Appendix No. 1a to Resolution No. 1059 of the UZ Senate of March 27, 2024

PLAN OF FULL-TIME STUDIES

Degree course: **DATA ENGINEERING – first-cycle course**

Course delivery method: full-time course

Recruitment in the academic year 2024/2025

Duration: 7 semesters

University of Zielona Góra

Faculty of Mathematics, Computer Science and Econometrics

No.		COURSE NAME	Hours per semester	ECTS	Form of assignment	SEMESTER 1							SEMESTER 2							SEMESTER 3							SEMESTER 4							SEMESTER 5							SEMESTER 6							SEMESTER 7						
						Form of classes							Form of classes							Form of classes							Form of classes							Form of classes							Form of classes							Form of classes						
						L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment
1	Compulsory subjects module (general, basic and course)	English 1	30	2	O										30				O	2																																		
2		English 2	30	2	O																		30				O	2																										
3		English 3	30	2	O																									30				O	2																			
4		English 4	30	2	E																																30				E	2													
5		Physical Education 1	30	0	Z		30					Z	0																																										
6		Physical Education 2	30	0	Z									30					Z	0																																			
7		Linear Algebra	60	6	EO	30	30					EO	6																																										
8		Linear Algebra and Analytic Geometry	60	5	EO									30	30				EO	5																																			
9		Algorithms and Data Structures 1	60	5	EO									30		30			EO	5																																			
10		Algorithms and Data Structures 2	30	2	O																			30			O	2																											
11		Statistical Data Analysis	60	5	EO																								30		30				EO	5																			
12		Mathematical Analysis 1	90	7	EO	45	45					EO	7																																										
13		Mathematical Analysis 2	90	7	EO									45	45				EO	7																																			
14		Security of IT Systems and Data Protection	75	6	EOO																													30		30	15				EOO	6														
15		Combinatorial Foundations of Computer Science	75	6	EOO																																						30	30	15				EOO	6						
16		Numerical Methods	60	6	EO																30		30				EO	6																											
17		Data Description Methods	30	3	O			30				O	3																																										
18		Optimization Methods	90	7	EOO																								30	30	30				EOO	7																			
19		Mathematical Software 1	30	3	O			30				O	3																																										
20		Mathematical Software 2	30	3	O											30				O	3																																		
21		General Purpose Software	30	2	O											30				O	2																																		
22		Fundamentals of Logic and Quantitative Analysis	60	6	EO	30	30					EO	6																																										
23		Basics of Programing	60	5	EO	30		30				EO	5																																										
24		Fundamentals of Management and Entrepreneurship	60	5	EO																																																30	30				EO	5
25		Object-oriented Programming 1	60	6	EO																30		30				EO	6																											
26		Object-oriented Programming 2	30	2	O																										30				O	2																			
27		Differential Equations with Applications	75	6	EOO																													30	15	30				EOO	6														
28		Database Systems 1	75	6	EOO																30	15	30				EOO	6																											
29		Database Systems 2	30	2	O																										30				O	2																			
30		Introduction to Graph Theory	60	6	EO									30	30				EO	6																																			
31		Introduction to Probability Theory	75	6	EOO																30	30	15				EOO	6																											
32		Engineering Diploma Project 1	30	3	O																																									30		O	3						
33		Engineering Diploma Project 2	60	13	Z																																																60		Z	13
1	Specialty - Data Modelling and Analysis	Econometric Models Analysis	60	5	OO																													30		30				OO	5														
2		Operations Research	60	6	EO																																						30		30				EO	6						
3		Financial Mathematics	60	6	EO																								30		30				EO	6																			
4		Computational Methods in Engineering Problems	60	6	EO																								30			30			EO	6																			
5		Engineering Modelling	60	6	EO																																						30			30			EO	6						
6		Modeling of Random Phenomena	60	6	OO																													30		30				OO	6															
7		Professional Internship	90	5	O																																																	90	O	5
8		Creation of Analytical Tools	30	3	O																																									30		O	3						
1	Specialty - Design and Operation of Analytical Systems	Graph Algorithms	60	6	EO																								30		30				EO	6																			
2		Databases in Web Applications 1	75	6	OOO																													30	15	30				OOO	6															
3		Databases in Web Applications 2	30	3	O																																									30		O	3						
4		Flexible Manufacturing Systems	60	6	EO																																						30		30				EO	6						
5		Information Systems Engineering	60	6	EO																								30		30				EO	6																			
6		Fundamentals of Management and Safety Database Systems	45	5	OO																													15		30				OO	5															
7		Professional Internship	90	5	O																																																	90	O	5
8		WEB Application Programming	60	6	EO																																						30		30				EO	6						

Compulsory subjects module	1725	147	19 E	360			4 E	30	390			4 E	30	330			4 E	28	240			2 E	18	180			3 E	14	105			1 E	9	120			1 E	18
Specialty - Data Modelling and Analysis	480	43	4 E	0			0 E	0	0			0 E	0	0			0 E	0	120			2 E	12	120			0 E	11	150			2 E	15	90			0 E	5
Specialty - Design and Operation of Analytical Systems	480	43	4 E	0			0 E	0	0			0 E	0	0			0 E	0	120			2 E	12	120			0 E	11	150			2 E	15	90			0 E	5
Practices	90	5																																				
Total (specialty - Data Modelling and Analysis)	**2205**	**190**	**23 E**	**360**			**4 E**	**30**	**390**			**4 E**	**30**	**330**			**4 E**	**28**	**360**			**4 E**	**30**	**300**			**3 E**	**25**	**255**			**3 E**	**24**	**210**			**1 E**	**23**
Total (specialty - Design and Operation of Analytical Systems)	**2205**	**190**	**23 E**	**360**			**4 E**	**30**	**390**			**4 E**	**30**	**330**			**4 E**	**28**	**360**			**4 E**	**30**	**300**			**3 E**	**25**	**255**			**3 E**	**24**	**210**			**1 E**	**23**

Total without practices	**2115**	**185**

Additional subjects offered for degree course: DATA ENGINEERING

No.		COURSE NAME	SEMESTER 1							SEMESTER 2							SEMESTER 3							SEMESTER 4							SEMESTER 5							SEMESTER 6							SEMESTER 7						
			Form of classes							Form of classes							Form of classes							Form of classes							Form of classes							Form of classes							Form of classes						
			L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment	L	C	Lab	P	S	Pra	Form of assignment
1	ADDITIONAL	Graph Algorithms																						30		30				EO	6																						
2		Econometric Models Analysis																														30		30				OO	5														
3		Operation Research																																						30		30				EO	6						
4		Databases in Web Applications 1																														30	15	30				OOO	6														
5		Databases in Web Applications 2																																								30			O	3							
6		Flexible Manufacturing Systems																																						30		30				EO	6						
7		Information Systems Engineering																						30		30				EO	6																						
8		LaTeX																	30				O	2										30				O	2										30				O	2
9		Financial Mathematics																						30		30				EO	6																						
10		Computational Methods in Engineering Problems																						30			30			EO	6																						
11		Engineering Modelling																																						30			30			EO	6						
12		Modeling of Random Phenomena																														30		30				OO	6														
13		Fundamentals of Management and Safety Database Systems																														15		30				OO	5														
14		Professional Internship																																																			90	O	5
15		Quantum Computers Programming																																						30		30				OO	5						
16		WEB Application Programming																																						30		30				EO	6						
17		Creation of Analytical Tools																																									30			O	3						
1	TECHNICAL	Data Mining Methods																														30		30				OO	5									30		30				OO	5
2		Basics of Machine Learning																														30		30				OO	5									30		30				OO	5
1	HUMANITIES	Polish Language in Practice																30					O	3																									30					O	3
2		Introductory Course to Thesis Writing and Editing																30					O	3																									30					O	3

Recommended:
Resolution No. 16 of the Mathematics Discipline Council of 08 March 2023

Approved by Faculty Education Council at the Faculty of Mathematics, Computer Science and Econometrics:
Resolution no 1 of 09 March 2023