



ASIIN Accreditation Report

Bachelor's and Master's Degree Programmes

Ecology

Hydrology

Life Safety and Environmental Protection

Master's Degree Programme

Geoecology and nature use management

Provided by

Al Farabi University of Almaty

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A About the Accreditation Process

Title of the degree Programme	Labels applied for ¹	Previous accreditation	Involved Technical Committees (TC) ²
Ba Ecology	ASIIN		TC 11
Ma Ecology	ASIIN		TC 11
Ba Hydrology	ASIIN		TC 11
Ma Hydrology	ASIIN		TC 11
Ba Life Safety and Environmental Protection	ASIIN		TC 11
Ma Life Safety and Environmental Protection	ASIIN		TC 11
Ma Geoecology	ASIIN		TC 11
<p>Date of the contract: 20.09.2012</p> <p>Submission of the final version of the self-assessment report: 17.02.2014</p> <p>Date of the onsite visit: 23.-24. June 2014</p> <p>at: Almaty</p>			
<p>Peer panel:</p> <p>Prof. Dr. Roland Baumhauer, University of Wuerzburg;</p> <p>Prof. Dr. Tobias Hillmann, University of Applied Sciences Neubrandenburg;</p> <p>Tatyana Oitseva (Student), East Kasakh State Technical University of Ust Kamenogorsk;</p> <p>Dr. Dieter Schaefer, Bayer CropScience;</p>			

¹ ASIIN Seal for degree programmes

² TC: Technical Committee for the following subject areas: TC 01 – Mechanical Engineering/Process Engineering; TC 02 – Electrical Engineering/Information Technology); TC 03 – Civil Engineering, Surveying and Architecture; TC 04 – Informatics/Computer Science); TC 05 – Physical Technologies, Materials and Processes); TC 06 – Industrial Engineering; TC 07 – Business Informatics/Information Systems; TC 08 – Agronomy, Nutritional Sciences and Landscape Architecture; TC 09 – Chemistry; TC 10 – Life Sciences; TC 11 – Geosciences; TC 12 – Mathematics; TC 13 – Physics.

Prof. Dr. Uwe Troeger, Technical University of Berlin
Representative of the ASIIN headquarter: Dr. Michael Meyer
Responsible decision-making committee: Accreditation Commission for study programmes
Criteria used: European Standards and Guidelines as of 10.05.2005 ASIIN General Criteria, as of 28.06.2012 Subject-Specific Criteria of Technical Committee 11 – Geosciences as of 09.12.2011

In order to facilitate the legibility of this document, only masculine noun forms will be used hereinafter. Any gender-specific terms used in this document apply to both women and men.

B Characteristics of the Degree Programmes

a) Name & Final Degree	b) Areas of Specialization	c) Mode of Study	d) Duration & Credit Points	e) First time of offer & Intake rhythm	f) Number of students per intake	g) Fees
Ecology, B.Sc.		Full time	8 Semester 149 Kazakh credits = 6705 hours = 248 ECTS	SS 2004 April each year	66 / 2011-2012 23/2012-2013 16/2013-2014	635 000 kzt (3 256€)
Ecology, M.Sc.		Full time	4 Semester 59 Kazakh credits = 2655 hours = 99 ECTS	SS 2004 April each year	13 / 2011-2012 24/2012-2013 22/2013-2014	650000 kzt (3 333 €)
Hydrology, B.Sc.		Full time	8 Semester 149 Kazakh credits = 6705 hours = 248 ECTS	WS 2009 September each year	50/2009 30/2010 25/2011 19/2012 20/2013 13/2014	620 000 kzt (3000 €)
Hydrology, M.Sc.		Full time	4 Semester 59 Kazakh credits = 2655 hours = 99 ECTS	WS 2010 September each year	5/2010 10/2011 10/2012 11/2013 10/2014	660 000 kzt (3200€)
Life Safety and Environmental Protection, B.Sc.		Full time	8 Semester 149 Kazakh credits = 6705 hours = 248 ECTS	SS 2004 April each year	107 students / 2013-2014 academic year	620 000 kzt (3000 €)
Life Safety and Environmental Protection, M.Sc.		Full time	4 Semester 59 Kazakh credits = 2655 hours = 99 ECTS	SS 2011 April each year	12 masters / 2013-2014 academic year	750000 kzt (3 620 €)
Geoecology and Nature Use Management, M.Sc.		Full time	4 Semester 59 Kazakh credits = 2655 hours = 99 ECTS	SS 2004 April each year	5 / 2011-2012 4/2012-2013 7/2013-2014	660 000 kzt (3200€)

For the degree programme BA Ecology the self-assessment report states the following **intended learning outcomes**:

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Knowledge
1. the basic laws that govern the interaction of living organisms with their environment
2. strategies and challenges of sustainable development and practical approaches to solving them at the global
3. Determine the function, object and methods of study
4. chemical composition of foods, artificial additives and their effects on the human body, standard methods of monitoring food safety;
5. environmental characteristics of the representatives of the animal kingdom, the mechanisms of regulation of populations of animals, for the conservation of biodiversity;

Understanding
1.the scientific, philosophical and religious paintings of world view, ethical values
2.the processes and phenomena that occur in living and non-living nature
3.the nature and power of politics, political relations and processes
4.the main stages in the history of mankind and their history
5.healthy lifestyle
6.the achievements of modern natural science, physical principles of modern technical devices
7.mathematics as a special way of understanding the world, its common concepts and ideas
8.information, its storage methods, the development and transfer
9.the scientific, philosophical and religious paintings of world view, ethical values

Application
1. the nature and content standardization, standardization of the legal framework, types of standards, organization of standardization in the Republic of Kazakhstan
2. directives of the European Community (EC) in the field of ecology, eco-labeling, international standards organizations ISO and its role in ekostandards chose forms, methods and means of collecting information
3. EIA-apply methods for different types of projects planned and projected economic activity

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4. make a complex geoecological EIA.
5. Skills and abilities in the application of surveillance and control, with changes in the state of natural and anthropogenic systems

1. Identify and analyze the natural and man-made ecological processes and their possible regulation
2. The skills of analysis and geo-ecological assessment of regions with a view to optimizing their nature
3. an analysis of the global energy and ecological scenarios and local civilization and development of the world energy market
4. Differentiate situations and approaches to solving problems
5. analyze the migration of chemical elements in the biosphere and ecotoxicological assessment of pollution substance of its various components

the synthesis
1. work with computer technology as part of their specialty.
2. initiative and willingness to develop skills for the development of policies and internships in the development of group projects.
3. know the basics of organizing and carrying out environmental monitoring of ecology for solving environmental and natural resource management.
4. in the newly developing areas of Ecology
5. To manage information base of ecology
6. To organize conferences, debates, special courses and round-table discussions on issues of concern
7. Propose possible scientific methods of learning to achieve goals

Evaluation
1. be able to assess the effectiveness of the various areas of ecology production in a market economy, to know and be able to competently use in their professional activities terminology own methods of mathematical modeling in the creation of ecological products
2. be able to apply their knowledge to solve practical, methodical and infor-

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mation retrieval tasks, and environmental objectives
3. be able to analyze complex problems of applied science and finding viable solutions to apply the principles of technology and information security, information security, administration and organization of database security
4. know the methods of remote sensing and interpretation of materials aerokosmosemki and be able to apply them to solve a variety of practical tasks and problem situations
5. own modern methods of mathematical and statistical analysis of data to process, analyze and synthesize geospatial data

The following **curriculum** is presented:

Title of modules	Course code	Title of courses	Credit	ECT S/hours	Lec/prac/Lab.	Sem.
1. State Compulsory Module (10 credits)	HRK1101	History of the Republic of Kazakhstan	3	5/135	2+1+0	1
	K(R)LPP1102	Kazakh (Russian) language for professional purposes	3	5/135	0+3+0	1
	FLPP1103	Foreign language for professional purposes	3	5/135	0+3+0	1
	PSK2104	Philosophy of scientific knowledge	2	3/90	1+1+0	4
	PIC2201	Psychology of Interpersonal Communication	2	3/90	1+1+0	3
2. Social and Communicative Module (4 credits)	TAPS2202	Theoretical and Applied Political Science	2	3/90	1+1+0	3
	EPSS2203	Ethics of Personal and Social Success	2	3/90	1+1+0	3
	CR2204	Culture and Religion	2	3/90	1+1+0	3
	GAS2205	General and Applied Sociology	2	3/90	1+1+0	3
	HSH2206	Human safety and Health	2	3/90	1+1+0	3

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	KL2208	Kazakhstan Law	2	3/9 0	1+1+0	3
	FE2209	Fundamentals of Economics	2	3/9 0	1+1+0	3
3.1 Natural Sciences (STEM) module (6 credits)	ITPP1301	Information of technologies for professional purposes	3	5/1 35	1+0+2	1
	ECh1302	Ecological chemistry	3	5/1 35	1+1+1	2
	BI303	Biogeochemistry	3	5/1 35	1+1+1	2
	EB1304	Ecological biophysics	3	5/1 35	1+1+1	1
3.2. Basic Professional Modules						
Vocational Modules (115 credits)	Module 1 - Sustainable development and environmental science					
	ESDI401	Ecology and Sustainable Development	3	5/1 35	1+2+0	1
	EGES2402	Ecological geoecology and environmental science	3	5/1 35	1+2+0	4
	ECS1403	Ecology and soil conservation	3	5/1 35	1+1+1	2
	Module 2 - Environmental science					
	EFTFMP4404	Environmentally friendly technology for raw materials processing	3	5/1 35	1+1+1	7
	E4405	Ecotoxicology	3	5/1 35	1+1+1	7
	EG3406	Environmental Geochemistry	3	5/1 35	1+2+0	6
	IE2407	Industrial Ecology, Part 1	3	5/1 35	1+1+1	3
	IE2408	Industrial Ecology, Part 2	3	5/1 35	1+1+1	4
	TE2409	Technogenic ecology	3	5/1 35	1+2+0	4
	AE2410	Agricultural ecology	3	5/1 35	1+2+0	3
	PChE2411	Physics and Chemistry of Environment, Part 1	3	5/1 35	1+1+1	3
	PChE2412	Physics and Chemistry of Environment, Part 2	3	5/1 35	1+1+1	4
	Module 3 - Natural science and energy ecology				5	
	EANS1413	Environmental aspects of natural science	3	5/1 35	1+2+0	1

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	DAH1414	Doctrine of atmosphere and hydrosphere		3	5/1 35	1+2+0	2
	BEE2415	Basics of energy and ecology		3	5/1 35	1+2+0	4
	Module 4 Biomonitoring of Environment						
	EHA2416	Ecology of human and animals		3	5/1 35	1+1+1	3
	EM2417	Environmental monitoring		3	5/1 35	1+2+0	3
	BP1418	Biodiversity of plants		3	5/1 35	1+2+0	2
	EF4419	Ecology of food		3	5/1 35	1+1+1	7
	Module 5 Eco-development and evaluation of environmental impact						
	EGK1420	Environmental geosystems of Kazakhstan		3	5/1 35	1+2+0	2
	BEDEP4421	Basics of eco-development and eco-policy		3	5/1 35	1+2+0	7
	EIA3422	Environment impact assessment (EIA)		3	5/1 35	1+2+0	5
	ESC3423	Environmental standardization and certification		3	5/1 35	1+2+0	6
	3.3 Modules for Individual Educational Trajectories (IET)			3	5/1 35		
	IET 1 - «Ecology and environmental science»	IET 2- «Geoecology»	5	3	5/1 35		
	SW3501 Scientific writing (kaz/rus/eng)	SW3501 Scientific writing (kaz/rus/eng)	SW3501 Scientific writing (kaz/rus/eng)	1	2/4 5	0+0+1	6
	EN3502 Economics of Nature 1+2+0	PAK3502 Protected areas of Kazakhstan 1+2+0	GEE3502 Global energy and ecology 1+2+0	3	5/1 35	1+2+0	5
	EEAR3503 Ecological-economical	G3503 Geoecology 1+2+0	EN3503 Economics	3	5/1 35	1+2+0	5

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	assessment of regions 1+2+0		of Nature 1+2+0				
	EA3504 Environmental audit 1+2+0	GAR3504 Geoecological assessment of regions 1+2+0	NRMK3504 Natural resources markets of Kazakhstan 1+2+0	3	5/1 35	1+2+0	6
	ES3505 Environmental statistics 1+2+0	LPPMT3505 Landscape planning and project management of the territories 1+2+0	BGE3505 Basics of «Green» economy 1+2+0	3	5/1 35	1+2+0	6
	MRAE3506 Methods of risk assessment in ecology 1+2+0	ONAE3506 Optimization of natural and anthropogenic environment 1+2+0	BRE3506 Basics of Renewable Energy 1+2+0	3	5/1 35	1+2+0	5
	ELK3507 Environmental legislation of Kazakhstan 1+2+0	RSEE3507 Remote sensing of the Earth's in ecology 1+2+0	EPRES3507 Environmental problems of renewable energy sources 1+2+0	3	5/1 35	1+2+0	6
	NRMK3508 Natural re-sources	EA3508 Environmental audit	EESD3508 Energy	3	5/1 35	1+2+0	5

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	markets of Kazakhstan 1+2+0	1+2+0	efficiency for Sustainable Development 1+2+0				
	HCM4509 Human Capital Management 1+2+0	CCSD4509 Climate change and sustainable development 1+2+0	EESK4509 Environmental and energy security of Kazakhstan 1+2+0	3	5/1 35	1+2+0	7
	ESK4510 Environmental Safety of Kazakhstan 1+2+0	G4510 Geourbanistics 1+2+0	LKREA4510 Legislation of Kazakhstan in renewable energy applying 1+2+0	3	5/1 35	1+2+0	7
	DBN3511 Doctrine of biosphere. Noosphere 1 + 1+0	DBN3511 Doctrine of biosphere. Noosphere 1+1+0	DBN3511 Doctrine of biosphere. Noosphere 1+1+0	2	5/1 35	1+1+0	6
3.4 Interdisciplinary module							
	IB3601	Innovative business (by industry)		2	3/9 0	1+1+0	5
	IPL36	Intellectual property law		2	3/9	1+1+0	5

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	02			0		
	TOBS3 603	The temporal organization of biosystems and stress	2	3/9 0	1+2+0	5
	SD3 604	Sustainable development	2	3/9 0	1+2+0	5
	IB3 601	Innovative business (by industry)	2	3/9 0	1+1+0	5
	INT26 06	International negotiation techniques	2	3/9 0	1+1+0	4
4. Internship		Professional practice (by practice)	Minimum of credits			
Practice	EP101	1. Educational Practice (1st course)	2			2
	EP202	2. Educational Practice (2nd course)	6			4
	IP303	3. Industrial practice	1			6
	IP404	4. Industrial practice	4			8
5. Final Certification	5.1	Writing and defense of Bachelor's degree work	2	3		
6. Additional Types of Learning	6.1	Physical culture	8	3	0+0+2	

For the degree programme MA Ecology the self-assessment report states the following **intended learning outcomes**:

To know:

- main laws and mechanisms in ecology, forming an ecological and environmental thinking;
- foundations of quality standards and technical ways of improving of control system and environmental protection;
- foundations for preserving the quality of the natural environment within the limits which corresponding to biological, material and spiritual needs of the human personality and society;
- principles of organization of scientific activity;
- impact mechanisms of harmful and dangerous factors of industry and environment on human health and to be able to assess an environmental risk

- principles of rational use of nature, utilization of wastes;
- the main current trends in the field of ecology and environmental protection, both theoretical and applied aspects of ecology;
- principles, methods, techniques, tools that form the basis of scientific and applied activities at all stages of the formation of creative solutions: from the formulation laboratory and experimental research to practical implementation;
- to deepen the theoretical and practical knowledge in the direction of the environment, due to the needs of the state and the market, scientific, practical and teaching institutions;

To understand:

concepts of natural science and the basis of the methodology of scientific knowledge;

the dynamics of the transformation of natural ecosystems under the influence of existing anthropogenic pressures and simulate the optimal conditions for their sustainable development;

ways of use of legislative base in the field of environmental protection for to ensure the environmental safety of the enterprise;

environmental criteria (nature-protective, anthro-ecological and economic), which let make an environmental impact assessment, environmental auditing and environmental certification.

Use:

- to conduct a logical discussion on topics related to the solving of environmental problems;
- to create environmental documentation of the enterprise;
- apply IT for creation documents and saving the information in the area of environmental protection;
- current IT to solve complex issues of project, survey and research work;
- to work in a team and make decisions in the field of environmental protection on an interdisciplinary basis;
- to demonstrate the time management and organizational skills to solve practical problems in the field of environmental protection;
- system and creative approach to solving complex environmental problems;

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- to make a real contribution to improving environmental policy and environmental security of the Republic of Kazakhstan;
- to demonstrate the ability to comply with ethical norms and ecological culture.
- to carry out independent scientific research and expertise in formulating their own conclusions

Analysis:

- processes and phenomena occurring in the alive and non-alive nature;
- to solve issues of research and applied character on the evaluation of components of the environment;
- to compare modern methods of analysis of the state of the environment;
- to conduct statistical analysis of the measurement results, to carry out mathematical modeling and experimental planning;
- processes in the hydrosphere in conjunction with the processes occurring in the atmosphere and the Earth's lithosphere, and to allocate the factors of special ecological significance;
- to analyze and evaluate an advanced local and foreign experience in the field of conservation of ecology, environmental protection and rational use of natural resources

Synthesis:

- systematize the knowledge and coordinate research in the field of ecology;
- to predict possible scenarios of the environmental project;
- to develop scientific, ecological and socio-economic expertise of projects;
- to organize a comprehensive assessment of the natural and economic areas;
- to collect the materials and documents submitted for the state environmental expertise;
- to develop programs of industrial environmental control for enterprises of various branches;
- to organize presentations, to discuss and defend the submitted work in a foreign, Kazakh and Russian languages, the ability to prepare publications;
- to develop and implement projects to create new knowledge that may have major scientific importance

Evaluation:

- the effects of natural and technical disasters;
- the statements of international standards for environmental management systems;
- the statements of international standards for energy management systems
- to determine the ecological and economic importance of wildlife, natural and energy resources for natural-economic complexes;
- to evaluate the permissible values of emissions, discharges and pollution levels, as well as the permissible values extraction of natural resources for industrial use;
- to evaluate and implement "environmentally friendly" and "resources effective" technologies.

The following **curriculum** is presented:

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Title of modules	Course code	Title of courses	Credit	Unit /hours	Lec/p rac/L ab.	Se m.
Compulsory State Module 1	Ped 5203	Pedagogics	2	3/90	1+1+0	1
	Psy 5204	Psychology	2	3/90	1+1+0	1
Compulsory State Module 2	IFN 5201	History and Philosophy of Science	2	3/90	1+1+0	2
	Iya(p) 5202	Foreign language (Professional)	2	3/90	1+1+0	2
Compulsory Professional Module 1	OSSBR 5205	Environment and conservation of biological diversity	2	3/90	1+1+0	1
Compulsory Professional Module 2	OPNI 5206	Organization and Planning of Scientific Research	3	5/135	2+1+0	1
Compulsory Professional Module 3	BOS 5207	Environmental Biogeochemistry	3	5/135	2+1+0	2
Compulsory Professional Module 4	EEOP 5208	Ecological and Economic Basics of Nature Management	3	5/135	2+1+0	1
Compulsory Professional Module 5	SMOR E 5209	Modern Methods of Risks Assessment	3	5/135	2+1+0	2
Module of Individual Educational Path	5301	Electives	2	3/90	1+1+0	2
	5302	Electives	2	3/90	1+1+0	2
Module of Individual Educational Path	6303	Electives	3	5/135	2+1+0	3
	6304	Electives	2	3/90	1+1+0	3
Module of Individual Educational Path	6305	Electives	3	5/135	2+1+0	3
	6306	Electives	3	5/135	2+1+0	3
Module of Individual Educational Path	6307	Electives	3	5/135	2+1+0	3
	6308	Electives	3	5/135	1+1+0	3
Master's Reseach Work and Fullfilment of Dissertation	NIRM I	Research Seminar I	1			1
	NIRM II	Research Seminar II	1			2
	NIRM III	Research Seminar III	1			3
	NIRM	Research Seminar IV	4			4

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	IV				
Professional Practice	PP	Pedagogical Practice	3		2
	IP	Research practice	3		2,4
Final Attestation	KE	Complex Examination	1		4
	ZD	Dissertation Fullfilment and Defence			4

For the degree programme Ba Hydrology the self-assessment report states the following **intended learning outcomes**:

Knowledge:

- Identifying the objectives, methodology and methods using in professional activity of hydrologist;
- Have an idea traditions and culture of the Kazakhstan peoples and other nations of the world to own ways of learning and social communication;
- Modern concept of hydrological science and basic research and contemporary issues in the hydro-meteorological science field.

Understanding:

- Describe the basic teachings of the natural and hydrological sciences;
- The basic laws of nature and society, own culture of thinking, guided by ideals and values of a democratic society;
- The legal and ethical relationship between people in general to society and environment;
- The role of hydrology in related earth sciences, the application of hydrometeorological information in various fields of economic activity of the state

Application:

- Carrying out the sciences methods in a variety of occupations;
- Using of hydrometeorological information in various fields of economic activity and operational hydrological forecasting;
- Solve water resources problems by modern methods of data collection, processing and analyzing;
- Organizing and conducting hydrological regime of observation;
- Execute the project design documents;

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- Apply technical means and devices within the hydrological investigations and observations

Analysis:

- Focusing socially significant problems and processes,
- Selecting of main hydrological and meteorological information;
- Analysis of the social-economic situation of countries and regions, recognize its professional, social, economic role in society;

Synthesis

- Independently creating new knowledge, modern information tools and technologies;
- Produce the main types of hydrological and meteorological observations and works;
- Design the processing of observational data and preparing it for publication.
- Develop of guidelines for the environmentally safe use of land and water protection from pollution and depletion.

Evaluating:

- Calculating main parameters river runoff;
- Determine of water pollution in basic regions of state;
- Estimate efficiency of hydrological forecasts methods.
- Assess hydrological and water management calculations for the structural design and planning of water conservation measures

The following **curriculum** is presented:

Name of module	Code of discipline	Name of subjects (modules) and type of activity	Number of credits	Unit (ECTS)	L/P/L	Sem.
Semester 1						
1. State compulsory module (10 credits)	HRK 1101	History of the Republic of Kazakhstan	2	3	1+1+0	1
	K (R)LPP 1102	Kazakh (Russian) language for professional purposes	3	5	0+3+0	1
	FLPP 1103	Foreign language for pro-	3	5	0+2+1	1

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		essional purposes				
3. Block vocational modules (116 credits)	3.1 Natural science (STEM) module		12	20		
	HM 1302	Higher Mathematics	3	5	2+0+1	1
	Module 2 - Theoretical aspects of hydrology					
	GM 1406	General meteorology	3	5	2+0+1	1
	FH 1407	Fundamentals of hydrogeology	3	5	2+0+1	1
6. Additional types of training	PhC	The physical culture	8	13	0+0+2	1
Semester 2						
3. Block vocational modules (116 credits)	3.1 Natural science (STEM) module		12	20		
	IPP 1301	Information technology for professional purposes	3	5	1+0+2	2
	Phys 1303	Physics	3	5	2+0+1	2
	Hyd 1304	Hydrochemistry	3	5	2+0+1	2
	3.2 Basic vocational modules		75	125		
	Module 1 - Methods and means of measurements in hydrology					
	Hyd 1401	Hydrometrics I	3	5	2+0+1	2
	GC 1402	Geodesy and Cartography	3	5	2+0+1	2
MSPA HMO 1403	The methods of statistical processing and analysis of hydro meteorological observations	3	5	1+0+2	2	
4. Internship	4.1	Professional internship (type of internship)	14	23		
	TP 101	Teaching internship for hydrometrics (field)	8	13		2
6. Additional types of training	PhC	The physical culture	8	13	0+0+2	2
Semester 3						
2. Social - communicative module (4 credits)	PIK 2201	Psychology of interindividual communication	2	3	1+1+0	3
	TAPS 2202	Theoretical and applied political science	2	3	1+1+0	3
	EPSS 2203	Ethics of personal and social success	2	3	1+1+0	3
	CR 2204	Culture and religion	2	3	1+1+0	3
	GAS 2205	General and applied sociology	2	3	1+1+0	3
	HLS 2206	Human life safety	2	3	1+1+0	3
	ESD 2207	Ecology and sustainable	2	3	1+1+0	3

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		development				
	KL 2208	Kazakh law	2	3	1+1+0	3
	FE 2209	Foundations of Economic	2	3	1+1+0	3
3. Block vocational modules (116 credits)	3.2 Basic vocational modules		75	125		
	Module 1 - Methods and means of measurements in hydrology					
	Hyd 2404	Hydrometrics II	3	5	2+0+1	3
	Module 2 - Theoretical aspects of hydrology					
	FH 2408	Fundamentals of hydrology	3	5	2+0+1	3
	HML 2409	Hydrography the main lands	3	5	2+1+0	3
	Module 3 - Applied aspects of hydrology					
	HPh 2412	Hydro physics	3	5	2+0+1	3
6. Additional types of training	PhC	The physical culture	8	13	0+0+2	3
Semester 4						
1. State compulsory module (10 credits)	PhSK 2104	The philosophy of scientific knowledge	2	5	1+1+0	4
3. Block vocational modules (116 credits)	3.2 Basic vocational modules		75	125		
	Module 1 - Methods and means of measurements in hydrology					
	WTR 2405	Water-technical research	3	5	2+0+1	4
	Module 2 - Theoretical aspects of hydrology					
	HR 2410	Hydrology of rivers	3	5	2+0+1	4
	Module 3 - Applied aspects of hydrology					
	GRH 2413	General and river hydraulics	3	5	2+0+1	4
	WBS 2414	Water-balance studies	3	5	2+0+1	4
	HELR 2415	Hydraulic engineering and land reclamation	3	5	2+0+1	4
	3.4 Interdisciplinary module		4	7		
	IE 2601	Innovative entrepreneurship	2	3	1+1+0	4
	IL 2602	Intellectual law	2	3	1+1+0	4
	PhESGK 2603	Physical, economic and social geography of Kazakhstan	2	3	1+1+0	4
Gla 2604	Glaciology	2	3	1+1+0	4	
4. Internship	4.1	Professional internship (type of internship)	14	23		
	PP 202	Production internship	1+1+4			4
6. Additional types of training	PhC	The physical culture	8	13	0+0+2	4

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Semester 5							
3. Block vocational modules (116 credits)	3.2 Basic vocational modules			75	125		
	Module 2 - Theoretical aspects of hydrology						
	DFCP 2411	The dynamics of flow and channel processes		3	5	2+0+1	5
	Module 4 - Calculation methods of hydrological processes						
	HC 3417	Hydrological calculations I		3	5	2+0+1	5
WIC 3418	Water industry and calculations		3	5	2+0+1	5	
	3.3 Modules of individual educational trajectories (IET)			25	42		
	IET 1 - Hydrology	IET 2 - Hydro ecology	IET 3 – Water resources	24	42		
	SW 3501 Scientific writing (kz/rus/eng) 0+1+0	SW 3501 Scientific writing (kz/rus/eng)) 0+1+0	SW 3501 Scientific writing (kz/rus/eng) 0+1+0	1		5	
	HLRK 3502 Hydrology of lakes and reservoirs of Kazakhstan 2+0+1	PH 3502 Protection of the hydrosphere 2+0+1	PMSW 3502 Protection and monitoring of surface waters 2+0+1	3	5	5	
	HSER 3503 Hydrology of the seas and estuaries of rivers 2+0+1	WEL 3503 Water and environmental law 2+0+1	WWBWRE 3503 World water balance and water resources of the Earth 2+0+1	3	5	5	
	EEBWU 3504 Ecological and economic bases of water use 2+0+1	HM 3504 Hydrological monitoring 2+0+1	AWRK 3504 Assessment of water resources in Kazakhstan 2+0+1	3	5	5	
Semester 6							
3. Block vocational	Module 4 - Calculation methods of hydrological processes						

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tional modules (116 credits)	HC 3419	Hydrological calculations II		3	5	2+0+1	6	
	AAIRF 3420	Assessment of anthropogenic impacts on river flow		3	5	2+0+1	6	
	Module 5 - Methods of forecasts of hydrological processes							
	MMSAHD 3422	Modern methods of statistical analysis of hydrological data		3	5	2+0+1	6	
	GISH 3423	Geographic information systems in hydrology		3	5	2+0+1	6	
3.3 Modules of individual educational trajectories (IET)				25	42			
	IET 1 - Hydrology	IET 2 - Hydro ecology	IET 3 – Water resources	24		40		
	DPh 3505 Dangerous hydrological phenomena 2+0+1	HCRWO 3505 Hydrochemical regime of water objects 2+0+1	MWR 3505 Management of water resources 2+0+1	3	5	6		
	WCST 3506 Wastewater collection and sewage treatment 2+0+1	ANRH 3506 Assessment of natural risks in hydrology 2+0+1	HUT 3506 Hydrology of urban territory 2+0+1	3	5	6		
4. Internship	4.1	Professional internship (type of internship)		14				
	PP 303	Production internship					6	
Semester 7								
3. Block vocational modules (116 credits)	Module 4 - Calculation methods of hydrological processes							
	AAHC 4421	Assessment of the accuracy of hydrological calculations		3	5	2+0+1	7	
	Module 5 - Methods of forecasts of hydrological processes							
	ShHF 4424	Short-term hydrological forecasts		3	5	2+0+1	7	
LHF 4425	Long-term hydrological forecasts		3	5	2+0+1	7		
3.3 Modules of individual educational trajectories (IET)				25	42			
	IET 1 - Hydrology	IET 2 - Hydro ecology	IET 3 – Water resources	24	40	7		

B Characteristics of the Degree Programmes

	drology	dro ecology	ter re- sources			
	FM 4507 Fundamentals of mud- flows 2+0+1	MAE 4507 Manage- ment of aquatic ecosystems 2+0+1	ELFWI 4507 Economic and legal framework for water industry 2+0+1	3	5	7
	SRR 4508 Solid runoff of rivers 2+0+1	HICP 4508 Human impact on channel processes 2+0+1	IUWR 4508 The inte- grated use of water resources 2+0+1	3	5	7
	SHP 4509 Simulation of hydrolog- ical process- es 2+0+1	UPWDL 4509 Use and protection of water of dry land 2+0+1	MWIC 4509 Manage- ment of wa- ter-industry complex 2+0+1	3	5	7
Semester 8						
4. Internship	4.1	Professional internship (type of internship)	14	23		
	PP 404	Production internship				8
5. Final attesta- tion	5.1	Writing and defense of Bachelor's dissertation (research paper)	2	5		
TOTAL				154	256	

For the degree programme Ma Hydrology, the self-assessment report states the following **intended learning outcomes**:

Remembering:

- Identifying of methods, tools and technologies used for hydrological observations and research;
- Summarizing development state of hydrological science, applying methods and means of measurement, calculations and predictions of hydrological characteristics in Kazakhstan, the CIS and other foreign countries;

Understanding:

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- Describe the rules of a healthy lifestyle, improve and develop their intellectual and cultural level, the moral and physical condition;
- Subsuming knowledge systems results, allowing critically evaluate current research and theory in the hydrology field;
- Clarifying basics of labor law and copyrights science worker.

Applying:

- To take responsibility for own decisions within the framework of professional competence;
- Using own knowledge to solve problems in new and unusual situations
- Conduct joint research activities and be ready to work on interdisciplinary projects, own ways of self-realization, self-organization and self-rehabilitation;
- Applying the latest computer technologies used in hydrometeorology research.

Analyzing:

- Monitor, predict and objectively evaluate the results of professional and scientific works;
- Demonstrate independence and original approach to solving problems, to plan and solve problems posed hydrological at the professional level;
- In production of hydrological research work should abide strictly by the safety rules and the scientific organization of scientific work
- Participate in discussions on professional issues in international conferences and seminars.

Evaluating:

- Critically evaluate issues and trends which reflect the current state of hydrological science educational spheres of professional activity;
- Calculate and predict of main parameters of hydrological characteristics in Kazakhstan, the CIS and other foreign countries;
- Estimate efficient integrated methods of water resources management in Kazakhstan.

Creating:

- Design of research results as articles, papers, reports, etc;

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- Conduct a patent search in field of hydrology's research;
- Preparation of bids for grants field of hydrological and environmental research

The following **curriculum** is presented:

Name of module	Code of discipline	Name of subjects (modules) and type of activity	Number of credits	Block	L/P/S	Sem.
Semester 1						
State compulsory module (8 credits)	HPS 5201	History and Philosophy of Science	2	3	1+1+0	1
	FLP 5202	Foreign language (Professional)	2	3	1+1+0	1
Compulsory Professional Modules (14 credits)	HUA 5206	Hydrology of urbanized areas	3	5	2+0+1	1
	OPSR 5205	Organization and Planning of Scientific Research	2	3	1+1+0	1
	GRPH 5207	Global and regional problems of hydrology	3	5	2+0+1	1
	EPH 5208	Ecological problems of hydrology	3	5	2+0+1	1
Practice		Professional practice (type of practice)				
	RP	Research practice	3	5		1
Additional types of training	RS I	Research Seminar I	1	1.66		1
Semester 2						
State compulsory module (8 credits)	Ped 5203	Pedagogic	2	3	1+1+0	2
	Psy 5204	Psychology	2	3	1+1+0	2
Compulsory Professional Modules (14 credits)	IMWR 5209	Integrated management of water resources	3	5	2+0+1	2
	3.3 Modules of individual educational trajectories (IET)		20	33		
	IET 1 - Hydrology of land	IET 2 - Hydroecology and water security				
	SW 3501 Scientific writing (kz/rus/eng)	SW 3501 Scientific writing (kz/rus/eng)	1	1.66	2	

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	0+1+0	0+1+0			
	PMP 5301 The Problems of mudflows and its protection 1+1+0	CUPWR 5301 Complex use and protection of water resources 1+1+0	2	3	2
	TSSH 5302 The studies of soil humidity 1+1+0	PCIU 5302 Problems of co-operational intergovernmental use of transboundary water objects 1+1+0	2	3	2
	PTWR 5303 Problems of transboundary water resources 1+1+0	EMED 5303 Estimation methods of ecological dangers 1+1+0	2	3	2
	PUWR 5304 Problems of water resources management 1+1+0	EMD 5304 Estimation of mud-flow danger and mud-flow risk on the territory 1+1+0	2	3	2
Practice		Professional practice (type of practice)			
	PP	Pedagogical Practice	3	5	3
Additional types of training	RS II	Research Seminar II	1	1.66	2
Semester 3					
	Modules of individual educational trajectories (IET)				
	IET 1 - Hydrology of land	IET 2 - Hydroecology and water security	20	OC	
	SW 3501 Scientific writing (kz/rus/eng) 0+1+0	SW 3501 Scientific writing (kz/rus/eng) 0+1+0	1	1.66	
	EPWP 6305 Ecological problems of water property 2+1+0	EAPUWR 6305 Ecological-ameliorative problems of using water resources 2+1+0	3	5	3

B Characteristics of the Degree Programmes

	AH 6306 Ameliorative hydrology 2+1+0	MWQ 6306 Management of water quality 2+1+0	3	5	3	
	CTH 6307 Computer technologies in hydrology 2+1+0	GMHP 6307 Geo-informative modeling of hydroecological processes 2+1+0	3	5	3	
	THS 6308 Temporary hydrological lines 2+1+0	EGCCIWR 6308 Estimation changes influence of global climate on water resources 2+1+0	3	5	3	
Practice		Professional practice (type of practice)				
	PP	Pedagogical Practice	3	5		3
Additional types of training	RS III	Research Seminar III	1	1.66		3
Semester 4						
Practice		Professional practice (type of practice)	14			
	RP	Research practice	2	3		4
Additional types of training	RS IV	Research Seminar IV	4	6		4
Final attestation		Writing and defense of Master's dissertation (research paper)	2	3		
TOTAL			59	98		

For the degree programme BA Life Safety and Environmental Protection the self-assessment report states the following **intended learning outcomes**:

knowledge
1. Know the basic provisions of the Constitution of the Republic of Kazakhstan, legislative, regulatory and technical regulations in the field of life safety, environmental protection and rational use of natural resources, protection in emergency

B Characteristics of the Degree Programmes

situations
2. To determine the principles of standardization, certification and measurement techniques in the field of safety of life and protection of the environment
3. Reproduce the methods of assessment of technical, economic and environmental and economic effectiveness of interventions to ensure the safety of life and protection of the environment
4. Remember the basis of labor, industrial ecology and life, as well as radiation, chemical, biological, fire safety
5. Repeat the basic fundamentals of programming languages and, typical software products aimed at solving problems in the field of safety

understanding
1. To analyze the possibility of cutting-edge scientific methods and knowledge to use them at the level required to effectively address the problems of life safety and protection of the environment
2. Reformulate the problem of multi-function man and mankind, based on modern approaches to safety of life and protection of the environment
3. Understand the nature of social and public significance of the specialty, the main problems causing the professional activity
4. Have an understanding of natural and man-made processes that involve violation of life safety, environmental protection and protection in emergency situations
5. Discuss the ethical, legal rules governing relations between people, man and society

application
1. Be able to professionally carry out their productive and social activities
2. Set goals and formulate the task of the current work and the future, cooperate with colleagues and plan the work of small groups

B Characteristics of the Degree Programmes

3. To realize their potential to improve the educational level of the scientific outlook, competencies, skills, acquire new knowledge and skills, improved knowledge of Kazakh, Russian and foreign languages

4. To use the facilities of computer and computer equipment for the search, collection, storage, processing and use of data products, be prepared to expand the scope of, or change in the nature of their professional activities

analysis

1. To analyze the effectiveness of the use of knowledge and skills in the field of life safety, environmental protection, emergency protection, health, science, business economics and management

2. Differentiate the strategic direction of social and humanities, sciences, general professional and special sciences, and be able to use these methods in their professional and industrial activities

3. To study the culture of thinking, the general laws of dialectics and logic

4. State orally and in writing the results of their professional activities

5. A prognosis for the future, with arguments to defend their point of view

the synthesis

1. Formulate questions of legislative, regulatory and legal framework in the field of life safety, health, environmental protection, protection in emergency situations

2. Manage the organization, conduct and control of activities in the field of life safety, occupational safety and environmental protection

3. To develop and make environmental and technical documentation, projects, programs, plans of enterprises and organizations

4. To plan and organize the experimental research

5. To offer problem solving aspects of professional activities related to safety of life and protection of the environment protection in emergency situations

6. To organize a presentation, discuss and defend the submitted work in a foreign, Kazakh and Russian languages, the ability to prepare publications

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7. Own a modern computer technology and communications, to freely navigate in the space of the Internet and its potential use for professional purposes
8. Demonstrate the skills of first aid
9. Formulate the ability to raise the level of independent safety culture
10. To develop measures for the integrated use of raw materials, to replace scarce materials and finding ways of recycling waste
11. To create a system to ensure life safety, environmental, fire, chemical and other safety

evaluation
1. An examination of projects and the state of objects and structures for life safety and protection of the environment
2. To evaluate the effectiveness of prevention of occupational accidents, occupational diseases, the prevention of environmental violations and emergencies
3. Apply to the professional activities of the legislative and regulatory acts in the field of safety and environmental protection
4. Analyze and predict dangerous phenomena and processes of nature and the technosphere
5. To collect the necessary material for his thesis

The following **curriculum** is presented:

Title of modules	Course code	Title of courses	Credit	ECT S/hours units	Lec/prac/Lab.	Sem.
Semester 1						
1. State Compulsory Module	HRK1101	History of the Republic of Kazakhstan	2	3/90	1+1+0	1
	K(R)LPP1102	Kazakh (Russian) Language for Professional Purposes	3	5/135	0+3+0	1

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	FLPP1103	Foreign Language for Professional Purposes	3	5/13 5	0+2+1	1
3.Vocational Modules	3.1 Natural Sciences (STEM) module (12 credits)					
	ITPP1301	Information Technologies for Professional Purposes	3	5/13 5	1+0+2	1
	3.2. Basic Professional Modules					
	Module 1 Basics of Engineering systems					
	EG1401	Engineering graphics	3	5/13 5	1+2+0	1
	Module 2 Safety and Health					
	LS1403	Life Safety	3	5/13 5	2+1+0	1
6. Additional Types of Learning	PT	Physical Training	8	13/3 60	0+0+2	1
Semester 2						
3.Vocational Modules	3.1 Natural Sciences (STEM) module (12 credits)					
	Geo1304	Geoecology	3	5/13 5	1+2+0	2
	3.2. Basic Professional Modules					
	Module 1 Basics of Engineering systems					
	ESNE2402	Engineering systems, networks and equipment	3	5/13 5	2+1+0	2
	Module 2 Safety and Health					
	SHH1404	Safety and human healthy	3	5/13 5	2+1+0	2
	Module 7 Disaster medicine and rescuing					
BRDM24	Basics of rescue and disaster	3	5/13	1+2+0	2	

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	14	medicine		5		
	BVFHB14 15	Basic of life functions of human organism	3	5/13 5	2+1+0	2
	Module 9 Basics of Chemistry					
	ThPIChLS 1418	Theory and internship inorganic chemistry in Life Safety	3	5/13 5	1+0+2	2
	ChA1419	Chemical analysis	3	5/13 5	1+0+2	2
4. Internship	4.1	Professional internship (by types of internship)				
	EP101	Educational Internship	3			2
6. Additional Types of Learning	PT	Physical Training	8	13/3 60	0+0+2	2
Semester 3						
Name of modules	Discipline code	Title of courses	Credit	ECT S/hours units	Lec/pr ac/Lab.	Se m.
2. Social and Communicative Module	PIC 2201	Psychology of Interpersonal Communication	2	3/90	1+1+0	3
	TAPS2202	Theoretical and Applied Political Science	2	3/90	1+1+0	3
	EPSS2203	Ethics of Personal and Social Success	2	3/90	1+1+0	3
	CR2204	Culture and Religion	2	3/90	1+1+0	3
	GAS2205	General and Applied Sociology	2	3/90	1+1+0	3
	ESD2207	Ecology and Sustainable Development	2	3/90	1+1+0	3
	KL2208	Kazakhstan Law	2	3/90	1+1+0	3
	FE2209	Fundamentals of Economics	2	3/90	1+1+0	3

3.Vocational Modules	3.2. Basic Professional Modules					
	Module 4 Security of comfortable working conditions					
	IS2407	Industry sanitation	3	5/13 5	2+0+1	3
	IV2408	Industrial ventilation	3	5/13 5	2+0+1	3
	Module 8 Natural disaster liquidation and protection means					
	ICSM241 7	Individual and collective safety means	3	5/13 5	2+1+0	3
	3.4 Interdisciplinary Module					
	Mat1601	Mathematic	2	3/90	1+1+0	3
	Phys1602	Physics	2	3/90	1+0+1	3
	IE1603	Innovative Entrepreneurship (trade-wise)	2	3/90	1+1+0	3
IPL1604	Intellectual Property Law	2	3/90	1+1+0	3	
6. Additional Types of Learning	PT	Physical Training	8	13/3 60	0+0+2	3
Semester 4						
Name of modules	Discipline code	Title of courses	Credit	ECT S/hours units	Lec/prac/Lab.	Sem.
1. State Compulsory Module	PhSK2104	Philosophy of Scientific Knowledge	2	3/90	1+1+0	4
3.Vocational Modules	3.2. Basic Professional Modules					
	Module 3 Control security on LS					
	MSC2405	Metrology, standardization and	3	5/13	2+1+0	4

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		certification		5		
	MMCM 2406	Methods and means of the control and measurements	3	5/13 5	1+0+2	4
	Module 6 Work Safety					
	WSH24 11	Work Safety and Health	3	5/13 5	2+0+1	4
	FS2412	Fire Safety	3	5/13 5	2+1+0	4
	TTS241 3	Technique and Technology Safety	3	5/13 5	2+1+0	4
	Module 8 Natural disaster liquidation and protection means					
	ANSAC2 416	Acts of nature and struggle against their consequences	3	5/13 5	2+1+0	4
4. Internship	4.1	Professional internship (by types of internship)				
	EP101	Educational Internship	3			4
6. Additional Types of Learning	PT	Physical Training	8	13/3 60	0+0+2	4
Semester 5						
3. Vocational Modules	3.2. Basic Professional Modules					
	Module 5 Basics of chemical and biological, radiation safety					
	BChBS34 09	Basics of chemical and biological safety	3	5/13 5	2+0+1	5
	Module 10 Industrial technology					
	TMIMME 3420	Technologies of main industrial in metallurgy and mechanical engineering	3	5/13 5	2+1+0	5

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	TMIOGCh B3421	Technologies of main industrial in oil and gas and chemical brunches	3	5/13 5	2+1+0	5
Module 11 Environment and Health						
	ET3422	Environmental toxicology	3	5/13 5	2+1+0	5
3.3 Modules for Individual Educational Trajectories (IET)						
	ET 1- “Work Safety”	IET 2- “Safety in emergencies ”	IET 3- “Environme ntal protection technologie s”	30		
	ESSS3502 Extreme situa- tion and social safety (2+1+0)	ESSS3502 Extreme situation and social safety (2+1+0)	IWUDB350 2 Industrial waste utili- zation, dis- posal and burial (2+1+0)	3	5/13 5	5
	LTNOILS3503 Legal, technical- normative and organizational issues of Life Safety (2+1+0)	CRES3503 Crash resto- ration at emergency situations (1+2+0)	RELEM3503 Risk evalua- tion and living envi- ronment monitoring (2+1+0)	3	5/13 5	5
Semester 6						
3.Vocational Modules	3.1 Natural Sciences (STEM) module (12 credits)					
	GHHE 3302	Gas and hydrodynamics and heat- mass exchange	3	5/13 5	2+1+0	6
	TMI 3303	Technology of main industries	3	5/13	2+1+0	6

				5		
3.2. Basic Professional Modules						
Module 5 Basics of chemical and biological, radiation safety						
BRS3410	Basics of radiation safety	3	5/13 5	2+0+1	6	
Module 11 Environment and Health						
EPHH 3423	Environmental protection and Human health	3	5/13 5	2+1+0	6	
3.3 Modules for Individual Educational Trajectories (IET)						
IET 1- “ Work Safety ”	IET 2- “Safety in emergencies ”	IET 3- “Environmental protection technologies”				
SW3501 Scientific writing (kaz/rus/eng)	SW3501 Scientific writing (kaz/rus/eng)	SW3501 Scientific writing (kaz/rus/eng)	1	1/4 5	0+1+0	6
BMMLS3504 Basics of market and management in life safety	ANR3504 Anthropogenic and natural risk	APTT3504 Atmosphere protection of techniques and technologies	2	3/90	1+1+0	6
ND3505 Natural disasters	NDP3505 Natural disasters and protection	NDEP3505 Natural disasters	3	5/13 5	2+1+0	6

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			and engi- neering protection				
4. Internship	4.1	Professional internship (by types of internship)					
	PT303	Internship Training			2		6
Semester 7							
3.Vocational Modules	3.3 Modules for Individual Educational Trajectories (IET)						
	SW3501 Scientific writing (kaz/rus/eng)	SW3501 Scientific writing (kaz/rus/eng)	SW3501 Scientific writing (kaz/rus/eng)	35		0+1+0	
	REWA4506 Risk evaluation at working area	PPLS4506 Psychologi- cal basics of Life Safety	HPT4506 Protection technolo- gies of hy- drosphere	3	5/13 5	2+1+0 1+2+0 1+2+0	7
	BES4507 Basics of electri- cal safety	EChI4507 Emergencies at chemical industry	PELWWFI45 07 Planning and exploi- tation of low-waste and waste- free indus- tries	3	5/13 5	1+2+0 2+1+0 1+2+0	7
	BTCD4508 Basics theory of combustion and	PHFDE4508 Population Health and first aid dur-	PTL4509 Protection technolo-	3	5/13 5	2+1+0	7

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	detonation	ing emergencies	gies of Lithosphere				
	EChI4509 Emergencies at chemical industry	TTSRW4509 Technique and technology of search and rescue work	PE4509 Project expertise	3	5/13 5	2+1+0 2+1+0 1+2+0	7
	BCThS4510 Building, constructions and their sustainability	BCThS4510 Buildings, constructions and their sustainability	BCThS4510 Buildings, constructions and their sustainability	3	5/13 5	2+1+0	7
	FEE4511 Forecasting and evaluation of emergencies	FEE4511 Forecasting and evaluation of emergencies	FEE4511 Forecasting and evaluation of emergencies	3	5/13 5	1+2+0	7
Semester 8							
4. Internship	4.1	Professional internship (by types of internship)					
	PT404	Internship Training		3			8
5. Final Certification	PPBD	Preparation and Presentation of Bachelor's Dissertation (Diploma Project)		2	3/9 0		

For the degree programme Ma Life Safety and Environmental Protection the self-assessment report states the following **intended learning outcomes**:

knowledge
1. To organize the examination of projects and the state of objects on the safety of

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life and protection of the environment
2. To determine the terms of reference for the development of design solutions
3. Streamline planning documents
4. Reproduce the choice of life safety systems, radiation, environmental, fire, chemical and other safety
5. To develop a methodology to organize and conduct experiments, analyzes the results
6. To take responsibility for the preparation of technical reports, surveys, publications
7. Memorize the settlements on the projects feasibility and environmental and economic feasibility of the planned solutions
8. To develop a methodological and regulatory documents, technical documentation

understanding
1. Choose the methods for collecting, processing, analyzing and organizing scientific and technical information
2. To introduce the teaching and methodological developments of the specialty profile, to prepare scientific and technical reports, surveys, publications
3. To find and hold patent research, making a description of the operating principles and device designed objects
4. To carry out educational activities in secondary vocational and higher education institutions
5. Describe the activities for the integrated use of raw materials, to replace scarce materials and finding ways of recycling waste
6. To discuss the plans and programs of scientific research and technological development
7. To analyze the innovative potential of the project, risks of innovation

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application
1. To apply practical skills to ensure the safety of technical systems
2. Be able to carry on prevention of injury, occupational diseases, prevent violations and environmental emergencies
3. The ability to practice safe work
4. To apply modern scientific methods of knowledge of nature and of man to address the psychological, science and legal problems arising in the performance of professional duties
5. Select and recognize the nature of the people for the selection of suitable cases for workers
6. Demonstrate the ability to provide the blueprint for writing the important actions
7. Demonstrate the ability to hold on to the public at ease, speak off the cuff
8. To use the skills of working with an audience that is organize the audience properly
9. Be aware of the practical importance of the historical expertise to solve the problems of the present and the future
10. To become competent in the succession of events, facts, and traditions of the peoples of the world of life, to understand the role of culture of thinking in the development of civilization; Understand the importance of information and computer technology in the development of modern civilization in the organization, planning, carrying out all kinds of professional activities

analysis
1. Assess the risks of injury in the workplace
2. To analyze the situation in the production of various kinds
3. Explore ways to ensure the safety of technological systems, processes and equipment
4. Optimal solutions to differentiate the performance of work to meet the re-

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quirements of quality, deadlines, life safety and environmental sustainability
5. Distinguish between social and philosophical problems of technology, driving forces and patterns of technological progress, the objectives and purpose of the engineering activity, its moral and humanistic sense
6. Experimenting with inventions
7. To study the modern version of the OSH management system
8. To compare the specific conditions based on international standards
9. To prevent environmental violations and emergencies

the synthesis
1. Propose the adoption of the Performing decisions
2. Planning expert and advisory activities
3. To organize the work in the workplace
4. Develop technical specifications for development projects
5. Offers a choice of life safety, radiation, environmental, fire, chemical and other safety
6. Develop special sections projects: safety, environmental protection, protection in emergencies
7. To create planning documents

evaluation
1. To evaluate the logic of teaching and regulations
2. Analyze and predict hazards and processes
3. To compare the state of the labor safety to businesses and organizations of all sectors of the economy, regardless of their form of ownership, including the military-industrial complex, industry, agriculture, utilities, manufacturing and services, environmental services
4. To maintain patent investigations, compiling information on the function and

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devices designed facilities with the justification of the adopted technical solutions
5. Discuss the terms of reference for the development and design of circuits, instruments, apparatus and systems used in life safety and protection of the environment from the technical, ecological and economic feasibility of the device structure and function
6. Assess the impact of household and agro-industrial complexes on the environment
7. Predict the results of the technical and environmental and economic efficiency in the implementation of measures to ensure the safety of life and protection of the environment
8. To carry out the relationship of social and environmental issues and technical progress
9. To be able to criticism and self-criticism, the expression of his point of view
10. Be able to take responsibility for decision-making of concrete and abstract problems, the consequences of these problems for the quality of the tasks and activities of all kinds

The following **curriculum** is presented:

Title of modules	Course code	Title of courses	Credit	ECT S/hours units	Lec/prac/Lab.	Sem.	
Semester 1							
Taught Component	Compulsory State Modules (8 credits)						
	IFN 5201	History and Philosophy of Science		2	3/90	1+1+0	1
	Iya(p)5 202	Foreign language (Professional)		2	3/90	1+1+0	1
	Compulsory Professional Modules (14 credits)						

B Characteristics of the Degree Programmes

	OPNI 5206	Organization and Planning of Scientific Research	3	5/135	2+1+0	1	
	Modules of Individual Educational Paths (20 credits)						
	IET 1- Safety equipment, technology and labor protection	IET 2- Protection of Emergency situations	IET 3- Technique and technology of environmental protection				
	The processes of combustion and explosion	Modern methods of forecasting and assessment of natural and man-made hazards	Environmental Technology	3	5/135	2+1+0	1
	Theory of mechanisms and machines	Fundamentals of engineering protection in emergencies	The risk assessment of environmental hazards	3	5/135	2+1+0	1
Additional Types of Learning	NIRM I	Research Seminar I	1	1/45	1	1	
Semester 2							
Taught Component	Compulsory State Modules - 8 credits						
	Ped 5203	Pedagogy	2	3/90	1+1+0	2	
	Psy 5204	Psychology	2	3/90	1+1+0	2	
	Compulsory Professional Modules (14 credits)						
	5205	Planning and management of research innovation activities (eng.)	2	3/90	1+1+0	2	
	5208	Assessment of the Reliability, Survivability and Security of technical Systems	3	5/135	2+1+0	2	
	Modules of Individual Educational Paths (20 credits)						

B Characteristics of the Degree Programmes

	credits)						
	IET 1- Safety equipment, technology and labor protection	IET 2- Protection of Emergency situations	IET 3- Technique and technology of environmental protection				
	Managing Hazardous Agents and their Effects in Workplace	Regulatory - legal security of life and the development of coaching	Technical and environmental examination of Projects	2	3/90	1+1+0	2
	Engineering Calculations	Sustainability of economic facilities in emergencies	Engineering methods of the atmosphere, hydrosphere	3	5/135	2+1+0	2
Additional Types of Learning	NIRM II	Research Seminar II		1	1/45	1	2
Semester 3							
Taught Component	Compulsory Professional Modules (14 credits)						
	5207	Systems and Management in the Life Safety and Environmental Protection		3	5/135	2+1+0	3
	5209	Protection of People and Objects in Emergency		3	5/135	2+1+0	3
	Modules of Individual Educational Paths (20 credits)						
	IET 1- Safety equipment, technology and labor protection	IET 2- Protection of Emergency situations	IET 3- Technique and technology of environmental protection				
Risk Management for Occupational Safety and Health	Safety in Technosphere Emergency	Protective structures and technologies from natural and	3	5/135	2+1+0	3	

B Characteristics of the Degree Programmes

			man-made hazards				
	The organization of work safety in enterprises	Radiation and chemical protection in emergencies	Information technologies in environmental protection	3	5/1 35	2+1+0	3
	Evaluation of safety equipment, technology, and ensure a safe and comfortable working environment	Fundamentals of first aid in emergencies	Integrated Safety Assessment of processes and equipment	3	5/1 35	2+1+0	3
Additional Types of Learning	NIRM III	Research Seminar III		1	1/4 5		3
	PP	Pedagogical Practice		3	CC	3	3
Semester 4							
Name of modules	Discipline code	Title of courses		Credit	Unit	Lec/prac/Lab.	Sem.
Additional Types of Learning	NIRM IV	Research Seminar IV		4	6/1 80		4
	IP	Research practice		3 (1+2)	5/1 35	3	4
Final Certification	KE	Complex Examination (1 credit)		1	1/4 5	1	4
	ZD	Dissertation Fulfillment and Defence (3 credits)		3	5/13 5	3	4

For the degree programme Ma Geoecology and nature use management the self-assessment report states the following **intended learning outcomes**:

knowledge
1. Have a notion of the scientific methodology and scientific-theoretical problems

of Geoecology and geoenvironmental engineering.
2. Identify priority issues and needs of the national capacity to protect the environment in the implementation of international environmental conventions.
3. To express their views on changing the quality of the environment and the region accounting geoenvironmental properties in the design of business.
4. To know geoenvironmental approaches, guidance and advice to ensure the rational use of natural resources and preservation of human environment.
5. To use the techniques and practical methods geoenvironmental studies of economic and other activities at the feasibility, design, construction and operation of facilities.
6. Work in a team, a scientific team to formulate substantiate geoenvironmental problems and tasks, make firm conclusions, and expert opinion.

understanding
-to have methods and approaches as the basis of geo-environmental regulation of administrative and legal nature management and nature conservation.
-complex techniques and systems approach for solving territorial nature problem, using the criteria of environmental and economic risks and environmental safety, sustainability and protection of natural territorial systems.
- to be competent in the performance of geo-environmental studies of the projects of economic activity and ensure the best use of the conditions and environmental resources while maintaining quality.
Concepts of natural science and the basis of the methodology of scientific knowledge;
the dynamics of the transformation of natural ecosystems under the influence of existing anthropogenic pressures and simulate the optimal conditions for their sustainable development;
ways of use of legislative base in the field of environmental protection for to ensure the environmental safety of the enterprise;
environmental criteria (nature-protective, anthro-ecological and economic), which let make an environmental impact assessment, environmental auditing and

environmental certification.

skills

1. To formulate test results (examination) objective reflection patterns of development of integrated geo-ecological systems of the "population - economy - nature", including management of spatial combinations of resources and environmental protection in various design solutions.
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2. To be able to create and use environmental geographic information system for the collection, storage, processing, conversion, display, and dissemination of data geographically coordinated in order to ensure management decisions for the effective functioning of natural and engineering (geotechnical) systems
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3. To be able to collect and analyze multivariate context, identify the interdependence of global environmental problems and priorities of the response within the commitments made by Kazakhstan on environmental conventions and the requirements for their implementation (coordination) of the bodies concerned.
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Use

- to work in a team and make decisions in the field of environmental protection on an interdisciplinary basis

- to demonstrate the time management and organizational skills to solve practical problems in the field of environmental protection;
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- system and creative approach to solving complex environmental problems;

- to make a real contribution to improving environmental policy and environmental security of the Republic of Kazakhstan;

- to demonstrate the ability to comply with ethical norms and ecological culture.

Analysis

- to solve issues of research and applied character on the evaluation of components of the environment;

- to analyze and evaluate an advanced local and foreign experience in the field of
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B Characteristics of the Degree Programmes

conservation of ecology, environmental protection and rational use of natural resources
- to compare modern methods of analysis of the state of the environment;
- processes in the hydrosphere in conjunction with the processes occurring in the atmosphere and the Earth's lithosphere, and to allocate the factors of special ecological significance;
- to conduct statistical analysis of the measurement results, to carry out mathematical modeling and experimental planning;

Synthesis
- to organize presentations, to discuss and defend the submitted work in a foreign, Kazakh and Russian languages, the ability to prepare publications;
- to develop and implement projects to create new knowledge that may have major scientific importance
to collect the materials and documents submitted for the state environmental expertise
- to predict possible scenarios of the environmental project;

Evaluation
- the effects of natural and technogenic disasters;
- to evaluate the permissible values of emissions, discharges and pollution levels, as well as the permissible values extraction of natural resources for industrial use;
- to evaluate and implement "environmentally friendly" and "resources effective" technologies.
- to determine the ecological and economic importance of wildlife, natural and energy resources for natural-economic complexes;

The following **curriculum** is presented:

B Characteristics of the Degree Programmes

Title of modules	Course code	Title of courses	Credit	EC TS /hours	Lec/prac/Lab.	Sem.
Compulsory State Module 1	HPhSc 5201	History and Philosophy of Science	2	3/90	1+1+0	1
	FL 5202	Foreign language (Professional)	2	3/90	1+1+0	1
Compulsory State Module 2	Ped 5203	Pedagogics	2	3/90	1+1+0	2
	Psy 5204	Psychology	2	3/90	1+1+0	2
Compulsory Professional Module 1	GEE5205	Geoenvironmental engineering and expertise	2	3/90	1+1+0	1
Compulsory Professional Module 2	OPSR 5206	Organization and Planning of Scientific Research	3	5/135	2+1+0	1
Compulsory Professional Module 3	MGS 5207	Methods of geo-environmental studies	3	5/135	2+1+0	1
Compulsory Professional Module 4	MPEN 5208	Modern Problems of Ecology and Nature	3	5/135	2+1+0	1
Compulsory Professional Module 5	EG5209	Ecological geochemistry	3	5/135	2+1+0	2
Module of Individual Educational Path	5301	Electives	2	3/90	1+1+0	2
	5302	Electives	2	3/90	1+1+0	2
Module of Individual Educational Path	6303	Electives	2	3/90	1+1+0	2
	6304	Electives	2	3/90	1+1+0	2

B Characteristics of the Degree Programmes

				90	0	
Module of Individual Educational Path	6305	Electives	3	5/ 13 5	2+1+ 0	3
	6306	Electives	3	5/ 13 5	2+1+ 0	3
Module of Individual Educational Path	6307	Electives	3	5/ 13 5	2+1+ 0	3
	6308	Electives	3	5/ 13 5	2+1+ 0	3
Master's Research Work and Fullfilment of Dissertation	NIRM I	Research Seminar I	1			1
	NIRM II	Research Seminar II	1			2
	NIRM III	Research Seminar III	1			3
	NIRM IV	Research Seminar IV	4			4
Professional Practice	PP	Pedagogical Practice	3			2
	IP	Research practice	3			1, 4
Final Attestation	KE	Complex Examination	1			4
	ZD	Dissertation Fullfilment and Defence				4

C Peer Report for the ASIIN Seal

1. Formal Specifications

Criterion 1 Formal Specifications

Evidence:

- Self-Evaluation-Report

Preliminary assessment and analysis of the peers:

The formal specifications of the programmes are defined in the self-evaluation-report as presented in the table ahead. Up to now the degree programmes are offered only in a fulltime mode, but the auditors learned that the university deliberates whether part-time study should be established in future. They would encourage such an offer in light of the corresponding student demand.

The auditors learned that the maximum of expected intakes per study year is specified by the national ministry of education. The ministry gives a limit of students who can enroll in the study programmes. The number of students enrolled in the degree programmes declined during the last years due to an increase of the threshold score necessary for the admission to the university. The auditors noted that tuition fees are charged but that, in fact, most of the students receive state scholarships or research grants, which also free them of tuition fees. Enrolment on a fee base is possible but only very few students pay the fees themselves.

All formal information like title of the programmes, final degrees, standard period of study as well as the first time of offer of the programmes were clearly defined. The Kazakh credit points and the conversion into ECTS credit points is not always understandable as the auditors indicated. In some cases 1 ECTS seemed to be equivalent to 12 hours, in the other case equivalent to 35 hours.

Further discussions are pointed out in the chapters below (curriculum, credit points).

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 1:

The peers noticed the number of students who are enrolled in the single programmes each semester. They considered the criteria to be partly fulfilled.

2. Degree programme: Concept & Implementation

Criterion 2.1 Objectives of the degree programme

Evidence:

- Self-Evaluation Report

Preliminary assessment and analysis of the peers:

The programmes under review aim at education of ecology, hydrology, life safety and geoecology corresponding to the qualifications of the European Qualifications Framework level 6 and 7 respectively. The panel considered these objectives to be convincing.

Criterion 2.2 Learning Outcomes of the Programme

Evidence:

- Self-Evaluation Report
- Discussions with representatives of the university

Preliminary assessment and analysis of the peers:

The self-assessment reports presented a list of objectives and intended learning outcomes for the degree programmes. The subject-specific learning outcomes of every programme distinguish between *knowledge*, *understanding*, *application*, *analysis*, *synthesis* and *evaluation*. The goals, objectives and intended learning outcomes are made available to the students via intranet in Russian and Kazakh language.

The peers asserted that all Bachelor's degree programmes aim that students should get basic knowledge and understanding of the natural sciences (Physics, Chemistry, Mathematics), of the essential features, processes, materials, history and the development of the Earth and life and of the key aspects and concepts of geology, including some at the forefront of that discipline as well as knowledge of the common terminology and nomenclature and the use of bibliography in Geosciences. Additionally the students should have the awareness of the wider spectrum of geological disciplines, of the temporal and spatial dimensions in Earth processes, of the applications and responsibilities of Geosciences and its role in society including its environmental aspects and of major geological paradigms, the extent of geological time and plate tectonics.

Regarding analysis, design and implementation the peers saw that the students should get an understanding of the complexity of field specific problems. They should get basic ability in the formalisation and specification of problems and the description of solutions. The students should be able to integrate field and laboratory evidence and to appreciate issues concerning sample selection, accuracy, precision and uncertainty during collection.

They should get adequate technological, methodological and transferable skills and additional professional skills to be aware of economic, ecologic, social and legal aspects expected in professional practice.

For the master programmes the peers realized that the students should get advanced knowledge and understanding of the general principles of geosciences and deeper knowledge of their specialisation. They should be able to solve complex, incompletely defined and unfamiliar problems with innovative methods and to develop new methods. The students should be able to design appropriate experiments, to analyse and interpret data and draw conclusions integrating knowledge out of different disciplines. They should be able to create models of complex systems and should get advanced professional skills for independent work in their professional and scientific fields.

During the discussions with the programme coordinators the peers learned that the master's degree programmes in ecology and geoecology differ in the dealing of environmental aspects. While the ecology is handling the complete environment the geoecology contents no live materials and more geographical aspects.

In general, type and level of objectives and learning outcomes of the degree programmes seem to reflect the level of European first and second cycle programmes. Overall, the audit team found that the learning outcomes have been described sufficiently and transparently, yielding a sound basis for the assessment of the students' and graduates' knowledge, skills and competences. According to the audit team, the learning outcomes reflect the level of the qualification sought and are achievable, valid, and reflect currently foreseeable developments in the subject area. The learning outcomes are adequate to the requirements described in the field specific criteria of the ASIIN Technical Committee of Geosciences.

The university discussed the learning outcomes with representatives of private companies and governmental institutions.

Criterion 2.3 Learning outcomes of the modules/module objectives

Evidence:

- cf. module description

Preliminary assessment and analysis of the peers:

The modules are described in module handbooks which are available for students on the website. The auditors confirmed that the module descriptions in most cases are detailed and provide the relevant information about knowledge, skills and competences students are expected to acquire in the individual modules. For some modules the peers realized

that the learning outcomes are not formulated in a way to give clearly information to the students and they saw the need to change those descriptions. The prerequisites, the student workload and the examinations for achieving the learning outcomes are formulated clearly understandable to students.

Criterion 2.4 Job market perspectives and practical relevance
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Evidence:

- cf. statistics on graduates employment in terms of numbers and market sector
- Overview of companies for practical training
- Description of expected learning outcomes

Preliminary assessment and analysis of the peers:

The peers realize that the offered programmes are asked very intensively by the labor market. Because of the geological circumstances in Kazakhstan the hydrology is an expanding field supported by the government for further development of water treatment and water supply. The ecology and life safety programmes covering as well fields which are intensively supported by the government to build up a so called green bridge of generations.

The peers recognized a high demand on the labour market for graduates who possess the intended learning outcomes (competences). The competences as presented thus allow graduates to work in a sphere appropriate to the qualification.

The peers deemed the practical elements included in the programmes to be generally sufficient in order to prepare students for dealing with industry-related problems and tasks. They understood that the students have to complete professional internships in the Bachelor and Master's degree programmes. Tasks and intended learning outcomes are agreed previously between enterprises and department. Supervisors are available within the enterprise as well as in the university. After completion the students write a report that has to be defended in front of students and teachers in the university. The faculty publishes in the intranet a list of companies which offers internships with their specialization and as well it publishes the experiences of students who already have absolved an internships in those companies.

As the peers learned by the programme coordinators and the students that practical field work is included in different modules especially in the master's degree programmes. While the field work in the master's degree programmes is added in total up to one month in the bachelor's degree programmes students collect and analyze samples during several excursions. From the view of the peers the excursions and the field work seems to

be field specific only. Therefore they recommend to extend the field work and to include interdisciplinary field studies.

Overall the peers saw adequate practical links in all programmes

Criterion 2.5 Admissions and entry requirements

Evidence:

- University-wide Academic Policies and Procedures of al-Farabi Kazakh National University

Preliminary assessment and analysis of the peers:

The auditors discussed the admission rules and procedures with the university representatives. The programme coordinators explained that the selection of the applicants is made by the Ministry of Education and Science; more specifically, admission for the bachelor degrees is carried out by the admission rule developed by the Ministry of Education and Science of Kazakhstan based on article number 4 of the Law on Education. It was further explained that educational grants are awarded to students on a competitive basis in accordance with gained scores on the Unified National Test (UTN). This UTN is taken by all high school graduates and the score received qualifies a high school graduate to apply for university admission. The UTN has five subjects; four of them are core subjects such as Maths, History of Kazakhstan, Russian and Kazakh languages, and the fifth one is an elective subject that is selected based on the programme fields. Minimum score of the UNT that allows applying for higher education institutions is 60, but for the degree programmes under review the minimum score is 70, so that the admitted students are among the best formally qualified for a successful completion of studies. The Ministry of Education and Science defines the quantity of educational grants for each academic degree programme. Altogether the auditors judged that the admission requirements were reasonable for maintaining the quality of the Bachelor's degree programmes.

The auditors discussed with the representatives of the university to what extent the admission requirements for the Master's degree programmes have an impact on the quality of the degree programmes. Admission for the Master's degree programmes is defined by the admission rule developed by the Ministry of Education and Science of Kazakhstan based on article number 4 of the Law on Education. Educational grants for Master's degree programmes are awarded to students on a competitive basis. Bachelor graduates have to take entrance exams which comprise a foreign language test and a subject specific written exam which includes theoretical questions and an essay. The peer group concluded that this was an appropriate approach to secure the quality of the academic standard.

As for the recognition of qualifications gained from other institutions of higher education, in particular abroad, competences are taken into consideration. The university explained that they check the diploma supplement or transcripts of records to assess whether the competences are in accordance with the ones that are imparted in the degree programmes under review.

Regarding the required good physical conditions of students the peers learned that students should be able to go to the field and that they have to absolve a medical checkup. For handicapped students there are individual study plans even for the field work.

Criterion 2.6 Curriculum/Content

Evidence:

- Study plans in the self-evaluation-report

Preliminary assessment and analysis of the peers:

In general the peers got the impression, that the curricula of the bachelor's and master's degree programmes in Ecology, Hydrology and Life safety fit the intended learning outcomes.

Regarding the bachelor's degree programme of ecology the peers criticised that the basics of mathematics and natural sciences are taught in different modules in content with the field specific application of these basics, for example in the modules ecology statistics and ecotoxicology. The peers for didactical reasons would prefer to give the basics in specific applications. From their point of view, concentrated teaching of basics in separate modules would have the advantage that theoretical backgrounds of the basics would become more transparent for the students.

During the discussion with the teaching staff the peers learned that plants and animals are handled in various modules and most of the professors have a background in biology. Due to the fact that this is not visible in the module descriptions the peers saw the necessity to add these aspects into the descriptions.

Finally they alluded the programme coordinators that the amendment of financial aspects of ecology would round the programme regarding to the chances of students on the international labor market.

The peers were astonished that there are modules out of the field of civil engineering in the bachelor's degree programme of hydrology. They could follow that these lectures are included because there are no civil engineering programmes at the university which deals with wastewater or sanitary engineering. On the other hand the peers got the impression out of the exams and final thesis that there is a lack of modeling experiences of the stu-

dents. Therefore they saw the necessity that students get more experiences in numerical modelling.

For the programmes in life safety the peers saw their expectations out of the goals confirmed that the programmes are focused on the labor market and not on scientific research. The students are prepared to secure conditions within companies to avoid emergency situations or in case a disaster happens to handle it with technical methods. Out of the module descriptions the peers could not recognize that students train measurements to get data during disastrous situations as mentioned by the teaching staff during the discussion.

The peers saw the master's degree programme in Geoecology as a very specialist programme which could be even a specialization in the master of ecology. In their understanding geoecology should be integrated analyzing of geological environment using computer modeling. This approach they could not see as a focus in the programme. Although the addition of "nature use management" shows more clearly the content of the programme the peers saw the necessity that corresponding to the general international understanding of geoecology title, aims and contents of the programme must correlate more clearly.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 2:

The peers welcomed the announcement of the university to add the handling of plants and animals in the bachelor's degree programmes into the module descriptions and they asked the university to present the new descriptions.

They also welcomed the announcement of the university to acquire adequate computer equipment as a precondition to implement computer modeling into the master's degree programme of geoecology.

Regarding the programmes of Life Safety the peers were astonished about the comment of the university that students are prepared for practical work as well as for research activities. Out of the module descriptions the theoretical background of measurement applications are taught limited. The peers did not have the impression that students would not be able for research activities but from their point of view, the programmes are focused on the labor market besides research institutions.

In total the peers confirmed their former assessments.

3. Degree Programme: Structures, Methods & Implementation

Criterion 3.1 Structure and modularity

Evidence:

- Curriculum overview in the self-evaluation-report
- Module descriptions

Preliminary assessment and analysis of the peers:

All programmes are modular and the single modules are in general coherent and consistent packages of teaching and learning in itself. The sequence of modules is organized in a reasonable way. Due to governmental regulations in the bachelor's degree programmes there must be 50% of the curricula for basics, 20% for interdisciplinary courses and another 30% for elective courses.

The peers welcomed that the students get individual advices by the professors for the selection of the elective courses. The advisors make sure that the elective courses are correlating to the individual aims of the student and to their former study plan. The peers were not sure whether the students select single lectures or complete module. Because they saw some uncertainty about this point during the discussion with the students from their point of view a transparent study plan must be available for the students.

The peers learned that there must be at least 10 students in the bachelor's degree programmes and 3 students in the master's degree programmes to hold an elective course. In lectures which are offered in different programmes the students are combined. For that reason the elective courses offered actually are held in most cases.

Regarding the possibility for students to spend some time abroad without loss of time the peers took note that, in general, there are opportunities for study visits at other HEIs. In the discussion with the students the auditors also learned that all students have the opportunity to go abroad and that they are even financed to some extent. Furthermore, cooperation agreements with universities abroad exist and are regularly made use of. The auditors appreciated this information.

Criterion 3.2 Workload and credit points

Evidence:

- The "University-wide Academic Policies and Procedures of al-Farabi Kazakh National University" defines the credit point system.

- The module descriptions inform about the workload within a module.
- The students explain their experiences with the workload.

Preliminary assessment and analysis of the peers:

The peers acknowledged that every compulsory part of the programmes is credited (including the internships), differentiating student workload in time for courses as well as guided and unguided self studies. As noted in chapter 1, there was some confusion concerning the comparison between the Kazakh credit system and ECTS. The university spoke about different workloads without clearly separating them – the one referring staff and the one referring students. As the peers understood, the Kazakh credit system takes into account the workload of the staff and not of the students. To be transparent to external stakeholders the transformation of the Kazakh credit points into ECTS points must correspond to the ECTS regulation that one credit point is based on 25-30 hours student workload.

However, the students explained that the work load was reasonable and acceptable to them. The students seemed to be able to finish their studies within the standard period of time. Furthermore, the auditors noted that the number of students dropping out of university without having completed their studies is extremely low. T

Criterion 3.3 Educational methods
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Evidence:

- Discussion with teaching staff
- Module descriptions

Preliminary assessment and analysis of the peers:

The module descriptions provided a suitable overview of the “type of teaching” that is applied. The lecturers explained that they use a number of different teaching methods. While a majority of classes is taught in the form of classical lectures and presentations, seminars and some variety of projects especially in the master’s degree programmes were also used. This means that students have to carry out projects and present the results at the end of the course. The grade is based on how they complete the given task and on how the results are presented. For the Bachelor’s degree programmes the peers recommend to offer more opportunities for the students to get team working experiences.

The auditors appreciated furthermore that students have several possibilities to participate in scientific projects which are financed by the government or private institutions. The students expressed their satisfaction referring to this.

The auditors welcomed the different teaching methods and concluded that the teaching methods and tools support the achievement of the learning outcomes at the intended level. On the other hand they could follow the wish of the students to have more lectures in English language in order to improve their language skills at least for the master's degree programmes. The peers recommend in general to improve the language skills of the students and to add modern English literature to the literature list given in the module descriptions.

The ratio of taught contact hours to self-study was properly indicated in the module descriptions. The auditors considered the ratio of contact time to individual self-study time to be adequate.

Criterion 3.4 Support and advice

Evidence:

- Self-assessment report
- Discussions with students and teaching staff

Preliminary assessment and analysis of the peers:

The students confirmed that a well developed system of tutorials was in place and that each student had a scientific advisor who supported them in case of problems. Advice was also offered for designing the individual study plan and for selecting the elective courses. In case of need there is individual support for students as well. Overall, students expressed a high level of satisfaction during their discussion with the peers. The auditors could see that sufficient resources were available for offering individual support, supervision and advice to students.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 3:

Because the university did not give a comment about this criterion the peers confirmed their former assessment.

4. Examination: System, Concept & Implementation

Criterion 4 Exams: System, concept & implementation

Evidence:

- University-wide Academic Policies and Procedures of al-Farabi Kazakh National University

- Module descriptions

Preliminary assessment and analysis of the peers:

The peers gained the impression that type, organization and distribution of examinations are designed to support the attainment of the intended learning outcomes by the time the degree is completed. While most exams are written, in seminar-type courses students have to carry out projects and present the results at the end of the course. The grade is based on how successfully they complete the given task and on how the results are presented. The form of examination is laid down in the module description for each module.

In general, examinations are organized with midterms and final exams. In average there are six exams per semester. Students who failed exams have the possibility to repeat them either in the following semester or immediately following the semester in the winter or summer session. The degree programmes end with a final thesis that guarantees that students can carry out an assigned task independently and at the level of the qualification sought. In order to improve the possibilities of the students to go to international universities the peers recommended to add an extended English summary to the final thesis.

The auditors questioned the purpose of the described state comprehensive exam which takes place at the end of the degree programmes when students have completely finished all courses. This state comprehensive exam, in the form of an oral exam, may range over the content of all the modules taught in the programme. As the achievement of the intended learning outcomes per module is assessed through module specific exams in all modules, it is not clear which additional achievement the state comprehensive exam would assess. The achievement of overarching competences is to be assessed in the final thesis.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 4:

Because the university did not give a comment about this criterion the peers confirmed their former assessment.

5. Resources

Criterion 5.1 Staff involved

Evidence:

- cf. analysis of needs and capacities

- cf. staff handbook
- list of and information about research projects in the self-assessment report

Preliminary assessment and analysis of the peers:

The bachelor's and master's degree programme of hydrology is offered by the department of Meteorology and hydrology within the Faculty of Geography and Environmental Science with 3 full professors, 3 associated professors, 6 assistant professors and 3 lecturers. The department of Energy and Ecology offers the programmes of life safety, ecology and geoecology with 6 full professors, 16 associated professors, 10 assistant professors and 9 lecturers.

All professors have contracts for 3 years and their position depends on their research activities and the time they already are active at the university. Associated professors have to provide a certain number of publications to extend their contract.

The composition and (specialist) training of the teaching body generally ensure that the intended learning outcomes are achieved and the available contact hours (overall and for individual lectures) are sufficient for teaching and student supervision.

During the visit the peers got the impression, that assistant professors and lecturers are hardly involved in the research activities of the departments due to their teaching functions. They recommend to offer opportunities for even more members of the teaching staff to realize research projects.

To review the research activities at the faculty in total the peers asked for a list of actual research projects before their final assessment.

Criterion 5.2 Staff development
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Evidence:

- Discussion with members from the university management
- Discussion with members from the faculty management
- Discussion with teaching staff

Preliminary assessment and analysis of the peers:

The auditors were informed that didactical training courses were offered to all lecturers at al-Farabi University and that staff members can obtain certificates on their pedagogical competences. On an annual basis a scientific conference is organized where teachers discuss educational methods and their international experience referring to this. Furthermore, sabbatical semesters for special research projects of the professors are possible.

Overall, the audit team considered the opportunities to be sufficient to meet the respective criteria.

Criterion 5.3 Institutional environment, financial and physical resources
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Evidence:

- Visitation of the laboratories
- Lists of equipment in the Self-Evaluation-Report

Preliminary assessment and analysis of the peers:

The self-evaluation-report provides a detailed list of the laboratory equipment available. In addition to this, the audit team had the possibility to visit the laboratories owned by the faculty as well as those laboratories concentrated in a pool for the use of all faculties.

The peers got a different impression of the equipment of the laboratories owned by the faculty and those labs which are organized in a pool. While the laboratories of the faculty have mainly an old standard which is hardly acceptable for teaching demonstrations the laboratories organized in the pool are equipped with modern facilities in a way to prepare students for the use of modern equipment in the institutions they will work later on. The peers welcomed the plan of the faculty to modernize their own labs. Especially for the laboratories in hydrology they realize that the equipment is hardly acceptable for demonstrations intentions during lectures. From the view of the peers, a concept is necessary how the measurement equipment of the hydrology laboratories will be modernized in near future.

The programmes are financed by governmental budget, fees of the students and third party funds. Most of the students (80%) get grants either by the state or by private institutions. In case of grants the university gets 4000 US \$ per student and year. For the peers the financing of the programme is assured, at least for the accreditation period.

The internal cooperation regarding the use of the laboratories is regulated by agreements between the faculties. Additionally the faculty cooperates with several Russian universities and with some universities in Western Europe as well regarding research projects and exchange programmes for students and professors. From the view of the peers, the faculty in total and the single professors are involved in an intensive way into networks in the Russian speaking world but they could follow the wish of the students to improve the internationalization with regard to western universities.

The peers welcomed that the faculty has founded a kind of industry committee wherein most of the biggest national companies are involved. In this committee the university discusses with representatives of the industry the further development of the pro-

grammes as well as the possibilities for internships or visiting lecturers out of the companies.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 5:

Regarding the comment of the university that students of the life safety programmes are prepared for research activities in the same way as for the common labour market the peers marked that the laboratories owned by the faculty are hardly equipped for the realisation of research projects. Instead the peers got the impression that the laboratories used for the life safety programmes are oriented on practical applications.

The peers noticed the additional information about the research projects at the faculty. From their point of view the research and development activities of teaching staff ensure sufficiently that the educational level sought is attained.

In total the peers confirmed their former assessment.

6. Quality Management: Further Development of Degree Programmes

Criterion 6.1 Quality assurance & further development
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Evidence:

- “University-wide Academic Policies and Procedures of al-Farabi Kazakh National University”
- Discussion with students

Preliminary assessment and analysis of the peers:

The quality assurance policy and the different procedures are elaborated in the “University-wide Academic Policies and Procedures of al-Farabi Kazakh National University”. The Methodological Bureau of Faculties is in charge of the overall quality control and quality assurance like “improvement of planning and organization of the educational process” or “improving the quality of teaching”. The Office of the Registrar is responsible for the registration services and all kinds of monitoring duties.

At the end of each semester, lecturers are assessed by students and other staff members; the data is analysed and made available to the Management and the Head of Department and has also an effect on the rating (and thereby on the salary) of the teachers. The students confirmed that evaluation questionnaires are handed out and are completed

anonymously. But they were not informed about the results and therefore felt almost unable to assess whether there were any improvements derived from the evaluation results. Thus, the feedback loops of quality management activities could not yet be considered closed.

Criterion 6.2 Instruments, methods and data

Evidence:

- Data about exam results, pass rates, student numbers, student progress

Preliminary assessment and analysis of the peers:

Overall, the auditors concluded that the data collected and the tools foreseen put the university in a position to check whether its aims in general and the objectives of the programmes in particular are achieved.

As mentioned above, the peers pointed out that the current quality assurance system does not fully implement a closed cycle. This should be a concern of the further development of the quality assurance mechanisms.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

Because the university did not give a comment about this criterion the peers confirmed their former assessment.

7. Documentation & Transparency

Criterion 7.1 Relevant Regulations

Evidence:

- “University-wide Academic Policies and Procedures of al-Farabi Kazakh National University”

Preliminary assessment and analysis of the peers:

The peers found that all aspects of admission, examinations, academic standing, progress, probation and disqualification, Fees, grading policy, examinations, and quality management were regulated in the “University-wide Academic Policies and Procedures of al-Farabi Kazakh National University”.

Criterion 7.2 Diploma Supplement and Certificate

Evidence:

- No Diploma Supplements or Transcripts of Records were provided

Preliminary assessment and analysis of the peers:

With regard both to the objective of al-Farabi University of fostering convergence with the European Higher Education Area as well as the requirements of the ASIIN seal, the peers stated the necessity of providing a diploma supplement to the graduates. This document should describe the awarded qualification and the educational system of Kazakhstan – in this way fostering comprehensibility and comparability between the educational systems. In detail, the Diploma Supplement has to provide information about the study aims and (generic) learning objectives, nature, level, context, content and status of the studies specifically for each programme, the success of the graduate as well as about the composition of the final grade. In addition to the national grade, a grading table in line with the ECTS Users' Guide needs to be foreseen. In as far as the Diploma Supplement has been made available by the university management, a model for each programme under review should be submitted with the comments on this report.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 7:

Although the university announced in their comment diploma supplements of the study programmes the peers found only a supplement for geodesy programmes but no specific supplements for the programmes included in this cluster. They marked that the seen supplement of the geodesy does not provide information about the study aims and (generic) learning objectives. Therefore they confirmed their former assessment.

D Additional Documents

Before preparing their final assessment, the panel ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

1. Programme specific examples of the Diploma Supplements
2. List of actual research projects

E Comment of the Higher Education Institution (09.09.2014)

The institution provided a statement as well as the following additional documents :
Diploma supplement and transcript of record for a geodesy programme

F Summary: Peer recommendations (14.09.2014)

Taking into account the additional information and the comments given by the university the peers summarize their analysis and **final assessment** for the award of the seals as follows:

Programm	ASIIN-Label	Accreditation max until.
Ba Ecology	With re-quirements for one year	30.09.2019
Ma Ecology	With re-quirements for one year	30.09.2019
Ba Hydrology	With re-quirements for one year	30.09.2019
Ma Hydrology	With re-quirements for one year	30.09.2019
Ba Life Safety and Environ-mental Pro-tection	With re-quirements for one year	30.09.2019
Ma Life Safety and Environ-mental Pro-tection	With re-quirements for one year	30.09.2019

Programm	ASIIN-Label	Accreditation max until.
Ma Geoecology and nature use management	With requirements for one year	30.09.2019

A) Accreditation with requirements

Requirements

For all Programmes

- A 1. (ASIIN 3.1) A transparent study plan must be available for the students.
- A 2. (ASIIN 2.3, 2.4, 2.6) All module descriptions have to give a subject specific description of goals and contents and of the practical parts of each module.
- A 3. (ASIIN 3.2) The transformation of the Kazakh credit points into ECTS points must correspond to the ECTS regulation that one credit point bases on 25-30 hours student workload.
- A 4. (ASIIN 6.1) There must be a feedback to the students about the results of the teaching evaluation.
- A 5. (ASIIN 7.2) An English diploma supplement has to be provided as a separate document, specifying the qualification achieved.

For the master geoecology

- A 6. (ASIIN 2.6) The title, aims and contents of the programme must correspond more clearly.

For the Hydrology programmes

- A 7. (ASIIN 5.3) A concept has to be given how the measurement equipment of the hydrology laboratories will be modernized in near future.
- A 8. (ASIIN 2.6) The students must get more experiences in numerical modeling.

Recommendations

- E 1. (ASIIN 2.4) It is recommended to extend the field work and to include interdisciplinary field studies.
- E 2. (ASIIN 3.1) It is recommended to amend the list of literature in all module descriptions in order to include modern English literature.

- E 3. (ASIIN 3.1) It is recommended to improve the English language skills of the students.
- E 4. (ASIIN 4) It is recommended to add an extended English summary to the final thesis.
- E 5. (ASIIN 5.1) It is recommended to offer opportunities for even more members of the teaching staff to realize research projects.

For the Bachelor programmes

- E 6. (ASIIN 3.1) It is recommended to offer more opportunities for the students to get team working experiences.

For the Bachelor's degree programme in ecology

- E 7. (ASIIN 2.6) The mathematical and natural scientific basics should be taught in a more general way in separate modules.

For the master programmes

- E 8. (ASIIN 3.1) It is recommended to give more lectures in English language.

G Comment of the Technical Committee 11 - Geosciences (16.09.2014)

Assessment and analysis for the award of the ASIIN label:

The Technical Committee discusses the report. From its point of view it would be helpful if the faculty could define the structure and content of the programmes more autonomously. Therefore it propose to add a further recommendation. Regarding to the other points of the report the Technical Committee follows the assessment of the peers without any changes.

The Technical Committee 03 – Civil Engineering, Surveying and Architecture recommends the award of the seals as follows:

Programm	ASIIN-Label	Accreditation max until.
Ba Ecology	With re-quirements for one year	30.09.2019
Ma Ecology	With re-quirements for one year	30.09.2019
Ba Hydrology	With re-quirements for one year	30.09.2019
Ma Hydrology	With re-quirements for one year	30.09.2019
Ba Life Safety and Environ-mental Pro-tection	With re-quirements for one year	30.09.2019
Ma Life Safety and Environ-mental Pro-tection	With re-quirements for one year	30.09.2019
Ma Geoecol-ogy and na-ture use man-agement	With re-quirements for one year	30.09.2019

Requirements

For all Programmes

- A 1. (ASIIN 3.1) A transparent study plan must be available for the students.
- A 2. (ASIIN 2.3, 2.4, 2.6) All module descriptions have to give a subject specific description of goals and contents and of the practical parts of each module.
- A 3. (ASIIN 3.2) The transformation of the Kazakh credit points into ECTS points must correspond to the ECTS regulation that one credit point bases on 25-30 hours student workload.
- A 4. (ASIIN 6.1) There must be a feedback to the students about the results of the teaching evaluation.

A 5. (ASIIN 7.2) An English diploma supplement has to be provided as a separate document, specifying the qualification achieved.

For the master geoecology

A 6. (ASIIN 2.6) The title, aims and contents of the programme must correspond more clearly.

For the Hydrology programmes

A 7. (ASIIN 5.3) A concept has to be given how the measurement equipment of the hydrology laboratories will be modernized in near future.

A 8. (ASIIN 2.6) The students must get more experiences in numerical modeling.

Recommendations

E 1. (ASIIN 2.4) It is recommended to extend the field work and to include interdisciplinary field studies.

E 2. (ASIIN 3.1) It is recommended to amend the list of literature in all module descriptions in order to include modern English literature.

E 3. (ASIIN 3.1) It is recommended to improve the English language skills of the students.

E 4. (ASIIN 4) It is recommended to add an extended English summary to the final thesis.

E 5. (ASIIN 5.1) It is recommended to offer opportunities for even more members of the teaching staff to realize research projects.

E 6. The definition of the programmes should be based on academic aspects more strongly.

For the Bachelor programmes

E 7. (ASIIN 3.1) It is recommended to offer more opportunities for the students to get team working experiences.

For the Bachelor's degree programme in ecology

E 8. (ASIIN 2.6) The mathematical and natural scientific basics should be taught in a more general way in separate modules.

For the master programmes

E 9. (ASIIN 3.1) It is recommended to give more lectures in English language.

H Decision of the Accreditation Commission (26.09.2014)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Commission discussed the procedure and made a number of editorial amendments to the wording of some requirements and recommendations.

The Accreditation commission decided to award the seals as follows:

Programm	ASIIN-Label	Subject-specific Label	Accreditation max until.
Ba Ecology	With requirements for one year	N/A	30.09.2019
Ma Ecology	With requirements for one year	N/A	30.09.2019
Ba Hydrology	With requirements for one year	N/A	30.09.2019
Ma Hydrology	With requirements for one year	N/A	30.09.2019
Ba Life Safety and Environmental Protection	With requirements for one year	N/A	30.09.2019
Ma Life Safety and Environmental Protection	With requirements for one year	N/A	30.09.2019
Ma Geoecology and nature use management	With requirements for one year	N/A	30.09.2019

Requirements

For all Programmes

A 1. (ASIIN 3.1) A transparent study plan must be available for the students.

- A 2. (ASIIN 2.3, 2.4, 2.6) All module descriptions have to give a subject specific description of goals and contents and of the practical parts of each module.
- A 3. (ASIIN 3.2) The transformation of the Kazakh credit points into ECTS points must correspond to the ECTS regulation that one credit point is awarded for 25-30 hours student workload.
- A 4. (ASIIN 6.1) There must be a feedback to the stakeholders (students and teaching staff) about the results of the teaching evaluation.
- A 5. (ASIIN 7.2) A programme-specific Diploma Supplement has to be prepared and handed out to students on a regular basis providing information about the objectives, intended learning outcomes, structure and level of the degree, as well as about an individual's performance. It must also explain the educational system of Kazakhstan in order to foster comprehensibility and comparability between the educational systems.

For the Master Geoecology

- A 6. (ASIIN 2.6) The title, aims and contents of the programme must correspond more clearly.

For the Hydrology programmes

- A 7. (ASIIN 5.3) A concept has to be given how the measurement equipment of the hydrology laboratories will be modernized in near future.
- A 8. (ASIIN 2.6) The students must get more experiences in numerical modeling.

Recommendations

- E 1. (ASIIN 2.4) It is recommended to extend the field work and to include interdisciplinary field studies.
- E 2. (ASIIN 3.1) It is recommended to amend the list of literature in all module descriptions in order to include modern English scientific literature.
- E 3. (ASIIN 3.1) It is recommended to improve the English language skills of the students.
- E 4. (ASIIN 4) It is recommended to add an extended English summary to the final thesis.
- E 5. (ASIIN 5.1) It is recommended to offer opportunities for even more members of the teaching staff to realize research projects.
- E 6. (ASIIN 2.6) The definition of the programmes should be based on academic aspects more strongly.

For the Bachelor programmes

E 7. (ASIIN 3.1) It is recommended to offer more opportunities for the students to get team working experiences.

For the Bachelor's degree programme in ecology

E 8. (ASIIN 2.6) The mathematical and natural scientific basics should be taught in a more general way in separate modules.

For the master programmes

E 9. (ASIIN 3.1) It is recommended to give more lectures in English language.