

CURRICULUM

Контрольный экземпляр 39.3.1 yr.

Speciality: 1-31 80 06 Chemistry
Profiling: Chemistry For Drug Substances

Degree: Master
Period of study: 1 year

I. Schedule of the educational process

II. Summary (in weeks)

Y E A R S	September				October				November				December				January				February				March				April				May				June				July				August				Academic Studies	Exams	Internship	Research	Master's Thesis	Vacation	Total																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Legend: ☐ — Academic Studies ☒ — Internship ☐ — Master's Thesis
☐ — Exams ☐ — Research ☐ — Vacation

III. Curriculum

No	The name of the module, academic discipline, course project (course work)	Exams	End-of-term test	Academic hours						Semesters						Competence Code
				Total	Total in class	As follows:				I year						
						Lectures	Laboratory work	Workshops	Seminar classes	1 semester, 14 weeks			2 semester, 9 weeks			
										Total	Total in class	Credits	Total	Total in class	Credits	
1	State Component	1, 1	1, 1, 2	580	170	112		38	20	490	170	15	90		3	
1.1	Module «Academic Research »															UK-1, DPC-1
1.1.1	Research seminar		1, 2	200						110		3	90			
1.2	Module «Mega-Trends in Chemical Science of XXI Century »															UK-2, DPC-2
1.2.1	Modern trends in chemistry	1		200	84	72			12	200	84	6				
1.3	Module «Computer Chemistry»															DPC-3
1.3.1	Computer simulation of molecular structure and reactivity of the molecules	1		90	44	20		20	4	90	44	3				
1.3.2	Chemoinformatics		1	90	42	20		18	4	90	42	3				
2	Higher Education Institution Component	1, 2, 2, 2	1, 1, 2, 2	814	312	174	44	22	72	324	124	9	490	188	15	
2.1	Module «Fundamentals of Drug Substances Chemistry»															
2.1.1	Terminology of drugs, quality standards, control by pharmacopeias	1		108	42	22	12		8	108	42	3				SC-1
2.1.2	Pharmaceutical chemistry basics	2		98	42	24	8		10				98	42	3	SC-1
2.1.3	Biochemistry		1	108	44	22	12		10	108	44	3				SC-2
2.2	Module «Pharmaceutical Industry and Technologies »															
2.2.1	Cleaner production strategy in pharmaceutical industry		1	108	38	20			18	108	38	3				SC-3
2.2.2	Pharmaceutical technology	2		98	38	20	12	4	2				98	38	3	SC-4
2.2.3	Management in pharmaceutical industry /Mega-trends in pharmaceutical industry		2	98	36	22		6	8				98	36	3	SC-4, 5
2.3	Module «Modern Trends in Chemistry of Drugs»															
2.3.1	Bioanalytics	2		98	36	22		6	8				98	36	3	SC-6
2.3.2	XXI century drugs and antioxidant protection of the organism/ Up-to-date concept of drugs technology		2	98	36	22		6	8				98	36	3	SC-7
3	Optional Subjects		/ 1	/108	/56	/ 30		/ 26		/108	/56	/ 3				
3.1	Creative Teaching Techniques in Higher School / Pedagogics and Psychology of Higher Education		/ 1	/108	/56	/ 30		/ 26		/108	/56	/ 3				UK-3
4	Series of Disciplines for Candidate Exams and Additional Training ¹	/2, 2	/1, 1	/568	/316	/96	/36	/140	/44	/358	/202	/6	/210	/114	/9	
4.1	Information Technologies: Basics		/1	/108	/72	/36	/36			/108	/72	/3				UK-4
4.2	Foreign Language	/2	/1	/220	/140			/140		/110	/70	/3	/110	/70	/3	UK-5
4.3	Philosophy and Methodology of Science	/2		/240	/104	/60			/44	/140	/60		/100	/44	/6	UK-6
Number of Hours				1394	482	286	44	60	92	814	294	24	580	188	18	
Number of Hours per Week										20			21			
Number of Exams				6						3			3			
Number of End-of-term tests				7						4			3			

IV. Internship				V. Research			VI. Final Certification	
Internship Title	Semester	Weeks	Credits	Semester	Weeks	Credits	Master's Thesis	
Scientific Research	2	4	6	2	8	12		


VII. Competence Matrix

Competence Code	Competence Name	Module Code, Discipline Code
UC-1	To be able to apply scientific knowledge (analysis, comparison, systematization, abstraction, modelling, data authenticity checking, decision-making etc.) in independent research activity, to generate and realize innovative ideas.	1.1
UC-2	To be able to perform innovative, scientific and educational activities, as well as to propose their own hypotheses in chemistry, including the interdisciplinary knowledge and world scientific achievements	1.2
UC-3	To be able to perform teaching work in educational institutions, master and implement efficient educational, informational, communicational technologies as well as pedagogical innovations	3.1
UC-4	To have skills of using the modern information technologies for solving scientific research and innovative problems	4.1
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.	4.2
UC-6	To master the methodology of scientific cognition, to be able to analyse and evaluate the content and level of philosophic and methodological issue while tackling the tasks related to scientific research and innovative activities.	4.3
DPC-1	To be able to analyze the references, to identify the most significant facts, to give them their own interpretation, to plan, execute and evaluate the results of chemical experiment	1.1
DPC-2	To be capable of developing new methods of synthesis and investigation of chemical substances and materials, taking into account the situation of rapidly changing global business environment in chemical and pharmaceutical industries	1.2
DPC-3	To apply computer and mathematical simulations for the description of the structure and properties of molecules and their behaviour in chemical processes as well	1.3
SC-1	To master the terminology, methods of synthesis and pharmaceutical analysis of the main groups of drugs and to be able to evaluate their quality in accordance with pharmacopeias	2.1.1, 2.1.2
SC-2	To master the structure of biomolecules, the mechanisms and methods of testing of biological activity, and to predict their pharmacological activity depending on their structure	2.1.3
SC-3	To be able to analyze the cleaner production strategy of specific pharmaceutical enterprise, to use the principles of "green" chemistry for the development of "green" technologies in pharmaceutical industry	2.2.1
SC-4	To know methods and main procedures of pharmaceutical technology, to understand and to develop strategy and tactics of industrial pharmaceutical companies at the professional level	2.2.2, 2.2.3
SC-5	To know the specific features of management in pharmaceutical industry	2.2.3
SC-6	To master up-to-date methods of analysis of biological objects and bioactive substances, including those based on biosensors, analytical micro- and nanochips.	2.3.1
SC-7	To be able to search for new biomolecules interacting effectively with a target in the body, to apply new approaches to the synthesis of drug substances according to the requirements of international high-tech area	2.3.2

¹ Series of Disciplines for Candidate Exams and Additional Training «Philosophy and Methodology of Science», «Foreign Language», «Information Technologies: Basics» are studied according to the choice of a student.

AGREED


Vice-Rector
for Academic Affairs and Education Innovations

 Olga I. Chupris
« 11 » 04 2019

AGREED

Academic Affairs Department,

Head

 Alena A. Dastanka
« 11 » 04 2019

AGREED

Dean of the Faculty
of Chemistry

 Dmitry V. Sviridov
« 11 » 04 2019