



**ACCESSIBILITY AND HARMONIZATION OF HIGHER  
EDUCATION IN CENTRAL ASIA THROUGH CURRICULUM  
MODERNIZATION AND DEVELOPMENT**

**Project № 561553-EPP-1-2015-1-BG-EPPKA2-CBHE-JP**

**ERASMUS+ Programme  
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**Coordinated by Burgas Free University**

**WP1 Research  
Dev. 1.1  
App. 8.5 Institutional Report – KokSU, Kazakhstan**



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|   |   |
|---|---|
| Elaborated by                                   | P5 – KokSU (KZ)   |
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| Deliverable N° and title                        | Dev. 1.1 App. 8.5 Institutional Report – KokSU, Kazakhstan  |
| Dissemination level<br>Deliverable target group | PU<br>Members of the consortium including EACEA and Commission services and project reviewers as well as all interested parties |
| Language  | English   |

**INSTITUTIONAL SUMMARY REPORT – P5 KokSU, Kazakhstan****A. General Information****COUNTRY:** Republic of Kazakhstan**INSTITUTION:** Sh.Ualikhanov Kokshetau State University (KokSU)**ADDRESS:** 76 Abay Str., 020000 Kokshetau, Kazakhstan.**Department:**

1. Department of Information Systems and Computer Engineering (ISCE)

**B. Information related to Engineering and Engineering Trade Subject Area****I. Academic Programs in Engineering and Engineering Trade Subject Area**

Please, specify only Bachelor's and/or Master's Degree Programs which the university is expected to provide education in over the period of the Project (the next three academic years: 2015-18)<sup>1</sup>, with indication of the Area (see table) where the academic program should be considered.

|                   |        |
|-------------------|--------|
| Engineering       | Area 1 |
| Engineering Trade | Area 2 |

Table 1. Description of Academic Programs in the field of Engineering and Engineering Trade

| Area   | Name of the Academic Program                              | Educational degree provided (Bachelor, Master) | Form of study (part-time, full-time, distant education) | Approximate total number of students | Total number of academic staff |
|--------|---|--|---|--------------------------------------|--------------------------------|
| Area 1 | Information Systems and Computer Engineering and Software | Bachelor                                       | full-time   | 100                                  | 15                             |
| Area 1 | Information Systems and Computer Engineering and Software | Master   | full-time   | 12                                   | 15                             |
| Area 1 | Information Systems and Computer Engineering and Software | Bachelor                                       | part-time   | 7                                    | 15                             |

**II. Current State of Education**

Please, provide the following information for your university.

<sup>1</sup>If the university does not offer academic programs in Engineering and Engineering Trade subject area, please, in Table 1 fill in academic programs whose program's curriculum includes courses/subjects related to Engineering Sciences.

**II.1. Quality of the Program's Curriculum and the Teaching Programs. Provide the information for each Bachelor Degree and Master Degree.**

a) The indicators in this section refer to the Program's Curriculum. They aim to assess the consistency of the academic program with the requirements of the European higher education.

Share of core (required), Compulsory Specialized subjects, specialized subjects, common and optional subjects, and elective courses included in the Program's curriculum:

Number in credits is given in national credits. They can be easily transferred to ECTS credits.

**Computer Engineering and Software**

| TYPE/AREA   | SUBJECT TYPE                        | NUMBER OF CREDITS     |
|---|-------------------------------------|-----------------------|
| Bachelor, Full-time,<br>Computer engineering<br>and software / Area 1 | CORE                                | 65                    |
|   | Compulsory specialized              | 5                     |
|   | Specialized                         | 31                    |
|   | Common                              | 33                    |
|   | Optional                            | 10                    |
|   | Internship or training activities   | 10                    |
|   | Final Project and state examination | 3                     |
|   | <b>TOTAL PER TYPE</b>               | <b>157</b>            |
| TYPE/AREA   | SUBJECT TYPE                        | NUMBER OF CREDITS     |
| Masters, Full-time,<br>Computer engineering<br>and software / Area 1  | CORE                                | 12                    |
|   | Compulsory Specialized              | 2                     |
|   | Specialized                         | 20                    |
|   | Common                              | 8                     |
|   | Optional                            | 7                     |
|   | Internship or training activities   | 10                    |
|   | Final Project and state examination | 4                     |
|   | <b>TOTAL PER TYPE</b>               | <b>63</b>             |
| TYPE/AREA   | SUBJECT TYPE                        | NUMBER OF CREDITS     |
| Bachelor, Part-time,<br>Computer engineering<br>and software / Area 1 | CORE                                | 59                    |
|   | Compulsory Specialized              | 5                     |
|   | Specialized                         | 21                    |
|   | Common                              | 12                    |
|   | Internship or training activities   | 8                     |
|   | Final Project and state examination | 3                     |
|   |                                     | <b>TOTAL PER TYPE</b> |

**Information Systems**

| TYPE/AREA           |                        | AVERAGE NUMBER |
|---------------------|------------------------|----------------|
| Information systems | CORE:                  | 10             |
|                     | COMPULSORY SPECIALIZED | 10             |
|                     | SPECIALIZED            | 15             |
|                     | COMMON                 | 3              |
|                     | OPTIONAL ()            |                |
|                     | ELECTIVE:              | 6              |
|                     | OTHER (SPECIFY):       | 5              |

*b. Do you collect information on Program’s curriculum, teaching programs, learning materials related to similar academic programs at European higher academic institutions (HEIs)?*

**No**

*Please, provide information about the ways to collect such data and give specific examples.*

Collaborative work with universities-partners, based on the Agreements, memorandums etc.  
Exchange programs with Baltic International Academy, Latvia, Ecole Centrale de Nantes, France.

*c. Share of the teaching staff with a doctoral degree/PhD (% of the full-time academic staff providing education at university or Faculty level) (average)*

ISCE - 45%

*d. Policy toward usage of modern approaches and methods of teaching*

*Please, give evidence on the usage of modern approaches and methods of teaching. Describe the policy for upgrading academic staff qualification. Mention specific actions taken such as seminars, workshops, training courses, etc. which aim to raise teachers’ awareness of contemporary methods in higher education.*

Upgrading and enhancement of academic staff qualification is the important point in the strategic university planning, the issue of constant concern of HR Department and all university faculties and departments. There are different ways and forms of this process as:

- a) Training seminars organized internally at each department on a regular basis.
- b) University methodological seminars, organized twice a month.
- c) Participation in the international seminars, workshops, training courses.
- d) Participation as the key-note speakers, just participants at numerous international, national, regional and institutional conferences.
- e) Many other ways. (online courses, face to face and remote certified courses, research internships etc).

*e. Existence of a Quality Assurance System at National level or International QAS followed. Please explain QAS, if any, to recognize degrees nationwide and follow up system, if any, to reaccredit degrees after being implemented for a given number of years.*

Republic of Kazakhstan has its own national system of Quality Assurance. According to the Law of the Republic of Kazakhstan "On Education» (№ 319-III, July 27, 2007) the state control over the quality of education is provided by the establishment and functioning of the national system of quality assurance. The management of the quality of education is directed to the implementation of a unified state policy in the field of education, and includes public and institutional structures that make up a unified national system for assessing the quality of education. Quality assurance tools are licensing, state attestation, accreditation, university ranking, external evaluation of educational achievements (TDMA), and other mechanisms of direct control and quality assessment. Their use is based on the state documents, regulating the process of external evaluation. Attestation is made by the Ministry of education and science every five years. HEIs are free to choose national or international institutional or specialized accreditation. The accreditation agencies have their own standards and regulations which are used in the process of accreditation.

*f. Share of new courses (subjects) which have been introduced in the Program's curricula for the last 3 years (% of the total number of courses/subjects in the Program's curriculum)*

IS - 55% CES - 85%,

|  |
|--|
| Design of microprocessor systems and networks      |
| Computer Systems Interface                         |
| Organization of computer systems and networks      |
| Internet technologies                              |
| Accounting Information Systems                     |
| Tools programming                                  |
| Programming with Visual C ++                       |
| Optimization of computer systems                   |
| Designing of economic information systems          |
| Expert systems in economics                        |
| Computer graphics                                  |
| Information security and protection of information |
| Fundamentals of computer simulation                |
| Basics Java- technology                            |

*g. Usage of contemporary references*

*Please, specify the approximate average number per University/Faculty/Department according with the data used at your university, specify which one.*

| Share of core readings (references) issued over the last five (0-5) years (% of the total number of core readings) | Share of core readings (references) issued over the last ten (0 - 10) years (% of the total number of core readings) | Share of the digital references in e-format (% of the total number of references) |
|--|--|---|
| ISCES - 157 textbooks  |  | 45%   |
| IS – 90%   |  | 55%   |
| CES - 83%  |  | 60%   |

**II.2. ICT facilities and ICT based education**

**II.2.a** This section aims to shed light on the usage of ICT-based facilities and teaching methods as well as the digital competencies of the teaching staff.

1. Department of Information Systems and Computer Engineering and Software (ISCES)

| Indicator  | Value   |
|--|---|
| Teaching e-platform accessible online to support general teaching activities   | In educational process information system "Platonus" in which online teachers interact with students is used. The system has the centralized database in which all real events and processes of Higher Education Institution are reflected. Each student and employee has private office allowing staff of Higher Education Institution to automate main objectives and students to get access to cases and control of knowledge, directly in real time to communicate with teacher by means of the global Internet or an internal network of Higher Education Institution. |
| On-line platform for non-presential education courses                          | Also for obtaining additional skills and competences in the plan of career development students take courses in Moodle system.  |
| ICT lab facilities for students and percentage of students that access to them | ISCES - 100%<br><br>IS - 80%<br>CES - 91%<br>RoboTronics, Apple Training Centre, Cloud Computing, SAP Academic Center   |
| Number of software products used for educational purposes                      | Now in educational process the following software is used (SoftWare):<br><ol style="list-style-type: none"> <li>1. Corel Draw</li> <li>2. Autocad 2015</li> <li>3. Delphi 7</li> <li>4. Visual C++</li> <li>5. 3ds max7</li> <li>6. BPWin</li> <li>7. Pascal</li> <li>8. ABC Pascal</li> <li>9. MatLab</li> <li>10. MatCad</li> </ol>   |

|   |  |
|---|--|
|   | <ul style="list-style-type: none"> <li>11. Rational Rose Enterprise Edition</li> <li>12. workbench</li> <li>13. Virtual PC</li> <li>14. Photoshop</li> <li>15. xampp</li> <li>16. «Компакс»</li> <li>17. MS OFICCE 2010</li> <li>18. Embarcadero rad studio</li> <li>19. Visual studio</li> </ul>  |
| Access to Wi-Fi at the university campus  | Yes  |
| Average share of academic hours per course/subject requiring usage of ICT- based teaching methods (i.e. computers and software, multimedia devices) | <p>ISCES - 30 academic hours</p> <p>IS - 80%</p> <p>CES- 90%</p>   |
| Average share of academic hours per course/subject held in a computer lab   | <p>ISCES - 25 academic hours</p> <p>IS – 50%</p> <p>CES- 82%</p>   |
| Average share of the teaching staff who regularly use ICT-based methods of teaching   | <p>ISCES - 100%</p> <p>IS – 90%</p> <p>CES- 100%</p>   |
| Type of e-learning devices used by teaching staff (i.e. personal computer, smartphones, tablets, etc.)  | personal computer, laptop, smartphones, tablets  |
| Devices used by students in classrooms (type of personal devices: i.e. laptop, smartphones, tablets, etc.)  | personal computer, laptop, smartphones, tablets interactive boards   |
| E-learning materials (e-based content) based on e-platform (i.e. Moodle, Sakai, Caroline, etc.)   | <p>Since 2009, control of current performance, completion of assignments, attendance are fully electronic with internal university. Except this there is corporate e-mail – MAIL.KGU.KZ and PLATONUS.KGU.KZ, as well as a variety of local resources in the Intranet of the university (teachfiles and doc folders on the file server).</p> <p>Teachers and students have access to the portal from any point of Internet, they can access to all the information resources of the university by a single personal login and password (digital barcode for students, login using letters from name and surname for teachers and staff.. During examination session the exit from the</p> |



|  |   |
|--|---|
|  | university is restricted.   |
| Web based learning-MOOCs   | Under development   |
| Students evaluation methods  | Traditional exam, online tests, portfolio, one-minute questions, multiple choice tests, эссе etc. |
| Other non-traditional evaluation methods for transversal competences | No  |

### **III Digital Framework**

1 Is your university following a strategic plan for Digital implementation? YES/NO. Describe it in max 700 words.

Not yet

2. Describe how your university develops its Digital Strategy in terms of Concerns and Key Actions during the last 2 years (i.e. training courses, sessions, workshops, financial assistance offered to academics for qualification upgrading, etc.):

|   | CONCERNS | KEY ACTIONS |
|---|----------|-------------|
| Articulation by faculties, schools and CSUs of plans for technology use   | -        | -           |
| Student experience and support in ICT use   | -        | -           |
| Administrative Staff training and support in ICT use to improve the digital competence  | -        | -           |
| Faculty Staff training and support in ICT use to improve the digital competence   | -        | -           |
| Library services. Research tools  | -        | -           |
| Technological support for assessment activities   | -        | -           |
| MOOCs or online courses   | -        | -           |
| On-line services addressed to the students (class timetable, exam timetable, courses history, grades, digital library and etc.) | -        | -           |
|   | -        | -           |

3. Describe the digital methodology used in your Learning Environment, giving examples in different types of subjects related with the type of subjects described in B.1.

You should include a small explanation with the following information:

- **Type of ICT methodology used:** (i.e. Blended learning, flipped learning, face-to-face learning, gamming learning, partnering learning, etc.)

Blended learning – 40% on-line, 60% face-to face.

Face-to face learning is traditionally used in all departments and courses.

- **Type of learning:** independent, collaborative (subject and final projects), formally scheduled.

Independent learning is the 30% of curriculum and includes the projects, composition of computer programs. Collaborative – during lab-activities (both online and onsite) where students are requested to collaborate.

- **Feedback:** annual online questionnaires from students and survey of faculty staff

Before having final examinations at the end of each term the students are requested to fill in the special questionnaire evaluating the quality of the course, the teachers' activities and the quality of teaching.

- **Digital facilities:** Online-meetings, seminars, international teleconferences (between universities, social and community activities).

The university practices all types of activities – online meetings, webinars.

#### **IV. Competitiveness of Education**

*The goal is to assess the competitiveness of your university and the academic program at a national, regional and EU-wide level as well as its conformity with the labor market requirements.*

*1. Do you receive a feedback from students – current and former ones – about the quality of education in the academic programs? Please answer at university level, Faculties or by areas described in Table 1, according with the characteristics and data of your institution giving information about the ways for collecting such information (i.e. questionnaires, surveys; regular meetings with graduates; alumni associations, etc.). Present specific documents, if applicable. Summarize the results.*

Usually at the end of the term each student has to fill in online questionnaires to evaluate the teaching process, quality of facilities, the content of the course, training methods etc. Moreover, each instructor is evaluated at the end of each year at the Contract commission, with the presentation of the report on activities, all results of educational and scientific work during the academic year.

*2. Do you collect information from employers of your students about the quality of education and students' professional qualification and preparation? Please, give information about the ways for collecting such information (i.e. questionnaires, surveys; regular meetings with employers, employers' associations, labor market institutions, etc.). Present specific documents, if applicable. Summarize the results.*

We have regular meetings, the master - classes, round - tables briefings with stakeholders and employers of the specialties "IS", "Computer engineering and software" on which there discussed questions connected with the level of

training of graduates, the new directions and requirements which are imposed by labor market, the list of skills and competences which the expert in IT has to possess. Besides, questioning of representatives of computer companies and employers is regularly carried out.

3. Student and teaching staff mobility per University/Faculty/Area described in table 1

|   |                      |
|---|----------------------|
| Average number of student per year over the last 2 years who have <u>studied</u> in the EU  | 1 students<br>Latvia |
| Average number of teachers per year over the last 2 years who have visited academic institutions in the EU for the purposes of delivering lectures/seminars, conducting scientific research, project participation. | 4<br>England, USA    |

4. **Employability of graduates.** (Please give answers by University/Faculty/Areas described in Table 1)

The next two indicators estimate the degree of qualification mismatch for your graduates. Please, provide data on:

- Share of graduates (% of the average total number of graduates per year) who over the last 5 years have started a job which require professional qualification and theoretical knowledge in the field of Engineering and Engineering Trade. These are students who work in accordance with their field of study/specialty (this indicator is related to the extent of horizontal qualification mismatch).

Information Systems and Computer Engineering and Software – 92%

- Share of graduates (% of the average total number of graduates per year) who over the last 5 years have taken working positions which require the same educational degree (i.e. bachelor or master) as that they possess. These are students who work in accordance with the educational degree acquired (this indicator is related to the extent of vertical qualification mismatch).

Information Systems and Computer Engineering and Software – 100%

Please, provide an analysis of the results and discuss the reasons in case of low shares)

| Nº | Year, Specialty                                       | Total number of graduated students | Employed according to the specialties | %   |
|----|---|------------------------------------|---------------------------------------|-----|
| 1. | <b>2013</b>   |                                    |                                       |     |
|    | 5B070300/6M070300 – Information Systems               | 15                                 | 13                                    | 87% |
|    | 5B070400/6M070400 – Computer Engineering and Software | 21                                 | 19                                    | 91% |
| 2. | <b>2014</b>   |                                    |                                       |     |
|    | 5B070300/6M070300 – Information Systems               | 17                                 | 15                                    | 89% |
|    | 5B070400/6M070400 –                                   | 13                                 | 12                                    | 93% |

|    |   |    |    |     |
|----|---|----|----|-----|
|    | Computer Engineering and Software                     |    |    |     |
| 3. | <b>2015</b>   |    |    |     |
|    | 5B070300/6M070300 – Information Systems               | 14 | 13 | 93% |
|    | 5B070400/6M070400 – Computer Engineering and Software | 22 | 20 | 91% |

**5. Education and training provided in a real-life working environment**

5.1. *Per areas described in table 1, please share the courses/subjects type for which part or all classes are conducted in a real-life working environment (i.e. companies, banks, factories, etc.)*

Mandatory 4-month internship is foreseen for the following bachelor academic programs (for all part-time and full-time students):

- Educational
- Industrial
- Predegree

Mandatory 2,5-month internship is foreseen for the following master academic programs:

- Pedagogical
- Industrial
- Research

5.2. *The average number of academic hours per course/subject conducted in a real-life environment*

135 hours (3 credits \*45 hours)

5.3. *Additional evidence on the practical orientation of the study and the practical training of students (i.e. internships during study, etc.).*

University has agreements on internship with a number of companies with the subsequent employment. Students should fulfill an internship diary during internship. After internship students should provide and defend detailed report. Most of the final projects' titles are provided by companies.

**6. University – Business links**

*Please, provide information on participation of specialists, experts, entrepreneurs, etc. in the educational process and/or curricula development, if any. Specify the average share of lectures/seminars delivered by them (% of total academic hours per course/subject.)*

For each course the university invites foreign specialists. For 2015 – 2016 academic year:

Visiting professors – 1 professor.

According to the Agreements with ICT companies, where the students have internship, the representatives of them are the experts of educational programs and curricula.

Total number of courses, partly delivered by representatives of companies – 12% (BBS IT, PIC, AO NIT etc)

**7. Does your university study the current tendencies and requirements of the labor market?**

*(Please, provide specific information about the ways to collect labor market data. Describe records, databases, analysis you prepare, if any.)*

Sh.Ualikhanov Kokshetau State University prepares specialists for regional labor market (North Kazakhstan). The demand in specialists is undertaken from regional Department of statistics (for a year and 5 years). Depending on requirement educational programmes are developed for improving practical skills. Together with firm Software Master there concluded agreement about creation on its base branches of department which trains experts. On branch of department students are trained by specialists of this organization.

*8. Does your university/faculty offer or plan to offer joint degree programs with partner universities?*

*(Please, provide general information about joint degree programs per area described in 1 with other universities in your home country or abroad, if any.)*

NO.

*9. Please, discuss the Lifelong Learning (LLL) policy of your institution.*

In Kazakhstan there are no age limits for Higher Education. It has different forms – full-time, part-time, e-learning.

*10. Future teaching methodologies and their implementation*

*Thinking about future students, current learning strategies followed by many of them before entering university, and ICT technologies:*

*Which key competences, skills and practices do you think that will be needed at university level to enhance students learning experience? Explain briefly under faculty staff, student and stakeholders' point of view.*

Feature of educational programme of our University is that they are modular and on the basis of competence approach, taking into account opinions of employers and representatives of labor market. That is for development of educational programme representatives of the organizations are attracted: key competences of future graduate are discussed, joint catalogue of elective disciplines and programs the professional practices are formulated. Educational programme answers requirements of regional labor market. The teaching staff of the department outlined some Generic and Subject Specific competences to enhance students' learning practice. For example:

| Generic  | Subject Specific   |
|--|--|
| 1. Knowledge and understanding of the most important facts, concepts, theories and principles of the engineering disciplines and natural sciences supporting them and mathematics;<br>2. Ability to generalize and use scientific achievements in the solution of branch tasks.<br>3. Ability to modeling and design.<br>4. Ability to use IT.<br>5. Ability to apply knowledge into practice. | 1. Ability to carry out engineering, technical and economic calculations.<br>2. Ability to spatial thinking<br>3. Ability to solve practical engineering problems.<br>4. Ability to expect ecological consequences of projects and technological processes.<br>5. Ability to formulate and solve scientific problems, to conduct researches to receive new scientific and practical results. |

The stakeholders, taking an active part in the educational process of the university, present their analyses and proposals for future development of the university.