Rector
Andrei D. Karol
11.04.2025

Registration number: 2460-5.7-112/yr.

BELARUSIAN STATE UNIVERSITY
CURRICULUM

Speciality: 7-06-0532-02 Hydrometeorology
Profiling: Water resources management and climate risks

Degree: Master
Period of study: 1 year
Full-time form of education

I. Schedule of the educational process

II. Summary (in weeks)

	Academic studies	Exams	Internship	Research	Master's Thesis	Vacation	Total
1	25	5	4	6	2	2	44
	25	5	4	6	2	2	44

Legend:
☐ — Academic Studies X — Intership // — Master's Thesis
: — Exams / — Research = — Vacation

III. Curriculum

№ п/п	The name of the module, academic discipline, course project (course work)	Exams	End-of-term test	Total	Total in class	Lectures	Laboratory work	Workshops	Seminar classes	1 semester, 15 weeks Total	1 semester Total in class	1 semester Credits	2 semester, 10 weeks Total	2 semester Total in class	2 semester Credits	Competence Code
1	**State Component**			360	158	70	88			360	158	12				
1.1	**Module 'Water Resources Management'**															UC-1,UC-3,UC-4, UC-6, DPC-1
1.1.1	Global and Regional Water Resources Changes		1	90	36	28	8			90	36	3				
1.1.2	Modelling of Hydrological Processes	1		90	42	22	20			90	42	3				
1.2	**Module 'GIS analysis in Hydrometeorology'**															UC-2, DPC-1
1.2.1	GIS Technologies in Hydrometeorological Reserches		1	90	40	10	30			90	40	3				
1.2.2	Automated Systems in Hydrometeorology		1	90	40	10	30			90	40	3				
2	**Higher Education Institution Component**			1024	364	168	84	104	8	478	156	15	546	208	18	
2.1	**Module 'Methodology of Hydrometeorological Reserches'**															UC-3,4, SC-1
2.1.1	Current Issues in Hydrometeorology	1		90	40	20		20		90	40	3				
2.1.2	Research Seminar		1, 2	204						108		3	96		3	
2.1.3	Environmental Data Processing Methods	2		90	36	18		18					90	36	3	
2.2	**Module 'Climate Modelling and Forecasting'**															UC-6
2.2.1	Neural Network Analysis in Hydrometeorology	2		90	48	16	32						90	48	3	SC-2
2.2.2	Climate Projections	2		90	36	6	30						90	36	3	SC-3
2.2.3	**Optional disciplines (1 from 2)**															SC-4
2.2.3.1	Paleoclimatology		1	90	40	20		20		90	40	3				
2.2.3.2	Historical Climatology															
2.3	**Module 'Hydrometeorological risks'**															UC-6
2.3.1	Carbon Neutrality and Environmental Sustainability		1	100	36	18		18		100	36	3				SC-5
2.3.2	Climate Risks and Adaptation to Climate Change	1		90	40	24		8	8	90	40	3				SC-6
2.3.3	Regional Synoptic Processes	2		90	48	26	22						90	48	3	SC-7
2.3.4	**Optional disciplines (1 from 2)**															SC-8
2.3.4.1	Hydrological Security		2	90	40	20		20					90	40	3	
2.3.4.2	Hydrological Forecasts and Alarm Systems															
2.4	**Optional Subjects**			/180	/68	/36		/32		/90	/34	/3	/90	/34	/3	
2.4.1	Creative Teaching Techniques in Higher School/ Pedagogics and Psychology of Higher Education		/1	/90	/34	/20		/14		/90	/34	/3				UC-7
2.4.2	Web-design and Visualization of Environmental Information		/2	/90	/34	/16		/18					/90	/34	/3	SC-9
2.5	**Series of Disciplines for Candidate Exams and Additional Training**	/2,2	/1	/338	/218	/66	/24	/96	/32	/206	/138	/2	/132	/80	/7	
2.5.1	Philosophy and Methodology of Science	/2		/124	/72	/40			/32	/62	/40		/62	/32	/3	UC-1
2.5.2	Foreign Language	/2		/142	/96			/96		/72	/48		/70	/48	/4	UC-5
2.5.3	Information Technologies: Basics		/1	/72	/50	/26	/24			/72	/50	/2				UC-2
	Number of Hours			1384	522	238	172	104	8	838	314	27	546	208	18	
	Number of Hours per Week										21			21		
	Number of Course Projects															
	Number of Exams			6							4			2		
	Number of End-of-term tests			9							5			4		

	IV. Intership				V. Research		VI. Final Certification
Name of the practice	Semester	Weeks	Credits	Semester	Weeks	Credits	Master's Thesis
Scientific research	2	4	6	2	6	9	

VII. Competence Matrix

Competence Code	Competence Name	Module Code, Discipline Code
UC-1	To be able to apply scientific cognition methods in research activity, to generate and implement innovative ideas	1.1, 2.5.1
UC-2	To solve research and innovation tasks based on the use of information and communication technologies	1.2, 2.5.3
UC-3	To provide communication, demonstrate leadership skills, be capable of team building and development of strategic goals and objectives	1.1, 2.1
UC-4	To develop innovative receptivity and ability to innovate	1.1, 2.1
UC-5	To use a foreign language for communication in interdisciplinary and scientific environment, in various formats of international cooperation, scientific research and innovative activity	2.5.2
UC-6	To be able to predict the conditions of professional activities' implementation and solve professional problems in uncertainty	1.1, 2.2, 2.3
UC-7	To apply psychological and pedagogical methods and information-communication technologies in education and management	2.4.1
DPC-1	To be able to analyze the water resources state according to climate change	1.1, 2.2.2.1
DPC-2	To use software geoinformation tools and automated systems for scientific geoinformation analysis of climate and hydrological data, apply them in the hydrometeorological researches	1.2, 2.2.2.1
SC-1	To apply conceptual and methodological provisions in the field of hydrometeorology to organize research activities, determine the relevance of setting a scientific problem and developing research methods, use in practice a professional conceptual and categorical apparatus	2.1
SC-2	To use neural networks and machine learning to collect, process and analyze hydrometeorological information of various scales	2.2.1
SC-3	To compile climate long-term forecasts based on current data and technologies	2.2.2
SC-4	To substantiate the results of paleoclimatic studies, use knowledge about climate change of past geological epochs to assess the current and future state of the climate, produce modelled paleoclimatic reconstructions, use specialized software packages for paleoclimatic reconstructions	2.2.3
SC-5	To analyze the factors and risks of ecosystem sustainability at the current level of economic development and in the future, to assess the effectiveness of achieving carbon neutrality of the economy at the global, regional, local level	2.3.1
SC-6	To analyze climatic changes in the environment and predict climate risks of their likely impact on the functioning of business entities	2.3.2
SC-7	To analyze synoptic objects and processes, identify synoptic conditions for the weather hazards formation, to process and prepare data on current weather and hydrometeorological hazards to ensure the safe of business entities at the regional level	2.3.3
SC-8	To use hydrological data in practice, implement the methods of monitoring and analysis of hydrological hazards, make decisions about the notification of the likely risks from dangerous events on rivers	2.3.4
SC-9	To analyze environmental data used to create images, apply visualization and web-design techniques, and create geo-images in a modern design style	2.4.2

Developed on the basis of the Model Curriculum for the specialty 7-06-0532-02 «Hydrometeorology», approved on 19.01.2023 г., registration № 7-06-05-018/пр.

СОГЛАСОВАНО
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Recommended for approval by the
Scientific and Methodological Council of
Belarusian State University
Record dated 15.02.2023 № 5.

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