

The Technology of Programme and Institutional Ranking of HEIs of the Republic of Kazakhstan in the directions and levels of preparation

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This technology is universal that allows to establish the rating of HEIs of the Republic of Kazakhstan, both in general and differentially, for educational programmes for the directions of training specialists contemporaneously in a format of three-level structure of the academic ranks: Bachelor –Master – Doctor of Philosophy (PhD).

For the first time the attempt is done to determine a staff ranking in general in the Republic of Kazakhstan and at each HEI on the basis of their contribution to education and science.

In general, the succession of the maintenance of the method to the academic ranking carried out by IAAR is kept.

Objectivity of the rating is provided so that many indicators are the checked data or are taken from the international electronic network. For example, competitiveness of publications on Hirsh's index.

The structure of criteria and indicators on all three levels is identical and consists of 5 indicators.

As input indicators there are included institutional accreditation of HEI and specialized accreditations educational programmes for three steps of training of specialists (Bachelor degree, Master's degree and Doctoral studies).

The indicator “**High concentration of talented students, teachers and researchers**” consists of two parts: students and teachers. The following students are registered in the order of their surnames: the students who study on the educational scholarship (including rural quota), the holders of “Golden Sign” (“Altyn Belgы”) and the graduates who gained the diploma with excellence for the last three years. Full-time staff and their achievements in the section of HEIs of the Republic of Kazakhstan are registered in the order of their surnames: academic degrees, state and nominal awards, scientific grants, “The best teacher of HEI” and leading the scientific grant of MES of the RK.

In the indicator “**Academic mobility**”, mainly, there considered professors and students who are coming from abroad to the university and leaving professors and students of the university to foreign universities, and also existence of joint educational programs with foreign partners in two-degree education.

In the indicator “**Competitiveness of the graduates**” the main indicator is employment of the graduates of 2013, trained on rural quota, educational grant and on the basis of the contract.

In the indicator “**Competitiveness of the scientific publications of the teachers in the specialty**” Hirsh's (h-index) indexes on ISI Web of Knowledge, Thomson Reuters and Scopus, and patents and inventions as well are considered. These indicators absolutely independently are defined from the specified international electronic resources.

If in the educational program “Bachelor’s degree” all indicators deal with students and teachers, in the educational program “Master’s degree” and “PhD studies” all indicators deal with undergraduates and doctoral candidates, respectively.

According to the methodology of national ranking of educational programs it is developed the special computer program for processing of database and checking reliability of indicators completed by HEIs.

The sum of indicators on the educational program “Bachelor’s degree” - $I(B)$ is counted on the following formula: $I(B) = I_0 + \sum_{n=1}^4 N_n * k_n$ or $I(B) = I_0 + N_1 * k_1 + N_2 * k_2 + N_3 * k_3 + N_4 * k_4$,

where N_1, N_2, N_3, N_4 - the score gathered on indicators I_1, I_2, I_3, I_4 , respectively. I_0 - input data on the HEI; I_1 - high concentration of talented students, teachers and researchers; I_2 - the academic mobility; I_3 – competitiveness of graduates; I_4 - competitiveness of the scientific publications of the teachers in the specialty; k – weight coefficient of the indicator (Table No. 1).

If to consider that all indicators, except I_0 , are equal, i.e. their contribution to the total amount of the points is identical, coefficients will be equal to: $k_1 = k_2 = k_3 = k_4$ and levels $k_n = 0,25$. In need of their priorities cope through the same coefficients.

The score on Master’s degree and PhD degree is determined in the analogical way – $I(M)$ and $I(D)$ respectively. However, the maintenance of indicators will be mainly aimed at achievements of undergraduates (Table No. 2) and doctoral candidates (Table No. 3).

In general, the general point of the specialty (of the educational programme) of HEI is defined by summing the points gained on Bachelor degree, Master’s degree and PhD studies:

$$I = I(B) + I(M) + I(D)$$

The computer programme allows to sum up the specialty points on three-level structure (Bachelor degree – Master’s degree – PhD studies) and on the basis of

these data to define the rating of an educational programme for the directions of preparation of all HEIs of the Republic of Kazakhstan.

Thus, from the received database the programme allows to establish the rating of the specialties (of the educational programmes):

- in the direction of preparation - education, natural-science, etc.;
- on three-level structure (Bachelor degree – Master’s degree – PhD studies);
- general rating of HEIs of the Republic of Kazakhstan;
- rating of teachers of HEIs of the Republic of Kazakhstan.

Objectivity of data is provided with the computer programme from a database of republican and international informational resources, and therefore, their paper maintenance isn't required.

Table 1 – Criteria and indicators of ranging of the educational programme of Bachelor degree in HEI

№	Name of criteria and indicators	Weight, %
	<p style="text-align: center;">I_0 (input data of HEI)</p> <ol style="list-style-type: none"> 1. Full name of the HEI: _____ 2. Data on the institutional accreditation: data of the accreditation agencies <ul style="list-style-type: none"> • National • International 3. Status of the educational programme: Bachelor’s degree 4. Direction of preparation: Education 5. Specialty (educational program): 5B011000 - Physics 6. Data on the specialized accreditation: data of agency <ul style="list-style-type: none"> • National • International 	I_0
1	<p>High concentration of talented students, teachers and researchers (I_1)</p> <p>1.1 Students</p> <p style="padding-left: 40px;">Total number: _____</p> <p style="padding-left: 40px;">Full-time department: _____</p> <p style="padding-left: 40px;">From them:</p> <p style="padding-left: 40px;">Educational scholarship: Ivanov A.</p> <p style="padding-left: 40px;">On the contractual basis: _____</p> <p style="padding-left: 40px;">Distance learning department: _____</p> <p style="padding-left: 40px;">From them:</p> <p style="padding-left: 40px;">Educational scholarship: Ivanov A.</p> <p style="padding-left: 40px;">On the contractual basis: _____</p> <p style="padding-left: 40px;">The holders of “Altyn Belgy” (“Golden Sign”): Zhanbolatov A.</p>	0,25, 25%

	<p>The graduates who has taken the diploma “with excellence” in: 2013: Zhanbolov A. 2012: Yerbolov A. 2011: Yessbolov A.</p>	
1.2	<p>Full-time teachers Total: From them: With the academic degrees: _____ From the academic degrees: Doctors of Philosophy: Ivanov A. A. Candidates of Science: Markov PhD: Nurbolov A Awardee of the State Award of the RK: _____ Holders of the Nominal Awards of MES RK: (of K.Satpayev, Ch.Ch.Valikhanov, Y.Altynsaryn, Kuil-tegin, D.A.Kunayev, M.O.Auezov): Zhubayev A. Holders of the State Scientific Scholarship: Ibrayev Zh. Holders of “The Best Teacher of the HEI” of MES RK: Abuov A. Supervisors of the Scientific Grant of MES RK: Mamyrov B.</p>	
2	Academic mobility (I_2)	0,25, 25%
2.1	<p>The invited teacher (professor or PhD) from foreign countries, giving classes and accepting examination in readable discipline of basic (BD) or main (PD) of the cycle in the specialty in 2012-2013 and 2013-2014 academic years N. Itoh</p>	
2.2	<p>The teacher (Doctor of Science, Candidate of Science, PhD) of the main chair, giving classes in HEIs or making researches in scientific centers of foreign countries in 2012-2013 and 2013-2014 academic years: Maksimov A.</p>	
2.3	<p>The students from foreign countries, studied during one semester in 2012-2013 and 2013-2014 academic years. V. Millen</p>	
3.4	<p>The students of the specialty trained during one semester in HEI of foreign countries in 2012-2013 and 2013-2014 academic years. A.Ospanov</p>	
3.5	<p>Joint educational programs with foreign partners in two-degree education:</p>	
3	Competitiveness of the graduates (I_3)	0,25, 25%
3.1	<p>Total number of the graduates in 2013: From them: On the rural quota: Total From them the employed graduates in the year of their leaving the university (in 2013): _____ On the educational grant:</p>	

		<p>Total From them the employed graduates in the year of their leaving the university (in 2013): _____ On the basis of the contract: Total From them the employed graduates in the year of their leaving the university (in 2013): _____</p>	
4	Competitiveness of the scientific publications of the teachers in the specialty (I_4)		0,25, 25%
	4.1	Publications according to Hirsh's (h-index) index on ISI Web of Knowledge, Thomson Reuters: Ivanov A.	
	4.2	Publications according to Hirsh's (h-index) index on Scopus: Ivanov A.	
	4.3	Patents and inventions for 2009-2014: Republican (Ivanov A.) International (Ivanov A.)	

Table 2 – Criteria and indicators of ranging of the educational programme of Master's degree in the HEI

№	Name of criteria and indicators	Weight, %
	<p>I_1 (input data of the HEI)</p> <p>1. Status of the educational programme: Master's degree 2. Direction of preparation: Education 3. Specialty (educational program): 5M011000 - Physics 4. Data on the specialized accreditation: data of agency</p> <ul style="list-style-type: none"> • National • International 	
1	High concentration of talented master students (I_1)	0,25, 25%
	<p>1.1 Total number: Full-time department: From them: Educational grant: _____ On the basis of the contract: The undergraduates who has taken the diploma "with excellence" in: 2013:</p>	

		2012: 2011:	
2	Academic mobility (I_2)		0,25, 25%
2.1	The undergraduates from foreign countries trained during one semester in 2012-2013 and 2013-2014 academic years: 1. Mark		
2.2	The undergraduates in the specialty trained during one semester in HEI of foreign countries in 2012-2013 and 2013-2014 academic years: • Ospanov		
2.3	Joint educational programmes with foreign partners in two-degree education: • ARGU-Gdansk university		
3	Competitiveness of the undergraduates - graduates of the specialty		0,25, 25%
3.1	The number of the undergraduates in 2013: _____ From them the employed undergraduates in the year of their leaving the university (in 2013): _____		
4	Competitiveness of the scientific publications of the undergraduates in the specialty		0,25, 25%
4.1	Publications according to Hirsh's (h-index) index on ISI Web of Knowledge, Thomson Reuters: Ivanov A.		
4.2	Publications according to Hirsh's (h-index) index on Scopus: Ivanov A.		
4.3	Patents and inventions for 2009-2014: Republican (Ivanov A.) International (Ivanov A.)		

Table 3. – Criteria and indicators of ranging of the educational program of PhD studies of HEI

№	Name of criteria and indicators	Weight, %
	I_0 (input data of the HEI)	
	<ol style="list-style-type: none"> 1. Status of the educational programme: PhD 2. Direction of preparation: Education 3. Specialty (educational program): 5D011000 - Physics 4. Data on the specialized accreditation: data of agency <ul style="list-style-type: none"> • National • International 	
1	High concentration of talented students in PhD studies (I_1)	0,25, 25%
1.1	Doctoral students	

		<p>Total: Research supervisor in RK: Research supervisor from a foreign country: The undergraduates who have successfully graduated with the defended thesis work: In 2013: In 2012: In 2011:</p>	
2	Academic mobility (I_2)		0,25, 25%
	2.1	The doctoral students from foreign countries trained during one semester in 2012-2013 and 2013-2014 academic years: 1. Mark	
	2.2	The doctoral students of the specialty trained during one semester in HEI of foreign countries in 2012-2013 and 2013-2014 academic years: • • Ospanov	
	2.3	Joint educational programmes with foreign partners in two-degree education: •	
3	Competitiveness of the undergraduates - graduates of the specialty		0,25, 25%
	3.1	The number of the undergraduates in 2013: _____ From them the employed undergraduates in the year of their leaving the university (in 2013): _____	
4	Competitiveness of the scientific publications of the undergraduates in the specialty		0,25, 25%
	4.1	Publications according to Hirsh's (h-index) index on ISI Web of Knowledge, Thomson Reuters: Ivanov A.	
	4.2	Publications according to Hirsh's (h-index) index on Scopus: Ivanov A.	
	4.3	Patents and inventions for 2009-2014: Republican (Ivanov A.) International (Ivanov A.)	

Independent agency for
accreditation rating