Subject code	Credits
INF5019	6

Course title in Lithuanian

DUOMENŲ VIZUALIZAVIMAS

Course title in English

DATA VISUALIZATION

Short course annotation in Lithuanian (up to 500 characters)

Tikslas – supažindinti su informacijos bei mokslinių duomenų vizualizavimu: pagrindinėmis sąvokomis, vizualizavimo raida, pagrindiniais grafinio dizaino principais, duomenų tipais ir duomenų apdorojimo/paruošimo vizualizacijai metodikomis, grafikų tipais ir jų taikymo atvejais, daugiamačių duomenų vizualizavimo metodais, jų taikymais ir juos realizuojančiais įrankiais. Studentai gebės parinkti tinkamus vizualizavimo metodus ir algoritmus įvairių tipų duomenims ar informacijai vizualizuoti bei gebės panaudoti vizualizavimo įrankius vizualizavimo uždaviniams spręsti.

Short course annotation in English (up to 500 characters)

The aim of this course is to provide the student the theoretical and practical basis of data and information visualization techniques. Students will get acquainted with basic properties of data. Moreover, students will learn different data visualization methods for simple and multidimensional (big) data, starting from simple line, bar, box and other plots, and moving to trees, graphs and projection techniques, such as PCA, MDS, SOM and other. Students will be able to choose the appropriate visualization methods and algorithms for any type of data or information, and independently implement the visualization task using different tools

Prerequisites for entering the course

Basic knowledge of mathematics

Course aim

Provide the student with the theoretical and practical knowledge of data visualization methods and techniques.

Content

No	Content (topics)
1.	History of visualization techniques, examples of visualization
2.	Data types.
3.	Simple visualization techniques and graphical design
4.	Multidimensional data visualization: direct techniques, projections, SOM, real-life examples
5.	Textual information visualization
6.	Maps and 3D visualization
7.	Volume visualization.

Distribution of workload for students (contact and independent work hours)

Lectures	45 hours
Laboratory work	15 hours
Individual students work	100 hours
Total:	160 hours

Structure of cumulative score and value of its constituent parts

Final written exam (50%), mid-term written exam (17%), and assessments of laboratory (practical) work (33%).

Recommended reference materials

No.	Publication year	Authors of publication and title	Publishing house	Number of copies in		
				University library	Self-study rooms	Other libraries
Basic materials						
1.	2008	C. Chen, W.Hardle, A. Unwin. Handbook of Data Visualization.	Springer-Verlag		1	1
2.	2001	R. E. Tufte. The Visual Display of Quantitative Information	Graphics Press		1	
3.	2008	G. Dzemyda, O. Kurasova, J. Žilinskas. Daugiamačių duomenų vizualizavimo metodai	Matematikos ir informatikos institutas			http://web.vu.lt/mii/j.zilinskas/DzemydaKurasovaZilinskasDDVM.pdf

		Supplementary materials		
1.		M. Friendly. D.J. Denis. Milestones in the history of thematic cartography, statististical graphics and data visualization.		1
2.		Selection of blogs and other Internet sources on the data visualization (such, as junkcharts (http://junkcharts.typepad.com/)		Electronic

Course programme designed by

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