



CURRICULUM
of Educational Program on enrollment for 2024-2025 academic year
Educational program 7M06102 - "Machine Learning & Data Science"
Group of educational programs M094 - "Information technology"

Form of study: full-time Duration of study: 2 year Academic degree: Master of Engineering Science

Discipline code	Name of disciplines	Cycle	Total amount in credits	Total hours	Classroom amount lec/lab/pr	SIS (including TSIS) in hours	Form of control	Allocation of face-to-face training based on			
								1 course		2 course	
								1 semester	2 semester	3 semester	4 semester
CYCLE OF BASIC DISCIPLINES (BD)											
M-1. Module of basic training (university component)											
LNG210	English (professional)	BD, UC	3	90	0/0/2	60	E	3			
HUM214	Management Psychology	BD, UC	3	90	1/0/1	60	E	3			
HUM212	History and philosophy of science	BD, UC	3	90	1/0/1	60	E		3		
HUM213	Higher school pedagogy	BD, UC	3	90	1/0/1	60	E		3		
component of choice											
ICT212	System and network administration	BD CCH	5	150	1/0/2	105	E	5			
CSE795	Cloud Technologies				2/0/1						
MNG781	Intellectual property and research										
ICT203	Transformer architectures in large language models	BD CCH	5	150	2/0/1	105	E			5	
CSE798	Computational Intelligence										
MNG782	Sustainable development strategies										
ICT214	Advanced Python	BD CCH	5	150	2/1/0	105	E	5			
ICT213	Advanced R				2/0/1						
CYCLE OF PROFILE DISCIPLINES (PD)											
M-2. Module of professional activity (university component, component of choice)											
CSE770	Methodology of scientific research and innovation	PD UC	5	150	2/0/1	105	E	5			
CSE784	Artificial Intelligence and Machine Learning	PD UC	5	150	2/0/1	105	E	5			
CSE785	Information retrieval and Information extraction	PD UC	5	150	2/0/1	105	E		5		
CSE786	Business data analysis systems	PD UC	5	150	2/0/1	105	E		5		
CSE799	IT project management	PD UC	5	150	2/0/1	105	E		5		
CSE284	Applied Machine Learning & Deep Learning	PD CCH	5	150	2/0/1	105	E			5	
CSE787	Big Data processing and applications										
CSE788	NLP Basics										
CSE789	Computer vision and image processing	PD CCH	5	150	2/0/1	105	E				5
CSE706	Ecosystem Modeling										
CSE790	Deep learning in NLP										
CSE792	Reinforcement Learning										
CSE791	Development of Intelligent Applications	PD CCH	5	150	2/0/1	105	E			5	
CSE793	Generative AI	PD UC	5	150	2/0/1	105	E				5
SEC232	Business Intelligence	PD UC	4	120	2/0/1	75	E				4
CSE794	Reserch Project	PD UC	4	120	2/0/1	75	E				4
M-3. Practice-oriented module											
AAP229	Pedagogical practice	BD, UC	8							8	
AAP256	Research practice	PD, UC	4								4
M-4. Experimental research module											
AAP268	Research work of a master's student, including internship and completion of a master's thesis	RWMS UC	4						4		
AAP268	Research work of a master's student, including internship and completion of a master's thesis	RWMS UC	4							4	
AAP251	Research work of a master's student, including internship and completion of a master's thesis	RWMS UC	2								2
AAP255	Research work of a master's student, including internship and completion of a master's thesis	RWMS UC	14								14
M-5. Module of final attestation											
ECA212	Preparation and defense of a master's thesis	FA	8								8
Total based on UNIVERSITY:								30	30	29	31
								60		60	

Hong Kong City University, Hong Kong, a Special Administrative Region (SAR) of the People's Republic of China											
CS5187	Group 2. CS5187 Vision and Image	MR Elective	3							3	
CS6535	Group 1. CS6535 Guided Study in Artificial Intelligence	MR Elective	3							3	
CS5222	CS5222 Computer Networks and Internets	MR Core	3							3	
CS5351	CS5351 Software Engineering	MR Core	3							3	
CS5481	CS5481 Data Engineering	MR Core	3							3	
CS6520	Group 1. CS6520 Project	MR Elective	6							6	
CS6491	Group 2. CS6491 Topics in Optimization and its Applications in Computer Science	MR Elective	3							3	
CS6493	Group 1. CS6493 Natural Language Processing	MR Elective	3							3	
CS5489	Group 1. CS5489 Machine Learning: Algorithms and Applications	MR Elective	3							3	
CS5491	Group 2. CS5491 Artificial Intelligence	MR Elective	3						0	3	
Итого по УНИВЕРСИТЕТУ:									0	15	18
									0	33	

Примечание:

Major requirement Core
Major requirement Elective

MR Core
MR Elective

Number of credits for the entire period of study					
Cycle code	Cycles of disciplines	Credits			
			university component (UC)	component of choice (CCH)	Total
BD	Cycle of basic disciplines		20	15	35
PD	Cycle of profile disciplines		38	15	53
	<i>Total for theoretical training:</i>	<i>0</i>	<i>58</i>	<i>30</i>	<i>88</i>
	RWMS		24		24
FA	Final attestation		8		8
	TOTAL:	8	82	30	120

Decision of the Academic Council of Kazntu named after K.Satpayev. Protocol № 12 or "22" 04 2024 y.

Decision of the Educational and Methodological Council of Kazntu named after K.Satpayev. Protocol № 6 or "19" 04 2024 y.

Decision of the Academic Council of the Institute of Automation and Information Technology. Protocol № 8 or "19" 02 2024 y.

Vice-Rector for Academic Affairs

Acting Director of the Institute of A&IT

Head of the Department of Software Engineering

Specialty Council representative from employers, President of the Association of Innovative Companies of the SEZ "PIT", Ph.D.

Uskenbayeva R.K.

Kalpeeva Zh.B.

Abdoldina F.N.

Konysbayev A.T.



APPROVED
 Vice-Rector
 of City University of Hong Kong SAR
 « ___ » _____ 2024 y.

**Double diploma Master's degree educational program 7M06102 - "Machine Learning & Data Science"
 at KazNRTU named after K.Satpayev
 and "Computer Science" City University of Hong Kong SAR**

The educational program is carried out on the basis of:
 - 1-2 semesters at KazNRTU
 - 3-4 semesters at City University of Hong Kong SAR

**Discipline re-credit system
 (mutual correspondence of disciplines, modules and practices)**

№	KazNRTU named after K.Satpayev		City University of Hong Kong SAR		
	Name of the discipline	Amount of credits	Name of the discipline	Amount of credits	
1 semester					
Year 1 (0 credits, City University of Hong Kong SAR) at KazNRTU named after K.Satpayev	Sem A (0 credits, City University of Hong Kong SAR)	1 LNG210 English (professional)	3		
		2 HUM214 Management Psychology	3		
		3 ICT212 System and network administration	5		
		3 CSE795 Cloud Technologies			
		4 MNG781 Intellectual property and research	5		
		4 ICT214 Advanced Python			
		5 ICT213 Advanced R	5		
		5 CSE770 Methodology of scientific research and innovation			
		6 CSE784 Artificial Intelligence and Machine Learning	5		
		6 AAP268 Research work of a master's student, including internship and completion of a master's thesis			
Credits earned at KazNRTU named after K.Satpayev		30	Credits transferred to City University of Hong Kong SAR	0	
2 semester					
Year 1 (0 credits, City University of Hong Kong SAR) at KazNRTU named after K.Satpayev	Sem B (0 credits, City University of Hong Kong SAR)	8 HUM212 History and philosophy of science	3		
		9 HUM213 Higher school pedagogy	3		
		10 CSE785 Information retrieval and Information extraction	5		
		11 CSE786 Business data analysis systems	5		
		12 CSE799 IT project management	5		
		13 CSE284 Applied Machine Learning & Deep Learning	5		
		13 CSE787 Big Data processing and applications			
		13 CSE788 NLP Basics	5		
		14 AAP268 Research work of a master's student, including internship and completion of a master's thesis			
		Credits earned at KazNRTU named after K.Satpayev		30	Credits transferred to City University of Hong Kong SAR
3 semester					
Year 2 (33 credits)	Sem A (15 credits, City University of Hong Kong SAR)	15 CSE789 Computer vision and image processing	5	Group 2. CS5187 Vision and Image	3
		15 CSE706 Ecosystem Modeling			
		15 CSE790 Deep learning in NLP			
				Group 1. CS6535 Guided Study in Artificial Intelligence	3
				CS5222 Computer Networks and Internets	3
				CS5351 Software Engineering	3
				CS5481 Data Engineering	3
		16 ICT203 Transformer architectures in large language models	5		
		16 CSE798 Computational Intelligence			
		17 MNG782 Sustainable development strategies	5		
17 CSE792 Reinforcement Learning					
17 CSE791 Development of Intelligent Applications					
		CSE793 Generative AI			

City University of Hong Kong SAR) at KazNRTU named after K.Satpayev	18	CSE794 Reserch Project	4		
	19	AAP229 Pedagogical practice	8		
	20	AAP251 Research work of a master's student, including internship and completion of a master's thesis	2		
	Credits earned at KazNRTU named after K.Satpayev		29	Credits transferred to City University of Hong Kong SAR	15
Sem B (18 credits, City University of Hong Kong SAR)	4 semester				
	21	AAP255 Research work of a master's student, including internship and completion of a master's thesis	14	Group 1. CS6520 Project	6
				CS6491 Topics in Optimization and its Applications in Computer Science	3
				Group 1. CS6493 Natural Language Processing	3
				Group 1. CS5489 Machine Learning: Algorithms and Applications	3
				Group 2. CS5491 Artificial Intelligence	3
	22	SEC232 Business Intelligence	5		
	23	AAP256 Research practice	4		
	24	ECA212 Preparation and defense of a master's thesis	8		
	Credits earned at KazNRTU named after K.Satpayev		31	Credits transferred to City University of Hong Kong SAR	18
Total		120	Total		33

Agreed at KazNRTU named after K. Satpayev

Agreed by City University of Hong Kong SAR

Acting Director of the Institute of Automation and Information Technology

Kalpeeva Zh.B. Dean of the Faculty

Head of the Department of Software Engineering

Abdoldina F.N.