



LMPI – KAZAKHSTAN_P29_Taraz State University

INTERIM TECHNICAL REPORT



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QUALITY OF THE PROJECT IMPLEMENTATION

1. Description of the implemented activities

The role of the TarSU (P29) will be as follows:

Participates in all the work within the framework of the mission entrusted to it within the strategic regional plan. Participation in the regional steering committee, study visits and training courses planned in Bulgaria, training of teachers (curriculum developers, ODL and counseling in employability orientation), and co-facilitation with its European referent of the training of curriculum renovators, co-authoring the specialized fields of work in "development, management, administration and protection of computer systems and networks in companies", and participation at the choice of the bachelor's degree and the associated master's degree, co-authoring of the programs, the courses and the educational resources (license, master and modular device of formation throughout the life), organization of the lessons to welcome the students in the first year of the 2 new curriculum, creation of a diploma (double or joint) with the European partner universities, contributes to the sustainability and dissemination of results.

In May 2017, employers were questioned. The survey involved 600 participants. Of these, 100 respondents from Taraz companies. The greatest need, according to respondents, in IS specialists is felt in the banking sector, telecommunications companies, public administration institutions.

The respondents identified the following main tasks, which should be carried out by IS specialists:

1. Installation of systems for detection, prevention and prevention of intrusions (369/600);
2. Setting up mechanisms for preventing, restoring and maintaining system continuity (264/600);
3. Frequent detection, detection of system vulnerabilities (262/600);
4. Network and system monitoring, incident response (255/600);
5. Implementation of information encoding, authentication and PKI construction (251/600).

Among the most actively used tools (tools) for protecting information were:

1. Opposition to viruses and malware (319/600);
2. Software protection facilities (278/600);
3. Controlled access (265/600);
4. Data encryption (253/600);
5. Means of protection of hardware (213/600).

Based on the results of the questionnaire, the following most important, in the respondents' opinion, competencies were identified:

1. update security systems in response to new threats and new technologies (288/600);
2. ensure the stability of security systems (278/600);
3. provide various solutions for protection (264/600);
4. to carry out diagnostics of the information system (257/600);
5. implement various security processes (254/600).



When asked about the subjects that will allow these specific competences to be obtained, the following answers were received:

1. Security Policy (267/600);
2. Protecting Servers and Client Computers (246/600);
3. Administration system (230/600);
4. Cryptography (222/600);
5. Devices and equipment for security (VPN-firewall, etc.) (214/600)

Based on the responses of the respondents, the following knowledge and skills that an information security specialist must possess:

- knowledge of the legislative framework in the field of information security;
- the ability to design, development and apply technologies and tools and data protection;
- the ability to design, develop and apply information security technologies and tools;
- the ability to apply standard and design new cryptographic algorithms and protocols to protect information in computer systems and networks;
- the ability to apply methods and means of countering unauthorized receipt of information in accordance with the requirements of regulatory documents of the system of technical protection of information.

Based on the identified market needs, the goal was to develop an educational program for the master's program "Computer systems and networks security". This program is a specialization of Information Security. The main objectives of the educational program is the organization of the security of information and communication systems and networks, which implies a development by, embodiments, implementation and management of complex software and hardware systems, and information security in institutions.

In this regard, the classification of the identified competences on clusters was carried out. The following clusters were identified:

- Ensuring information security;
- Network design and cloud computing;
- Security of network devices and mobile solutions;
- Software and hardware data protection.

Based on the results of analysis and synthesis of the survey materials, a map of the specialty of the master's degree program "Safety of computer systems and networks" was compiled.

As part of the project, TarSU (R29) together with KazNU (P24) developed a training trajectory "Security of computer systems and networks".

The website of the project is developed.

09.06.2017 a meeting of the KazNU team with the project coordinator Pachoud Jean-Noel, coordinator of the ERASMUS+ national office Sh. Tasbulatova, partners from TarSU.



12.06-20.06.2017 Analysis of the results of the questionnaire. Conducting meetings with experts in the field of information security. Based on the information received about the needs of the labor market, compiling a list of generalized labor functions of a specialist in the field of system and network security.

26.02-28.02.2018 In TarSU it. M.H. Dulati within the framework of the LMPI project a scientific and methodological seminar was held under the guidance of Vladimir lotsov, doctor of computer science., professor of the Bulgarian University of Library Science and Information Technologies and Doctor of Technical Sciences, professor of the Department of Information Systems of TarSU Tulenbaeva MS. Professor V.lotsov is an associate editor of 8 editions, a member of the IEEE, the leading European expert on intelligent systems and cybersecurity. Among the participants of the seminar were teachers and staff of the departments "Information Systems", "Applied Informatics and Programming", undergraduates, students, as well as employers - representatives of the leading IT companies of the city (more than 60 participants). Significant work was carried out by Professor V.lotsov with a team of LMPI project participants to develop educational programs for undergraduate and graduate specialties related to cybersecurity and information protection. At the same time, the specificity of TarSU staff and the needs of the region in such specializations as the protection of computer networks and the organization of cybershields were taken into account. The meetings and consultations of the professor with undergraduates and students of the departments "Information Systems" and "Applied Informatics and Programming" were very fruitful, for which the opportunities of a two-diploma education with the Bulgarian University of Library Science and Information Technology are opened within the framework of the signed memorandum and agreement.

On April 20, 2018 the Council of Rectors of Southern Universities and Taraz State University named after M.H. Dulati invites to the regional scientific and practical conference: "IT-education: challenges, problems and trends". Within the framework of the conference it is planned to present the best practices of scientists, teachers and employees in the field of advanced IT education technologies, exchange of experience of participants in the educational community. (<http://it-edu.tarsu.kz/index.php/ru/>)

2. Visibility

Within the framework of the project, a web page was developed, the web page address - <http://www.tarsu.kz/en/1-proekt.html>. The purpose of the web page is to disseminate information about the LMPI project and highlight important events during the implementation of the project. The web page includes information on the following sections: Information about Erasmus +, Coordinators, LMPI, SUSDEV, News. Below are screenshots of the web page:



www.tarsu.kz/ru/1-proekt.html

Таразский государственный университет имени М.Х. Дулати

ГЛАВНАЯ | ОБ УНИВЕРСИТЕТЕ | ФАКУЛЬТЕТЫ | АБИТУРИЕНТУ | СТУДЕНТУ | УЧЕБНЫЙ ПРОЦЕСС | НАУКА | МЕЖДУНАРОДНОЕ СОТРУДНИЧЕСТВО | СОЦИАЛЬНАЯ ЖИЗНЬ | МЕДИА

ERASMUS+

- Информация об Эрасмус+
- Координаторы
- Презентации об Эрасмус+
- Фотогалерея
- Новости
- LMPi
- SUSDEV

GUIDE@TARSU

- ПОРТАЛ СТУДЕНТА
- WEB-TEACHER
- ЭЛЕКТРОННЫЙ КАТАЛОГ
- PLATONUS TARGU

LMPi

размер шрифта | Печать | Эл. почта

Проект №573901-ERP-1-2016-1-IT-ERPКА2-СВНЕ-JP-LMPi

«Бакалавриат и профессиональная магистратура для разработки, администрирования, управления и защиты компьютерных сетей на предприятиях Молдовы, Казахстана и Вьетнама»

Резюме

Проект LMPi направлен на создание электронного обучения бакалавров и магистров для защиты компьютерных систем и сетей в трех странах-партнерах, Вьетнаме, Молдове и Казахстане. В целях устранения пробелов в знаниях как на техническом, так и на инженерном уровнях партнеры разработают для работодателей программу непрерывного обучения в этой области. Разработанная учебная программа будет отвечать потребностям частных компаний, которые ищут специалистов для защиты от киберпреступлений.

Описание

Киберпреступность затрагивает практически все страны. Для этого нужны хорошо подготовленные специалисты в области передовых компьютерных технологий. Три участвующие страны-партнеры страдают от нехватки менеджеров, технических специалистов и инженеров для решения этой важной проблемы. Таким образом, потребность в проекте, который развивает университетское образование в этом секторе, совершенно очевидна. Необходимы высококвалифицированные выпускники с профессиональным или профессиональным образованием, а также академические и профессиональные сотрудники для их обучения. Постоянное образование, чтобы держать их в курсе последних событий в этой развитой области является императивом. Проект фокусируется на разработке учебных программ в области компьютерных наук или, в частности, служб безопасности.

Опрос 500 компаний проанализирует потребности в базовых и специальных навыках в бизнесе и, следовательно, потребности в обучении и специализации, необходимые для степени бакалавра и магистра.

www.tarsu.kz/ru/novosti-erasmus.html

Карта сайта | Старая версия сайта | Поиск

Таразский государственный университет имени М.Х. Дулати

ГЛАВНАЯ | ОБ УНИВЕРСИТЕТЕ | ФАКУЛЬТЕТЫ | АБИТУРИЕНТУ | СТУДЕНТУ | УЧЕБНЫЙ ПРОЦЕСС | НАУКА | МЕЖДУНАРОДНОЕ СОТРУДНИЧЕСТВО | СОЦИАЛЬНАЯ ЖИЗНЬ | МЕДИА

ERASMUS+

- Информация об Эрасмус+
- Координаторы
- Презентации об Эрасмус+
- Фотогалерея
- Новости
- LMPi
- SUSDEV

НОВОСТИ

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(25 ноября 2016)
ИЗ ФРАНЦИИ С РЕКОМЕНДАЦИЯМИ
<http://www.tarsu.kz/ru/vse-novosti/item/4732-iz-frantsii-s-rekomendatsiyami/4732-iz-frantsii-s-rekomendatsiyami.html>
<http://magnolia.kz/ksvedeniyyu/11957-iz-francii-s-rekomendatsiyami.html>

(18 ноября 2016)
КАЗАХСТАНСКИХ СТУДЕНТОВ НАУЧАТ РАСКРЫВАТЬ КИБЕРПРЕСТУПЛЕНИЯ
<http://www.tarsu.kz/ru/digest/item/4697-kazakhstanskikh-studentov-nauchat-raskryvat-kiberprestupleniya/4697-kazakhstanskikh-studentov-nauchat-raskryvat-kiberprestupleniya.html>
http://www.inform.kz/ru/kazakhstanskikh-studentov-nauchat-raskryvat-kiberprestupleniya_a2970815



CURRICULUM DEVELOPMENT

1. New/updated courses

As part of the project, KazNU (P24) together with TarSU (R29) developed a training trajectory «Security of computer systems and networks»:

- in 2018 for the undergraduate specialty «5B070400-Computer Engineering»
- in 2018 for the master's degree in the specialty «6M070400-Computer Engineering».

Bachelor

Security of computer systems and networks			
Course name	Credit	ECTS	Semester
Operating system security	3	5	6
Intelligent Data Analysis	3	5	7
Technical means and methods of information protection	3	5	7
Information Security Standards	3	5	6
Network Security	3	5	7
Cryptography	3	5	6
Database Security	3	5	7
Web application Security	3	5	7
Development of secure software	3	5	6
Fundamentals of cryptanalysis	3	5	6

For the undergraduate specialty «5B070400-Computer Engineering», the training trajectory «Security of computer systems and networks», the above-mentioned elective disciplines, is being introduced into the curriculum since the academic year 2018 (only elective disciplines!). Obligatory disciplines of the specialty remained unchanged. In the undergraduate curriculum, students can choose one of the two trajectory of choice. In the existing curriculum of the specialty "5B070400-Computer Engineering", the third training trajectory «Security of computer systems and networks» was developed and added, developed within the ERASMUS + LMPI project. Since the academic year of 2018, bachelors have been given the choice to study in one of three directions. In percentage terms, the level of achievement compared with the final product at the bachelor's degree:

- Development / update tasks in% - 20.4% (10 of 49).

After graduation, the student is awarded the «Bachelor of Engineering and Technology» degree in specialty 5B070400-Computer Engineering.

The undergraduate curriculum was accredited by IQAA:



**INDEPENDENT KAZAKH AGENCY FOR QUALITY
ASSURANCE IN EDUCATION**
(Certificate Issued by the Ministry of Education and Science of the
Republic of Kazakhstan on June 27, 2012, № BFM-001)

20 Dostyk Street, Office 801, Astana, 010000, Republic of Kazakhstan
Tel/Fax: +7 (7172) 27 38 20, www.nkaoko.kz

CERTIFICATE OF SPECIALIZED ACCREDITATION

Institution: M.Kh. Dulati Taraz State University

**CEO: Makhmetgali Sarybekov, Rector, Doctor of Pedagogical Sciences,
Professor**

Address: 60 Tolebi St., Taraz, 080000, Republic of Kazakhstan
Tel: +7 (7262) 45 36 64
Fax: +7 (7262) 43 24 02
Website: www.tarsu.kz, e-mail: info@tarsu.kz

Form of Ownership: Governmental Organization

Type: Higher and Postgraduate Education

Institution Status: University

**General State License Issued by the Ministry of Education and Science of the
Republic of Kazakhstan: №12020167 Dated November 14, 2012**

Degrees Granted: Bachelor, Master, PhD

Accreditation Status: Specialized Accreditation

Educational Programs:

- 5B070400 - Computers and software**
- 5B060100 - Mathematics**
- 5B050300 - Psychology**
- 5B020300 - History**
- 5B020500 - Philology**

Certificate Granted: 27.12.2014 - 26.12.2019

Issue Date of the Certificate: 27.12.2014

Registration Number: SA № 0038/2

President

Sholpan Kalanova

Astana, Republic of Kazakhstan





Master

Security of computer systems and networks			
Course name	Credit	ECTS	Semester
Malware analysis	2	4	1
Applied Cryptography	3	5	2
Mobile Security	2	4	3
Architecture of Cybersecurity Systems	2	4	2
Fundamentals of Cybersecurity	3	5	1
Cyber Security & Network Protection	3	5	2
Java for Security purpose	3	5	3
Design Cybersecurity of Database	3	5	3
Industrial Cybersecurity	2	4	3



ACTIVITIES RELATED TO TEACHING/TRAINING

From January 29, 2018 to February 9, 2018 at the University of Library and Information Technologies, ULSIT (Sofia, Bulgaria), according to the project ERASMUS + Project - EPP2016-1JT-EPPKA2-CBHE-JP-LMPI "Bachelor's and professional master's degree in the development, administration, management and protection of computer networks in enterprises ", a training seminar on cybersecurity was held with the participation of project partners from Kazakhstan: L.N. Gumilev, Kazakh National University. al-Farabi, Taraz State University. M.H. Dulati, Kokshetau State University. Sh. Ualikhanova, Kokshetau University A.Myrzakhmetova, Branch of JSC "NTSPK" Orleu "Institute of advanced training of pedagogical workers in Akmola region, and teachers and specialists of the University of Library Science and Information Technologies, BIT (Sofia, Bulgaria). During the meeting, courses on the cybersecurity of personal data and data at enterprises were heard, a curriculum for undergraduate and graduate programs in the area of protection of the information security system was developed. During meeting with the pro-rector for academic work at the University of BIT, professor, Dr. Vanya Pavlova signed an agreement on cooperation between the universities of BIT and TarSU. In the future, a two-diploma education with BIT under the Master's program is planned. Based on the results of the two-week course of the training seminar, the certificates "Development of a curriculum on the basis of the European standard" and "Research in Europe and the development of a curriculum on cybersecurity" were issued.



AWARNESS RAISING, DISSEMINATION, SUSTAINABILITY AND EXPLOTATION OF THE PROJECT RESULTS

The existing Kazakhstan model of school, secondary special, higher and postgraduate education in the field of information and communication technologies (ICT), including specialization in information security, requires constant and careful analysis by all stakeholders (including the Ministry of Education and Science of the Republic of Kazakhstan, higher education institutions educational institutions and potential employers) for compliance with the current needs of the society and trends in ensuring the safe development of information ion technology in mind the dynamic development of this area. In particular, educational and professional standards, classifiers of specialties, disciplines, their content and learning outcomes require periodic revision. There is a need to develop a mechanism that allows more flexible response to modern challenges in the field of ICT. In view of the fact that knowledge in this field is rapidly becoming obsolete, periodic qualification of specialists is required. In the field of ICT there is a shortage of information security specialists, both in the public and private sectors. So in the central state bodies the security is only 25%, in the local - 6%.

Resolution of the Government of the Republic of Kazakhstan dated October 28, 2017 No. 676 approved the Action Plan for the implementation of the Cybersecurity Concept ("Cybershield of Kazakhstan") until 2022. The concept of cybersecurity (CyberSpace of Kazakhstan) was developed in accordance with the Message of the President of the Republic of Kazakhstan "The Third Modernization of Kazakhstan: Global Competitiveness", taking into account the approaches of the Kazakhstan-2050 Strategy on Kazakhstan's entry into the list of 30 most developed countries of the world. The Concept defines the main directions for implementing state policy in the field of protection of electronic information resources, information systems and telecommunications networks, ensuring the safe use of information and communication technologies. The implementation period of the Concept includes two stages:

- 1) the first stage of 2017-2018;
- 2) the second stage of 2019-2022.

At the first stage will be:

- developed a comprehensive enforcement practice of compliance with the already established requirements in the field of information security, which will result in the necessary changes in the legislation;
- the revision of educational programs and professional standards was carried out, the number and quality of trained specialists in the field of information security was increased, and the qualification of existing employees engaged in this field was improved.

Expected results of the concept of cybersecurity:

- 1) the global cybersecurity index of Kazakhstan by 2017 will be 0,200, by 2018 - 0,300, by 2019 - 0,400, by 2020 - 0,500, by 2021 - 0,550, by 2022 - 0,600;
- 2) increase of awareness of information security threats to the base period of 2018 in 2019 - by 5%, in 2020 - by 10%, in 2021 - by 15%, in 2022 - by 20%;
- 3) the number of retrained specialists in the field of information security in 2018 - 300, in 2019 - 500, in 2020 - 600, in 2021 - 700, in 2022 - 800;

Proceeding from the foregoing, in order to understand and build a model of a methodical system for training information security tools, it is necessary:



- develop a work program and content of disciplines on information security disciplines, work programs and content of disciplines (sections of disciplines) of the information cycle for students of various training profiles;
- to improve traditional and innovative forms of education, methods and training programs on the basis of integrated information and the educational environment in accordance with the theoretical essences of the interrelationships of fundamental, professionally directed and informational education;
- to improve such types of training as a professionally directed lecture, practical lesson and laboratory work for the disciplines from the "Information Security" cycle, and also for the information cycle disciplines, including information security issues in the educational process and the field of scientific research;
- to develop distance learning courses for methodical maintenance and improvement of students' education in information security.

All these actions confirm the sustainability of the results of the project after the completion of the project.