





Code	Names of disciplines/other educational activities	Credits	Semesters								Final control form
			I	II	III	IV	V	VI	VII	VIII	
			Credits								
			lec+ practice+ lab								
100905											
PP 1203	Professional (educational) practice	3		3							graded test
	<b>M-5 Physics and physical chemistry</b>	<b>15</b>									
Fiz 2204 100906	Physics	6			3+0+3						exam
FH 2205 100907	Physical chemistry	9				3+ 1,5+ 4,5					exam
	<b>M-6 Inorganic and organic chemistry</b>	<b>18</b>									
NH 2206 92080	Inorganic chemistry	9			1,5+ 1,5+6						exam
OH 2207 100908	Organic chemistry	9				3+0+6					exam
	<b>M-7 Analytical chemistry</b>	<b>13</b>									
AH 2208 100951	Analytical chemistry	9			1,5+ 1,5+6						exam
PP 2209	Professional (Training) Practice	4				4					graded test
	<b>M- 8 Structure of matter and physical research methods</b>	<b>15</b>									
SV 3210 4641	Structure of matter	6					3+3+0				exam
FMI 3211 4642	Physical research methods	6						1,5+ 1,5+3			exam
PP 2212	Professional (Training) Practice	3						3			graded test
	<b>M-9 Metrology and standardization in chemistry</b>	<b>15</b>									
MS 4213 65786	Metrology and standardization	6							3+3+0		exam
PP 2214	Professional (Training) Practice	9								9	graded test
<b>2)</b>	<b>ELECTIVE COMPONENT</b>	<b>18</b>									
	<b>M-10 Physico-chemical systems and its modelling</b>										
BH 3215	Biochemistry	6					1,5+ 1,5+3				exam

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91932											
PMMHP 3216 91840	Using Matlab for chemical process modeling	6						1,5+4,5 +0			exam
HTT 3217 39121	Chemistry of solid body	6						1,5+4,5 +0			exam
	<b>M-10 Modelling in chemistry</b>	<b>18</b>									
BH 3215 69478	Bioorganic chemistry	6					3+3+0				exam
MMHP32 16 79263	Mathematical modeling of chemical processes	6						1,5+4,5 +0			exam
HKS 3217 100952	Chemistry of coordination compounds	6						3+3+0			exam
<b>3. MAJOR DISCIPLINES (MD)</b>		<b>60</b>									
<b>1) UNIVERSITY COMPONENT</b>		<b>36</b>									
	<b>M-11 Basis of Chemical Technology</b>	<b>27</b>									
OHT 3301 92111	Basis of Chemical Technology	9					3+0+6				exam
CH 3302 4638	Colloid chemistry	9					3+0+6				exam
HVS 3303 4639	Chemistry of macromolecular compounds	9						1,5+ 1,5+6			exam
	<b>M-12 Chemical physics</b>	<b>9</b>									
HF 4304 5154	Chemical physics	6							1,5+ 1,5+3		exam
PP 4305	Professional (pre-diploma) practice	3								3	graded test
<b>2) ELECTIVE COMPONENT</b>		<b>24</b>									
	<b>M-13 Chemical Expertise</b>	<b>24</b>									
HEE 4306 78311	Chemical and environmental expertise	9							1,5+ 1,5+6		exam
IN 4307 101395	Investigation of nanoobjects	9							3+0+6		exam

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APTO 4308 72492	Analysis of natural and technical objects	6							3+0+3		exam
	<b>М-13 Теориялық және қолданбалы химия/ Теоретическая и прикладная химия/</b>	<b>24</b>									
ORRE 4306 91713	Fundamentals of radiochemistry and radiation ecology	9							1,5+ 1,5+6		exam
KSP 4307 91715	Kinetics of complex processes	9							1,5+ 3+4,5		exam
VN 4308 91723	Introduction to nanochemistry	6							1,5+ 1,5+3		exam
	<b>М-13 Жасыл химия/ Зеленая химия/ Green chemistry</b>	<b>24</b>									
ZAH 4306 91721	Green analytical chemistry	9							3+0+6		емтихан/экзамен/exam
HPS 4307 54015	Chemistry of natural compounds	9							3+0+6		exam
HOS 4308 52168	Chemistry of environmental	6							1,5+ 1,5+3		exam
	<b>М-13 Macro and microchemistry</b>	<b>24</b>									
FHPAV 4306 72289	Physico-chemistry of surfactants	9							3+0+6		exam
NFPM 4307 91726	New functional polymeric materials	9							1,5+ 1,5+6		exam
HNG 4308 100953	Chemistry of oil and gas	6							1,5+ 0+4,5		exam
	<b>М-13 Nanochemistry</b>	<b>24</b>									
NMCN 4306 100954	Nanostructured materials for special purposes	9							3+0+6		exam
HESM 4307 91710	Chemistry and expertise of silicate materials	9							1,5+ 1,5+6		exam

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SRSOV43 08 100955	Structure and reactivity of organic compounds	6							1,5+ 1,5+3		exam
	<b>M-14 ADDITIONAL TYPES OF TRAINING (ATT)</b>										
<b>DVO</b>	<b>4. ADDITIONAL TYPES OF TRAINING(ATT)</b>										
	1) ТАҢДАУ КОМПОНЕНТИ/ КОМПОНЕНТ ПО ВЫБОРУ/ <b>ELECTIVE COMPONENT</b>										
<b>IA</b>	<b>5. FINAL ATTESTATION</b>	<b>12</b>								12	
	<b>TOTAL</b>	<b>240</b>	<b>31</b>	<b>29</b>	<b>31</b>	<b>29</b>	<b>30</b>	<b>30</b>	<b>36</b>	<b>24</b>	

*Approved*

*Vice Rector on Academic Affairs - Member of the Board*

*F.Zhakypova*

*Agreed*

*Director of Academic Affairs Department*

*N.Baigaraev*

*Deputy Director of the Department of Academic Affairs*

*A.Mussinova*

*Deputy Director of the Department of Academic Affairs*

*A.Kadirov*

*Head of the Educational Program Design Office*

*G.Amirbekova*

*Discussed and approved at the meeting of the Academic Council of the Faculty of chemistry and chemical technology*

*Protocol*

*№ 8 « 30 » 03 2022г.*

*Deputy Dean of the Faculty of Chemistry and chemical technology*

*L.Kudreeva*

*The Chairman of the methodical advice of the faculty*

*A.Bektemisova*

*Head of Department of physical chemistry, catalysis and petroleum chemistry*

*E.Aubakirov*

*Educational Program Coordinator*

*S.Narenova*

*Educational Program Authors*

*O.Ponomarenko*

*Zh.Ospanova*

*Employer: position and place of work*

***G.Tureshova***

***E.Panova, Ph.D., Head of the Waste  
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LLP «Institute of High Technologies», JSC  
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