



National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 04.03.01 Chemistry

Educational Programme "Chemistry"

Implementing unit: Faculty of Chemistry, HSE - Moscow

APPROVED

29.03.2021

Vice Rector

ROSHCHIN S.Y.

Signed with EDS

Years of Study: 2020/2021 - 2023/2024

Length of Programme: 4 years

Mode of Study: Full Time

Degree: Bachelor's degree

Block Code	Course	Subject type	Credits	Credits by Years				Planned Educational Programme Development Results
				1	2	3	4	
	Degree Programme		240,00	60,00	60,00	60,00	60,00	
	Major		149,00	44,00	31,00	42,00	32,00	
	Core Professional Block (Major)		97,00	41,00	31,00	25,00		
	Subject Areas		97,00	41,00	31,00	25,00		
	Mathematics		25,00	14,00	11,00			
1	Calculus	C	14,00	7,00	7,00			GPC-4, UC-1
2	Linear Algebra and Geometry	C	7,00	7,00				GPC-4, UC-1
3	Probability Theory and Mathematical Statistics	C	4,00		4,00			GPC-4, UC-1
	Physics		10,00	6,00	4,00			
1	Physics	C	10,00	6,00	4,00			GPC-4, UC-1
	Organic Chemistry		19,00		16,00	3,00		
1	Organic Chemistry	C	16,00		16,00			GPC-1, GPC-2, PC-5, PC-9
2	Biochemistry (offered in a foreign language)	C	3,00			3,00		GPC-1, PC-5
	Analytical Chemistry		8,00			8,00		
1	Analytical Chemistry	C	8,00			8,00		GPC-1, PC-7
	Quantum Chemistry		4,00			4,00		
1	Quantum Chemistry	C	4,00			4,00		GPC-3, PC-3
	Chemistry of Elements		16,00	16,00				
1	Chemistry of the Elements	C	8,00	8,00				GPC-1, GPC-2, PC-4, PC-8, PC-9
2	Theoretical Inorganic Chemistry	C	8,00	8,00				GPC-4, PC-4, PC-8
	Fundamentals of Physical Chemistry		15,00	5,00		10,00		
1	Essentials of Physical Chemistry	C	5,00	5,00				GPC-4, PC-6
2	Physical Chemistry	C	6,00			6,00		GPC-4, PC-6
3	Crystallography and Diffraction Methods	C	4,00			4,00		GPC-1, GPC-5, PC-1
	Elective Professional Block (Major)		52,00	3,00		17,00	32,00	

	Compulsory Courses		25,00	3,00		8,00	14,00	
1	Polymers	C	4,00				4,00	GPC-2, PC-5, PC-8
2	Introduction to Combinatorics and Graphs (offered in a foreign language)	C	3,00				3,00	GPC-1, PC-1
3	Chemical Technology	C	4,00				4,00	GPC-4, PC-1, PC-2
4	Research seminar	C	3,00	3,00				GPC-6, PC-1, PC-3, UC-6
5	Chemistry of Transition Metals	C	7,00			4,00	3,00	PC-4, PC-5, PC-8
6	Data Analysis in Python (offered in a foreign language)	C	4,00			4,00		GPC-5, UC-1
	Elective Courses		27,00			9,00	18,00	
1	Elective courses	E	27,00			9,00	18,00	PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9
	Internship		36,00	8,00	7,00	4,00	17,00	
	Professional Internship		2,00	2,00				
1	Educational Internship (Introductory Training)	C	2,00	2,00				GPC-6, UC-6
	Project Internship		15,00	3,00	4,00	4,00	4,00	
1	Research Project	E	15,00	3,00	4,00	4,00	4,00	GPC-1, GPC-2, PC-8, PC-9, UC-3
	Research Internship		19,00	3,00	3,00		13,00	
1	Graduation Internship	C	6,00				6,00	GPC-1, GPC-2, GPC-6, PC-2, PC-9
2	Preparation of Graduation Thesis	C	7,00				7,00	GPC-1, GPC-2, GPC-3, PC-1, PC-3, PC-9, UC-6
3	Курсовая работа по неорганической химии	C	3,00	3,00				GPC-1, GPC-2, GPC-6, PC-9
4	Курсовая работа по органической химии	C	3,00		3,00			GPC-1, GPC-2, GPC-6, PC-9
	General Courses		14,00	1,00	5,00	4,00	4,00	
	Core General Courses		2,00	1,00	1,00			
1	Safe Living Basics	C	1,00	1,00				UC-11, UC-3, UC-8
2	Physical Training	C	1,00		1,00			UC-3, UC-7
	Optional General Courses		12,00		4,00	4,00	4,00	
1	Philosophy	C	4,00				4,00	UC-1, UC-5
2	Economics	C	4,00		4,00			UC-2, UC-9
3	Legal Literacy	C	4,00			4,00		UC-10, UC-2
	Minor		20,00		10,00	10,00		
1	Minor	E	20,00		10,00	10,00		UC-1, UC-2, UC-6
	English		1,00				1,00	
	Examinations		1,00				1,00	
1	Project Proposal (offered in a foreign language)	C	1,00				1,00	GPC-6, UC-4
2	English Language Integrative Exam	C						UC-4
3	Independent English Exam (offered in a foreign language)	C						UC-4
	Optional Courses							
1	Academic English Writing (offered in a foreign language)	O	2,00				2,00	UC-4, UC-5
2	English	O	14,00	8,00	6,00			UC-4, UC-5

	Data Culture		14,00	7,00	7,00			
1	Information Technology. Data Culture	C	7,00	7,00				GPC-3, GPC-5
2	Python for Data Extraction and Processing	C	4,00		4,00			GPC-5, UC-1
3	Chemical Information Search	C	3,00		3,00			GPC-3, GPC-5
	Final State Certification (FSC)		6,00				6,00	
	Thesis Work		3,00				3,00	
1	Presenting of Graduation Thesis	C	3,00				3,00	GPC-1, GPC-6, PC-1, PC-3, UC-1, UC-2, UC-4
	State Examinations		3,00				3,00	
1	State Interdisciplinary Exam in the Field of Study	C	3,00				3,00	GPC-4, GPC-6, PC-4, PC-6, PC-7, PC-8, UC-1, UC-6

Curriculum agreed:

Academic Supervisor	Shapovalov S.S.	25.03.2021
Dean	KOTOV V.I.	25.03.2021
Head of Centre for Educational Model Design	LEPESHKIN I.A.	29.03.2021

* Subject type:

Compulsory course	C
Elective course	E
Optional course	O