



**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
KA2 - Capacity-building in the Field of Higher Education**

Coordinated by Burgas Free University

**WP1 Research
Dev. 1.1
App. 8.7 Institutional Report – KUAM, Kazakhstan**



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INSTITUTIONAL SUMMARY REPORT – P7 KUAM, Kazakhstan

A. General Information

COUNTRY: Republic of Kazakhstan
INSTITUTION: Abay Myrzakhmetov Kokshetau University (KUAM)
ADDRESS: 189 “A”Auezov St., 020000 Kokshetau, Kazakhstan.

Faculty and departments:

1. Faculty of Environmental Engineering
2. Department of "Information Systems and Computer Science"

3. Department of "Environment, Health and Safety and Environmental Protection"

RELATED ACADEMIC UNITS:

Information systems:

Laboratory of physics, electrical engineering and radio; Laboratory of Information Technologies; Lab architecture of computer systems; Laboratory software engineering and design; Laboratory of computer modeling and econometrics; Laboratory of informatization and computerization of education; Laboratory of computer technology, information and testing; Cabinet hardware; Cabinet of Mathematics.

Life Safety and Environment Protection:

- B. *Laboratory of environmental monitoring and industrial hygiene; Laboratory of Industrial Ecology and Mathematical Modeling in Ecology; Biogeochemistry Laboratory; Laboratory of chemistry, chemical analysis and life safety; Cabinet bioecology; Cabinet geocology; Ecology Cabinet; Club "noosphere"; Security Cabinet of life and safety; Cabinet of physiology and hygiene.***

C. 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)¹, with indication of the Area (see table) where the academic program should be considered.

Engineering	Area 1 (covers all types of classical Engineering degrees including electrical, mechanical, electronic, agricultural, aerospace, civil, mine, telecommunication, computer, etc.)
Engineering Trade	Area 2 (covers all types of general industrial Engineering degrees including design, logistics, management, business, etc.)

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

¹If 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.

Area	Name of the Academic Program	Educational degree provided (<i>Bachelor, Master</i>)	Form of study (<i>part-time, full-time, distant education</i>)	Approximate total number of students	Total number of academic staff
Area 1	Information Systems	Bachelor	full-time	99	13
Area 1	Information Systems	Bachelor	part-time	7	13
Area 1	Information Systems	Master	full-time	48	12
Area 1	Environment, Health and Safety and Environmental Protection	Bachelor	full-time	161	20
Area 1	Environment, Health and Safety and Environmental Protection	Bachelor	part-time	2	20
Area 1	Environment, Health and Safety and Environmental Protection	Master	full-time	3	2

II. Current State of Education

Please, provide the following information for your university.

II.1. Quality of the Program's Curriculum and the Teaching Programs. Provide the information for each general type of 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 (please write down just the total length and the number of ECTS of each type).

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

- **Type:** may refer to (bachelor/master/professional bachelor/academic bachelor, and similar categories in case you have such types of degrees at your university)
- **Area:** may refer to Area 1 or Area 2 as defined in B.1

Table 2. Number of ECTS within each TYPE/AREA	SUBJECT TYPE	NUMBER OF ECTS
Area 1/Bachelor/Full time /Information systems	General education disciplines	36
	Basic Disciplines	64
	Core disciplines	32
	Elective or Optional	18
	Internship or training activities	8
	Final Project and state examination	3
	TOTAL PER TYPE OF DEGREE OR MASTER	161

Table 2. Number of ECTS	SUBJECT TYPE	NUMBER OF ECTS
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within each TYPE/AREA		
Area 1/Bachelor/ part-time/Information systems	General education disciplines	36
	Basic Disciplines	64
	Core disciplines	32
	Internship or training activities practice	8
	Final Project and state examination	3
	TOTAL PER TYPE OF DEGREE OR MASTER	143

TYPE/AREA	SUBJECT TYPE	NUMBER OF ECTS
Area 1/ Masters /specialized /Information systems	General education disciplines	10
	Core Disciplines	26
	Internship or training activities/Practice	4
	Final Project and state examination	8
	TOTAL PER TYPE OF DEGREE OR MASTER	48

TYPE/AREA	SUBJECT TYPE	NUMBER OF ECTS
Area 1/ Masters /Educational research /Information systems	General education disciplines	20
	Core Disciplines	22
	Internship or training activities/Practice	6
	Final Project and state examination	11
	TOTAL PER TYPE OF DEGREE OR MASTER	59

TYPE/AREA	SUBJECT TYPE	NUMBER OF ECTS
Area 1/ Bachelor/Full-time/Life Safety and Environment Protection	General education disciplines	36
	Basic Disciplines	64
	Core disciplines	32
	Elective additional educational	18
	Internship or training activities/практика	8
	Final Project and state examination	3
	TOTAL PER TYPE OF DEGREE OR MASTER	161

TYPE/AREA	SUBJECT TYPE	NUMBER OF ECTS
Area 1/ Bachelor/part-time /Life Safety and Environment Protection	General education disciplines	36
	Basic Disciplines	64
	Core disciplines	32
	Internship or training activities	8
	Final Project and state examination	3
	TOTAL PER TYPE OF DEGREE OR MASTER	143

TYPE/AREA	SUBJECT TYPE	NUMBER OF ECTS
Area 1/ Masters /specialized / Life	General education disciplines	10
	Core disciplines	26

Safety and Environment Protection	Internship or training activities	4
	Final Project and state examination	8
	TOTAL PER TYPE OF DEGREE OR MASTER	48

TYPE/AREA	SUBJECT TYPE	NUMBER OF ECTS
Area 1/ Masters /educational research / Life Safety and Environment Protection	General education disciplines profile (basic	20
	Core disciplines	22
	Internship or training activities/Practice	6
	Final Project and state examination	11
	TOTAL PER TYPE OF DEGREE OR MASTER	59

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

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

Yes (The educational program is based on the principles of the Bologna Process and the Dublin descriptors).

Collaborative work with universities-partners, based on the Agreements, memorandums etc. (Central Bohemia University, University of Milan etc.)

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)

50,3 % of the teaching staff holds a PhD degree.

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.

University personnel policies consistent with the mission (training competitive specialists for the northern region through modernization and development of corporate culture and thought-out social policy) and future development strategy of the University until 2020 and aims to maintain and develop the professional capacity of the teaching staff, the creation of conditions to improve scientific teaching, qualification and career development of faculty and staff. Also conducted training of teaching staff on the basis of their own and other leading universities in the country. There are different ways and forms of this process (methods).

- a) Workshops with the involvement of practitioners and professionals from enterprises and university departments.
- b) Training seminars organized internally at each department on a regular basis.
- c) University methodological seminars, organized three times a month.
- d) Participation in the international seminars, workshops, training courses.
- e) Participation in international, national, regional and institutional conferences.
- f) Many other ways. (webinars, interactive use of multimedia equipment, the use of interactive methods, online courses, face to face and remote certified courses, research internships, case technology 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.

QAS at a National Level

Republic of Kazakhstan has its own national system of Education Quality Assurance. According to the Law of the Republic of Kazakhstan "On Education», 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 - 19%

There are 48 disciplines in educational program, 31 of them are university disciplines according to the curricula. Updating the educational program for the last 3 years.

WEB PROGRAMMING
Perspective programming languages: C#, Java, Net, PHP
Programming language C ++
Java programming language
WEB TECHNOLOGIES
Management and managements in IT
Web - design
Design of IS with use of modern DBMS
Configuration bases in system "1C the Enterprise 8"

LSEP - 23%

47 disciplines of all in education program from them 21 disciplines of a high school component according to the standard curriculum.

Updating the educational program for the last 3 years.

Protection of the air basin from pollution
Complex use of natural and secondary resources
Metrology, standardization and certification
Engineering systems, networks and equipment
Bases of chemical and biological safety
Protection of land resources
Emergency situations of natural and technogenic character
Design and operation without - and low-waste productions
Technological systems of cleaning natural and sewage
Bases of ecological safety of the industrial enterprises
Bases of the pre-medical help

g. Usage of contemporary references or bibliography recommended to students

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

Table 3. Bibliography/references

Formation of a library stock of educational programs is provided according to standard programs and working curricula.

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)
University – 28.5%	University – 67,3%	University - 84%
Engineering and ecological faculty - 31.2%	Engineering and ecological faculty - 66,3%	Engineering and ecological faculty – 83.7%
«Information system and informatics» department -32.2%	«Information system and informatics» department - 65,3%	«Information system and informatics» department – 80%
«Ecology, Life Safety and Environmental Protection» department – 29.3%	«Ecology, Life Safety and Environmental Protection» department – 67,5%	«Ecology, Life Safety and Environmental Protection» department - 90%

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.

Table 4. ICT facilities

Indicator	Value
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Teaching e-platform accessible online to support general teaching activities	Educational process information, innovative system "Platonus 3.0» allows teachers online, offline (intranet) interact with students. The system has the centralized database in which all real events and processes of Higher Education Institution are reflected. Each student 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. Electronic document flow, administration of students including graduates, support of educational process, the administrative reporting and statistics. This AIS is adapted for rules and requirements of credit education technology in Kazakhstan.
On-line platform for non-presential education courses	Also for obtaining additional skills and competences for career development students can study disciplines according to Apache Open Meetings system (conducting of webinar courses).
ICT lab facilities for students and percentage of students that access to them	Yes – 100% on specialties IS and LSEP
Number of software products used for educational purposes	Now in educational process the following software is used (SoftWare): 1C 8.0 Enterprise. Bookkeeping. network version; 3DS Max 2016; Adobe Photoshop 7.0 CE; Adobe Photoshop Extended CS4 11 Windows Russian; AdobePhotoshop Extended CS5 12.0 Win AOO; AdobePhotoshop Extended CS6 1.0 Win ESD RU; Autodesk 3ds Max 2011 Education New SLM EN; Corel Draw Craphics Suite X3, 4,6,7; Delphi 2007; Libre office 5.0; Mental ray Standalone 2011 Commercial New EN; Pythagoras; TurboDelphiExplorer; Visual FoxPro Professional 9.0 Win32; Compass;

	Electronic program of the tax reporting SPTR (System of Processing of the Tax Reporting); ERA 1.7
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)	90%
Average share of academic hours per course/subject held in a computer lab	65%
Average share of the teaching staff who regularly use ICT-based methods of teaching	100%
Type of e-learning devices used by teaching staff (i.e. personal computer, smartphones, tablets, etc.)	Interactive whiteboard, personal computer, laptop, smartphones, tablets, multimedia projectors
Devices used by students in classrooms (type of personal devices: i.e. laptop, smartphones, tablets, etc.)	personal computer, smartphones, interactive whiteboards
E-learning materials (e-based content) based on e-platform (i.e. Moodle, Sakai, Caroline, etc.)	"Tamos university suite tus 1.9 (Tamos University Suite) is specialized for the organization of distance learning, allows to make complex decisions for automation of educational processes on credit technology in Higher Education Institution.
Webbasedlearning-MOOCs	No
Students evaluation methods	Online-tests, oral examination, combined, portfolio, one-minute questions, multiple choice tests.
Other non-traditional evaluation methods for transversal competences	Self-assessment with online test, quizzes, course works, project preparation and defense.

III Digital Framework

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

From 2010 till present it is applied network and case-technology on all specialties of bachelor degree for students with the accelerated form of education. Distance Learning Center provides services in introduction of new information technologies; provides improvement of software; realizes support of training courses; delivery of training material (contents); organizes consultations, feedback and control of students' knowledge.

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.):

Table 5. Digital Framework

	CONCERNS	KEY ACTIONS
Articulation by faculties, schools and CSUs of plans for technology use	Motivation of the academic staff to use actively ICT facilities, services and devices	in-service training, workshops, financial assistance within government and university (bonus payments for academic staff of the university)
Student experience and support in ICT use	Ability and motivation of students to use actively the e-learning system	Webinars, seminars, workshops, online tutorials, master-classes
Administrative Staff training and support in ICT use to improve the digital competence	Ability of administrative staff to use ICT, enhancing skills related to ICT usage	National Development Centre "Orleu" is financed by the government, inner university educational and methodical seminars are held, international qualification upgrading courses.
Faculty Staff training and support in ICT use to improve the digital competence	Ability of the faculty staff to fully exploit the e-learning system	In-service training
Library services. Research tools	Access of students and staff to library resources – textbooks, databases; research and study references	In-service training of librarians; an extension of the e-resources provided by the university library: e-catalog (KABIS), books, periodicals, data, access to Republic interuniversity library, and every member of the teaching staff develops an electronic methodical complex on every subject of the educational program, etc.
Technological support for assessment activities	Providing technology-supported assessment	An open access of a student to the results of educational achievements (an electronic register, transcript).
MOOCs or online courses	No MOOCs or online courses have been offered until now	Exploring the opportunities for offering MOOCs
On-line services addressed to the students (class timetable, exam timetable, courses history, grades, digital library and etc.).	Keeping each student fully informed on her academic portfolio.	Extending the e-services and information supplied to students: admission services, e-payments and administrative services, study schedules, exams, grades, curricula and teaching programs, 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, face-to-face learning, gamming learning, partnering learning, etc.)

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

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, seminars, international teleconferences.

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.

The university survey is conducted annually, aimed at determining the level of satisfaction of the students educational programs related to the university, the educational process and the chosen specialty. Center for constant monitoring of employment of graduates is conducted practical training and employment.

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.

Each year, the adjustment is carried out with employers training programs, taking into account the acquisition of the necessary professional competence of graduates, as evidenced by reviews and recommendations, as well as the employer provides reviews and recommendations about the quality of students passing the professional practices.

To create favorable conditions to attract employers in university job fairs (job placement), on the basis of the university are held annually educational-methodical seminars, meetings for teachers of schools of city and region, employers are invited to conduct master classes and teaching, invited leading experts and heads of various in town to participate in counseling degree and research projects, in the final attestation commission.

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.	0
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.	0

4. Employability of graduates. (Please provide information by University/Faculty/Areas as described in Table 1 if such data is known and available.)

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).

18% - on average - do not work in the specialty.

82% - work in the specialty.

- 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).

96% on average - hold office in accordance with the higher and postgraduate education.

4% on average - are working in the fields below the level of education.

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.)

Part of classes of the following subjects is held in a real-life working environment (companies, factories):

Mandatory 4,5 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

Between 2 and 4 % of the classes are held in a real-life environment (companies, factories).

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 and to give a characteristic from an employer. 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.)

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 – 4%.

IS

For each course the university invites foreign specialists. For 2014 – 2015 academic year:

Visiting professors – 1 professor.

LSEP

For each course the university invites foreign specialists. For 2013 – 2014 academic year:

Visiting professors – 1 professor.

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

Implementation of accounting of interests of employers in the development of educational programs carried out in several stages. University conducts market analysis of labor market in the regions of northern and central Kazakhstan. University Employment Centre in conjunction with the PPP producing departments examines trends and prospects of development of priority sectors of the economy of the region (in the field of information technology and life safety and environment). Every year, on the basis of market analysis, in the preparation of curricula and training programs for teachers of the department, together with the employers accepted the list of required for the study of subjects with the requirements of professional knowledge, skills and competences to specialists, as well as compliance with relevant areas of the study area.

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

The project is in development.

9. Please, discuss the Lifelong Learning (LLL) policy of your institution such as students, alumni, company members, retired citizens, other actions.

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

Feature of educational programs 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. Discussion and adoption of the draft of the educational program is carried out at faculty meetings, teaching faculty council, teaching university council. In the

development of educational programs take into account the interests of potential employers, carried out a survey among students to meet the educational programs. Each year, with employers conducted adjustment of educational programs to meet the requirements of professional knowledge, skills and competences to specialists, as well as compliance with relevant areas of the study area, as evidenced by reviews and recommendations.

External examination of the educational program is carried out by employers. In the examination of an employer gives a brief description of the educational program on the following: relevance of the program, the logical sequence, practical significance, the expected learning outcomes, assessment of "Models of the graduate", full disclosure and description of the competencies, the recommendation of the employer.