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 assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS
						L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra		
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		Foundations 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 - Modelling and Data 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 - Modelling and Data 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 - Modelling and Data 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 assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS	Form of classes						Form of assignment	ECTS
			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra			L	C	Lab	P	S	Pra		
1	ADDITIONAL	Graph Algorithms																									30		30				EO	6																								
2		Econometric Models Analysis																																	30		30				OO	5																
3		Operations 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