

«Approved»

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
Petro Mohyla Black Sea National University

Rector:  Leonid Klymenko

" 31 " VIII 2023

Level of higher education: second (master's)
Educational qualification: Master of Computer sciences

CURRICULUM

Term of study: 1 year and 4 months
Based on: bachelor degree

Master's degree in the field 12 Information
за спеціальністю: 122 Computer sciences
Educational program: "Intelligent Information Systems"
Full-time education

I. SCHEDULE OF THE EDUCATIONAL PROCESS

Course	September				October				November					December					January					February				March				April				May				June				July				August			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
1								CP	T	T	T	T	T	T	C	C	K	K	K	T	T	T	T	T	T	T	T	T	T	T	T	П	П	П	C	C	Д	Д	Д	K	K	K	K	K	K	K	K	K			
2	T	T	T	T	T	T	T	T	C	C	П	П	П	П	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д	Д		

Note: the number of lines is determined by the number of courses.

MARKING: T - theoretical training; 3 - credit week; C - examination session; П - practice; K - vacation; Д - execution of research project (work); ДП - thesis defense.
AE - certification exam; CP - test week

II. SUMMARY OF TIME BUDGET, weeks

Course	Theoretical training	Independent work	Test week	Examination session	Practice	Certification	Execution of research project (work)	Vacation	Total
1	22	1		4	3		3	12	45
2	8			2	4	2	6		22
Σ	30	1	0	6	7	2	9	12	67

III. PRACTICE

Name of practice	Semester	Weeks
Assistant (pedagogical) practice	2	3
Pre-qualification practice	3	4

IV. Certification

Name of certification	Form of certification	Semester
Master thesis	thesis defense	3

V. CURRICULUM PLAN

№	Name of the course	Department Code	Semester Distribution				Number of ECTS credits	ECTS Credits Remaining	Hours					in-class activity percentage	I year		II year		
			Exams	Credits	Term				Total	in-class			Independent study		Semester				
					Projects	Papers				Total	including:				1	2	3	4	
											lectures	group			subgroup	Number of weeks in semester			
									6	16	8	hours per week							
1. REQUIRED COURSES																			
1.1. Cycle of General Training																			
1	Professional foreign language	3		1			3	3	90	30			30	60	33%	5			
2	Intellectual property in the IT industry	17		1			3	3	90	30	12	18		60	33%	5			
3	Basics of the scientific research	5		1			3	3	90	30	12	18		60	33%	5			
4	Pedagogy of Higher Education	10	1				3	3	90	30	12	18		60	33%	5			
Total							12	12	360	120	36	54	30	240		20			
1.2. Cycle of Professional Training																			
1	Knowledge-oriented technologies of computational intelligence	5	1				3,5	3,5	105	36	12	24		69	34%	6			
2	Mathematical methods of intelligent calculations	5		3			4,5	4,5	135	48	16	32		87	36%			6	
3	Methods and systems of machine learning	5	2			2	4,5	4,5	135	48	16	32		87	36%		3		
4	Fuzzy models and methods for computational intelligence	5	3				5,5	5,5	165	56	16	40		109	34%			7	
5	Neural network methods of computational intelligence	5	3			3	3,5	3,5	105	48	16	32		57	46%			6	
6	Development of intelligent decision support systems	5	3				5	5	150	56	16	40		94	37%			7	
7	Assistant (pedagogical) practice	5		2*			4,5	4,5	135					135					
8	Pre-qualification practice	5		3*			6	6	180					180					
9	Master thesis	5					13,5	13,5	405					405					
Total							50,5	50,5	1515	292	92	200		1223		6	3	26	
Total by normative part							62,5	62,5	1875	412	128	254	30	1463		26	3	26	
2. ELECTIVE COURSES																			
2.2. Cycle of Professional Training																			
1	Discipline of free choice of students 1:	5		2			4	4	120	48	16	32		72	40%		3		
	Intelligent web-services and service-oriented information systems																		
	Methods of intellectual planning																		
2	Discipline of free choice of students 2:	5		2			4	4	120	48	16	32		72	40%		3		
	Probabilistic and statistical methods of modeling and forecasting																		
	Methods and visual technologies of simulation modeling																		
3	Discipline of free choice of students 3:	5	2				4	4	120	48	16	32		72	40%		3		
	Data analysis technologies in social networks																		
	Methods of logistic analysis																		
4	Discipline of free choice of students 4:	5		2			5	5	150	64	16	48		86	43%		4		
	Fractal models in data analysis																		
	Modeling of economic, ecological and social processes																		
5	Discipline of free choice of students 5:	5	2				5,5	5,5	165	64	16	48		101	39%		4		
	Intelligent technologies of analysis and data pre-processing																		
	Expert systems																		
6	Discipline of free choice of students 6:	5	2				5	5	150	64	16	48		86	43%		4		

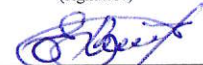
Bayesian data analysis																			
Big data processing technologies																			
Total							27,5	27,5	825	336	96	240		489				21	
Total amount of:							90	90	2700	748	224	494	30	1952					
Hours per week																	26	24	26
Exams			9														2	4	3
Tests				9													3	4	2
Term projects																			
Term papers						2												1	1

The first vice-rector


(signature)

Yurii Kotliar
(surname and initials)

Head of the Intelligent Information Systems Department


(signature)

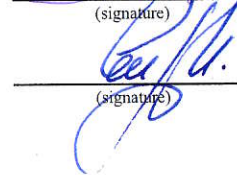
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Dean of the Computer Sciences Faculty


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Anzhela Boiko
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Head of the Educational and Methodical Department


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Approved by the decision of the Academic Council PMBSNU
(protocol № 7 Date "31" VIII 2023)