**Syllabus of an educational component of a degree programme**

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| Name of unit conducting a component | ***Doctoral School of Social Sciences*** |
| Name of an educational component | Data Visualisation Methods |
| Language of education | English |
| Goals of education | **Understanding of:** * Data Visualization History
* Findings of Theory of Perception
* Concept of Color Usage in Data Visuals
* Best Practices vs Worst Practices

**Practical knowledge:*** Ability to use advanced Data Visualization Tool
* Skillset allowing to build basic Data Models
* Practical
* Understanding a Concept and ability to build Dashboards
* Understanding a Concept and ability to build Scorecard
* Ability to build a basic Story-Telling Visuals
* Shaping Visuals for Specific Business Needs
* Shaping Visuals for Data Exploration Goals
* Designing and Building Visuals with Emotions
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| Learning outcomes of an educational component | Theoretical & Practical knowledge on Data Visualization Techniques and how to use them in real life data analysis cases. |
| Verification methods and assessment criteria of learning outcomes obtained by students | Each student needs to complete 4-5 Data Visualisation Tasks that will be graded based on: the correctness of concepts applied to data in hand, adequacy of visualisation tool used for specific data types. |
| Type of an educational component (obligatory/optional) | Obligatory |
| Year of study | 1st, 2nd  |
| Semester  | Summer |
| Name and surname of the coordinator of a component and/or person/s conducting a component  | Ph.D. Krzysztof Tomanek |
| Name and surname of person/s conducting an examination or granting credit in the case when this sposóis other person than conducting a component  | Ph.D. Krzysztof Tomanek |
| Manner of completion  | Visuals build with Advanced Visualisation Tool allowing for Interactive Data Analysis, Data Modelling, Advanced Statistical Analytics. |
| Preliminary and additional requirements  | Basic understanding on Data Types, Social Research Techniques understanding will be an asset. |
| Type and number of hours of courses requiringdirect participation of academic staff and students, if in a given component such courses are included  | 30 |
| Number of ECTS credits assigned to a component  | 3 |
| Balance of ECTS credits  | 3 |
| Applied teaching methods | Interactive workshops with Visualisation Tools installed on student’s computers. Story telling with data. Data preparation, visualisation exercises. Quizzes. |
| Form and conditions of passing a component, including conditions of allowing to take an examination, as well as form and conditions of passing each type of courses included in a given component | Each student needs to complete 4-5 Data Visualisation Tasks and one additional Data Story Telling Project finalising the course. |
| Content of an educational module (with division into forms of courses completion) | 1. Introduction to Visualization Techniques and Tools.
2. Types of various Visualization Goals and Techniques.
3. Typical visualization blunders.
4. Best visualization practices.
5. Data processing, transformations, formats for visualization goals.
6. Introduction to data association models. Working with multiple datasets.
7. Interactive visualizations.
8. What is a Dashboard? Types of Dashboards.
9. Atypical visuals: infographics, storyteller.
10. Maps.
11. Time series: analysis and visuals.
12. Scorecards: when needed and how to build them.
13. Default and nonstandard visualization techniques.
14. Building measures, columns. Redefining data.
15. Visualization project.
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| List of basic as well as supplementary literature, knowledge of which is required in order to pass a given component  | Power BI from Rookie to Rock Star, Author: Reza Rad – electronic version to be provided to students.http://www.businessinsider.com/pie-charts-are-the-worst-2013-6https://blogs.oracle.com/experience/entry/countdown\_of\_top\_10\_reasons\_to\_never\_ever\_use\_a\_pie\_charthttp://www.edwardtufte.com/bboard/q-and-a-fetch-msg?msg\_id=00018Shttp://speakingppt.com/2013/03/18/why-tufte-is-flat-out-wrong-about-pie-charts/http://www.biecek.pl/Eseje/indexPomylka.htmlhttp://smarterpoland.pl/ |