1.	**Field of study**	**Computer Science**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2022/2023 (summer term), 2023/2024 (summer term), 2024/2025 (summer term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

Module: intelligent data processing

Module code: W4-IN-S2-20-F-IPD

1. Number of the ECTS credits: 4

2. Learning outcomes of the module

code	description	learning outcomes of the programme	level of competence (scale 1-5)
M_001	Is aware of the possibilities offered by intelligent data processing, especially in the context of large data sets.	K_K02	1
M_002	Has knowledge of the basics of artificial intelligence, including fuzzy logic and fuzzy inference	K_W02 K_W04 K_W09	2 3 2
M_003	Has knowledge of data mining in the context of detecting dependencies and patterns (e.g. rules) in data as well as atypical data.	K_W02 K_W04 K_W08 K_W09	1 2 2 4
M_004	Has knowledge of the basics of artificial neural networks and so-called Deep learning.	K_W02 K_W04 K_W08 K_W09	2 2 2 3
M_005	Is able to implement or manually perform calculations and operations of fuzzyfication, fuzzy inference and defuzzyfication	K_U03 K_U07 K_U08 K_U09	3 2 2 3
M_006	Is able to apply the selected algorithm of rule induction (e.g. decision trees, association rules) for any data set or detection of unusual cases.	K_U01	1

		K_U03 K_U08 K_U09	3 2 3
M_007	Can use a dedicated tool to create a neural network model and interpret learning results of the created model for any data set.	K_U03 K_U07 K_U08 K_U09	3 2 2 3

3. Module description	
Description	The goal is to introduce the student to methods of data mining, classification tasks, clustering and rule induction process. It also includes the basics of fuzzy inference or deep learning with elements of neural networks.
Prerequisites	

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
W_001	exam (test)	Knowledge verification based on the content presented in the lecture. The exam consists of both open and closed theory questions.	M_001, M_002, M_003, M_004, M_005, M_006, M_007
W_002	Project reports	Developing projects with reports for them within a specified period as a verification of the skills acquired in solving problems.	M_001, M_005, M_006, M_007

5. Forms of teaching

code	form of teaching			required hours of student's own work		assessment of the learning outcomes of the module
	type	description (including teaching methods)	number of hours	description	number of hours	
Z_001	lecture	Transferring the content of education in verbal form using audiovisual means and other written teaching aids	15	Preparation for the exam	15	W_001
Z_002	laboratory classes	Preparing students to solve tasks with an indication of the methodology of the procedure, an indication of the order of performed activities.	30	Students independently solve tasks assigned to the laboratory, prepare reports for their projects.	60	W_002