

DESCRIPTION OF THE COURSE OF STUDY

Course code	0719-2ID-C35-TWD	
Name of the course in	Polish	Techniki wizualizacji danych
	English	Data visualization techniques

1. LOCATION OF THE COURSE OF STUDY WITHIN THE SYSTEM OF STUDIES

1.1. Field of study	Data engineering
1.2. Mode of study	full-time study
1.3. Level of study	engineering studies
1.4. Profile of study*	general academic
1.7. Person/s preparing the course description	dr hab. Dariusz Banaś, prof. UJK
1.9. Contact	d.banas@ujk.edu.pl

2. GENERAL CHARACTERISTICS OF THE COURSE OF STUDY

2.1. Language of instruction	English
2.2. Prerequisites*	none

3. DETAILED CHARACTERISTICS OF THE COURSE OF STUDY

3.1. Form of classes	Lecture 30h, Laboratory 30h, Project 15h	
3.2. Place of classes	Courses in the teaching rooms of UJK	
3.3. Form of assessment	Credit with grade	
3.4. Teaching methods	Information lecture, Computer laboratory	
3.5. Bibliography	Required reading	Scott Murray, Interactive Data Visualization for the Web, O'Reilly Media
	Further reading	Tom Negrino, Dori Smith, JavaScript: Visual QuickStart Guide, Peachpit Press Kyran Dale, Data Visualization with Python and JavaScript, O'Reilly Media http://www.w3schools.com

4. OBJECTIVES, SYLLABUS CONTENT AND INTENDED TEACHING OUTCOMES

4.1. Course objectives <i>(including form of classes)</i> C1 - Acquainting with the basic technologies allowing for the publication of data on the World Wide Web C2 - Understanding advanced technologies used for programming interactive applications for data visualization C3 - Acquiring the skill of practical application of learned technologies for interactive visualization of data on the World Wide Web
4.2. Detailed syllabus <i>(including form of classes)</i> Introduction to issues related to graphical presentation of data on the World Wide Web Introduction to the D3 library Basics of the technologies used (HTML, DOM, CSS, Javascript, SVG) Preparation of the work environment (WAMP server, a terminal with a Python interpreter, references to the D3 library) Data preparation (creating markup, data binding) Graphic data presentation (drawing with div tags, drawing with SVG markers, preparing various types of charts) Updates, transitions and traffic (order scales, event listening functions, updating scaling functions, combining data with keys) Interactivity (linking event listening functions, grouping of SVG tags, hints) Chart systems (including circular, cumulative, force) Geographical maps (GeoJSON, paths, projections, cartogram) Exporting (bitmaps, PDF files, SVG files)

4.3 Intended learning outcomes

Code	A student, who passed the course	Relation to teaching outcomes
within the scope of KNOWLEDGE:		
W01	knows the basic technologies that allow the presentation of data on the World Wide Web	ID1A_W06 ID1A_W07 ID1A_W08
W02	describes the purpose and knows the basic set of D3 library commands	ID1A_W06 ID1A_W07 ID1A_W08
W03	explains the basic concepts related to data preparation and visualization design	ID1A_W06 ID1A_W07 ID1A_W08
W04	explains the basic concepts and describes techniques for performing interactive data visualization	ID1A_W06 ID1A_W07 ID1A_W08
within the scope of ABILITIES:		
U01	can prepare the working environment with the D3 library	ID1A_U05 ID1A_U06
U02	can apply learned technologies to interactive data visualization	ID1A_U05 ID1A_U06
within the scope of SOCIAL COMPETENCE:		
K01	is aware of the need to protect intellectual property	ID1A_K02

4.4. Methods of assessment of the intended teaching outcomes

Teaching outcomes (code)	Method of assessment (+/-)																				
	Test oral/written*			Test*			Project*			Effort in class*			Self-study*			Group work*			Others*		
	Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes			Form of classes		
	W	L	P	W	L	P	W	L	P	W	L	P	W	L	P	W	L	P	W	L	P
W01-W04	+				+				+												
U01-U02					+				+		+						+				
K01									+		+							+			

*delete as appropriate

4.5. Criteria of assessment of the intended teaching outcomes

Form of classes	Grade	Criterion of assessment
Lecture (W)	3	Achievement of <50–60)% of the requirements used in assessment methods
	3,5	Achievement of <60–70)% of the requirements used in assessment methods
	4	Achievement of <70–80)% of the requirements used in assessment methods
	4,5	Achievement of <80–90)% of the requirements used in assessment methods
	5	Achievement of <90–100)% of the requirements used in assessment methods
Laboratory (L)	3	Achievement of <50–60)% of the requirements used in assessment methods
	3,5	Achievement of <60–70)% of the requirements used in assessment methods
	4	Achievement of <70–80)% of the requirements used in assessment methods
	4,5	Achievement of <80–90)% of the requirements used in assessment methods
	5	Achievement of <90–100)% of the requirements used in assessment methods

5. BALANCE OF ECTS CREDITS – STUDENT'S WORK INPUT

Category	Student's workload	
	Full-time studies	Extramural studies
NUMBER OF HOURS WITH THE DIRECT PARTICIPATION OF THE TEACHER /CONTACT HOURS/	60	

Participation in lectures*	30	
Participation in classes, seminars, laboratories*	30	
INDEPENDENT WORK OF THE STUDENT/NON-CONTACT HOURS/	65	
Preparation for the classes, seminars, laboratories*	25	
Preparation for the exam/test*	25	
Gathering materials for the project/Internet query*	15	
TOTAL NUMBER OF HOURS	125	
ECTS credits for the course of study	5	

Accepted for execution (date and signatures of the teachers running the course in the given academic year)

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