional development of specialists, there is a gradual shift from a centralized training model to horizontal network interactions, which requires not only perfect knowledge of information and communication technologies, but also creates prerequisites for choosing individual educational routes [16, 17]. Currently, the most widely used in the teaching disciplines of our department are such projects as Coursera, Stepik, Cisco. It should be noted that the global educational platform Coursera approved the application of Al-Farabi kaznu to join the Coursera for Campus project, and a contract was signed. Online Courses from the best universities in the world are becoming more accessible, with the opportunity to study full-fledged courses, including video lectures, presentations, homework and texts, completely free of charge, since a student or employee of kaznu is offered paid courses free of charge. In particular, the Department provides Coursera courses in the areas of "organization and architecture of computer systems", "imperative programming", "digital signal processing", "parallel programming", Stepik platform courses in such areas of training as "image recognition", "digital image processing", "mobile and web platforms", "creation of mobile applications", "theory of image recognition", "neural networks". Cisco platform courses were organized to teach such areas as "network security", "design of LAN and WAN networks", "wireless telecommunications systems and network technologies". Undergraduates of the 1, 2 course of the Department of Computer Science in the discipline "wireless telecommunications systems and network technologies" successfully completed the course created with the support of Cisco Networking Academy and received a certificate of mastery of network technologies.

In order for the MOOC to fully integrate into the education system, first of all, it is necessary to take into account the language barrier, that is, for general understanding, students must know one common language. Also, courses should be created that meet the interests of the global audience. For this purpose, the MOOC was created on the course "programming", considering the following requirements of the MOOC.

*Conclusion.* The importance of this work lies in carrying out comprehensive research and creating MUOKS in the Kazakh language in order to improve the country's education system, improve the quality of education to a world-class level. As well as the training of qualified specialists who meet modern requirements, through the introduction of the created course and other advanced world-class courses in educational processes under the integration program.

## References

1. Kurt, S. Massive open online courses (MOOCs), Definitions / S. Kurt [Electronic resource]. – 2018. – Mode of access: <https://educationaltechnology.net/massive-open-online-courses-moocsdefinitions/> Date of access: 04.05.2019.
  2. Gafiatullina E.A. Retrospektivnyi analiz masovykh obrazovatelnykh onlain-kursov v obrazovatel'nom prostranstve // *Mir nauki*. – 2019. – T. 7. – S.1-7. <https://mir-nauki.com/PDF/05PDMN619.pdf>
  3. Pinevich, E. V. Distance learning: problems and solutions / E. V. Pinevich // *International Scientific Journal*. – 2017. – No. 6. – P. 106-110.
  4. Ostapenko A.B. Project activities in teaching foreign languages in higher educational institutions / A.B. Ostapenko // *Izvestiya Volgogradskii state pedagogical university*. – 2020. – № 6(149). – P. 56-62.
  5. Ahmadova A.S. Professional'naya pedagogicheskaya kompetentnost' kak osnova kompetentnostnoj modeli sovremennogo uchitelya // *Izv. Volgogr. gos. ped. un-ta*. 2018. № 1(124). С. 41–48.
  6. Zawacki-Richter, O., Bozkurt, A., Alturki, U., & Aldraiweesh, A. What research says about MOOCs– An explorative content analysis // *The International Review of Research in Open and Distributed Learning*. – 2018. - Vol 19. – P. 10-15.
  7. Buribaev B., Mendibaev E. Qashyqtan oqytu bilim beru sapasyn arttyrudin tyimdi quraly (sector of Competently oriented knowledge assessment system) // *Bilimdi bagalaudyn quziretti bagdarly juyesi. 44 gylymi adistemelik konferencia*. – S. 116-118.
  8. Peng Fuqiang, Wang Zhuxiang. On the Training Mode of Translation Talents Under the Background of “One Belt, One Road” Initiati. – 2020. – Vol. 48. – P. 343-344.
  9. Alimjanov S. KazJU uzdikter qatarynda (Aikyn newspaper). No.16 9 (3045), [www.aykyn.kz](http://www.aykyn.kz) (data obrasheniya 15.04.2022)
  10. Buribaev B., Mendibaev E. Qashyqtan oqytu bilim beru sapasyn arttyrudin tyimdi quraly (sector of Competently oriented knowledge assessment system) // *Bilimdi bagalaudyn quziretti bagdarly juyesi. 44 gylymi adistemelik konferencia, 3 kitap, 2014*. – S. 116-118.
  11. Titova S.V. Talmo T.V. Model' interaktivnoy lektsii na bazemobil'nykh tekhnologii (Higher education in Russia). *Electronny resurs*. <https://cyberleninka.ru/article/n/model-interaktivnoy-lektsii-na-baze-mobilnyh-tehnologiy>(data obrasheniya 05.09.2022).
  12. Buribaev B., Shokankyzy E. Informatica paninen JAOK dayindaudyn adistemelik maseleleri // *Statistics, Accounting and Auditing*. – 2017. – T. 64. – S. 189-194.
  13. Pervyi etap vnedreniya MOOC at the Kazakh National University named after al-Farabi (Gazette KazNU. Journalism Series) KazUU habarshysy- KazNU. Seria jurnalistiki. – 2016. – T. 1. – S. 99-104.
  14. Abramova, S. Masovye otkrytye onlain-kursy: obshi obzor tematiki / S. Abramova, A.O. Dolgova // *Lingvistika, lingvodidaktika, lingvokul-turologia: aktualnye voprosy i perspektivy razvitiya: materialy II Mejdunar. nauch.-prakt. konf., Minsk, 1-2 marta 2018 g.* – Minsk: Izd. sentr BGU, 2018. – S. 103-108.
  15. Programmalauga kirispe. Site [open.kaznu.kz](http://open.kaznu.kz) (data obrasheniya 15.10.2022)
  16. Cong Yan. On the Professional Morality and Quality of Translators [J]. *Education Modernization*. 2019, 6 (49): 14–16.
  17. Gyshchina O. M., Mikheeva O. P. Massive open online courses for pedagogical staff training. *The Education and Science Journal*. 2017; 7 (19): 119–136. DOI: 10.17853/1994-5639-2017-7-119-136.
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