1.	**Field of study**	**Computer Science**
2.	Faculty	Faculty of Science and Technology
3.	Academic year of entry	2021/2022 (summer term)
4.	Level of qualifications/degree	second-cycle studies
5.	Degree profile	general academic
6.	Mode of study	full-time

Module: Data visualization

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

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	Has knowledge about the use and implementation of data visualization methods.	K_W02 K_W04 K_W09	1 1 3
M_002	Has knowledge of how to process and visualize data, about the methods used and how to interpret the results.	K_W04 K_W09	1 2
M_003	Is able to select and implement the appropriate method of data visualization	K_U01 K_U03	1 1
M_004	Is able to interpret the result of data visualization and justify the techniques used	K_U08 K_U09 K_U10	1 1 1
M_005	Can implement an automated data visualization system, working individually or in a team.	K_U02 K_U03 K_U09	1 1 1
M_006	Is aware of the process of improvement and tracking the latest solutions in the field of data visualization	K_K01 K_K03	1 1

3. Module description	
Description	The aim of the module is to introduce students with the possibilities of advanced data visualization with elements of automation using scripting languages such as Python or R.
Prerequisites	

4. Assessment of the learning outcomes of the module

code	type	description	learning outcomes of the module
W_001	Reports	Preparation of written reports, their completion within a specified period as a verification of skills acquired during problem solving.	M_001, M_002, M_003, M_004, M_006
W_002	Project	Develop individual or group project and documentation system data visualization.	M_001, M_002, M_003, M_004, M_005, M_006

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	Lectures conducted using multimedia tools, discussing issues related to the visualization and automation of data visualization in scripting languages.	15	Preparation for laboratories and passing the lecture.	20	W_002
Z_002	laboratory classes	Preparing students to perform lab exercises. Practical presentation of issues discussed during lectures.	30	Preparation for laboratory exercises. Self-solving laboratory exercises. Preparation of the final project.	55	W_001, W_002