

## Specification for the book of courses

<b>Study program</b>		Computing and Informatics		
<b>Module</b>		Data Science		
<b>Type and level of studies</b>		Master studies		
<b>The name of the course</b>		Data Visualization		
<b>Lecturer (for lectures)</b>		Janković S. Dragan		
<b>Lecturer/associate (for exercises)</b>		Rajković J. Petar		
<b>Lecturer/associate (for OFE)</b>				
<b>Number of ECTS</b>		4	<b>Course status (obligatory/elective)</b>	Elective
<b>Prerequisites</b>				
<b>Course objectives</b>		Introduction to students with the principles on which data and information visualization is according on the purpose and scope. Enable students to use different ways to visualize data. Getting to know existing tools and environments for visual representation of data.		
<b>Course outcomes</b>		Students should be introduced to ways of presenting data and the fields of their application. Upon completion of the course, students should be able to choose an appropriate visual representation that they can implement in one of the existing tools or develop their own visual representation for a specific problem.		
<b>Course outline</b>				
<b>Theoretical teaching</b>		Types of data. Data visualization principles. Perception. Optical illusions. Tables, charts, trees, graphs, treemap. Visualization of multivariate data. Animations, multimedia presentations. Visualization of social networks. Visualization of medical data, Visualization of economic data. Weather series. Visualization of GIS data. Visualization of the process. Visualization tools and environments (Excel, Tableau, R). Visualization and data analysis. BI environments.		
<b>Practical teaching (exercises, OFE, study and research)</b>		Practical teaching of visualization of different types of data using: Excel, Tableau, D3.js. Integration of data visualisation into software solutions. Software realization of some data visualization algorithms.		
<b>Textbooks/references</b>				
1	Tamara Munzner, Visualization Analysis and Design, CRC Press, 2014.			
2	Scott Murray, "Interactive Data Visualization for the Web", O'Reilly Media, 2013			
3	Lectures in a form of Power Point presentations			
4				
5				
<b>Number of classes of active education per week during semester/trimester/year</b>				
<b>Lectures</b>	<b>Exercises</b>	<b>OFE</b>	<b>Study and research work</b>	<b>Other classes</b>
2	1	0		
<b>Teaching methods</b>		Lectures, Exercises, Laboratory Exercises, Consultations,		
<b>Grade (maximum number of points 100)</b>				
<b>Pre-exam duties</b>		<b>Points</b>	<b>Final exam</b>	<b>Points</b>
<b>Activity during lectures</b>		5	<b>Written exam</b>	
<b>Exercises</b>		15	<b>Oral exam</b>	40
<b>Colloquia</b>		40		
<b>Projects</b>				