SPECIALISED SUBJECTS – WINTER SEMESTER 2024/2025

Students are to choose one subject from the following.

For Business Analytics students, III year:

1. **Database programming (teacher: dr M. Mędrek)**

Knowledge of databases is crucial to data management for Business Analytics and Data Science professionals. The course covers understanding the principles of designing and manipulating data in relational databases (SQL) and NoSQL databases. Practical workshops will demonstrate techniques for designing effective, efficient databases through normalization and data modeling. The course program also includes: creating entity relationship models and drawing entity relationship diagrams, developing programming expertise using SQL (Structured Query Language) to define data models (Data Definition Language) and manipulate data (Data Manipulation Language), optimizing complex data sources for data analysis and reporting using online analytical processing (OLAP).

2. **Big Data (teacher: dr D. Wójcik)**

This course guides students through the expansive world of Big Data within the realm of business analytics. As modern enterprises generate increasingly large volumes of data, the capacity to efficiently analyze this data is becoming essential for strategic decision-making. In this course, students will delve into the core aspects of Big Data, covering essential processes such as data acquisition, storage, management, and sophisticated analytical techniques. By the end of this course, students will acquire a robust understanding of Big Data fundamentals and practical skills in analyzing complex data sets to support business decisions. This course equips future data analysts and business intelligence professionals with the necessary tools to manage big data projects effectively and drive innovation in their respective fields

For Data Science students, II year:

1. **Robotic Process Automation (teacher: dr J. Banaś)**

Robotic Process Automation (RPA) is an automation technology based on bots or AI digital workers, used for processing the data without manual intervention. Those tools watch the task performed by the user in order to automatically repeat it in the application's graphical user interface. The aim of RPA is to increase the productivity and the effectiveness, therefore soon many jobs can be automated (human labour will be replaced). During the course students will learn: RPA fundamentals, how to use the popular RPA tool, basics of business process flow and modelling, bots creation, case and error management. At the end of the course students will develop the RPA project. The project will consist of the following steps: selecting the right process for automation, mapping the business process, choosing the tool for automation, building the digital worker, testing the bot performance.

2. **Advanced Programming**

This course is designed for students who have a foundational understanding of programming and wish to delve deeper into the complexities and advanced features of Python. It focuses on enhancing programming skills through the exploration of design patterns, advanced analytics libraries, and machine learning libraries in Python.