**The study program includes 4 technical subjects to choose from the list of elective subjects (subjects chosen by the majority of vote are attended by all students of a given year)**

**Data Warehouses**

The course introduces students to the design and development of modern data warehouses and analytical systems. It covers business requirements analysis, dimensional modeling, ETL/ELT processes, integration of data from multiple sources, data quality, pipeline orchestration, and processing optimization. Students use SQL and Python to build data pipelines, become familiar with selected data engineering tools, and create semantic models, measures, and reports in Power BI. The course also introduces modern data lake and lakehouse concepts and presents the complete lifecycle of an analytical solution.

**Production (Engineering) Management**

The aim of the course is to familiarize students with the issues of modern production management - in particular with methods and techniques for organizing, optimizing and controlling the production process and using IT support in planning and production control processes as well as in the information flow in the production sphere and between it and other areas of the company's operation.

**Programming Workshops**

The course focuses on the practical development of modern applications using Python. Students learn the fundamentals of building desktop, web, and backend applications, including graphical user interfaces, Django applications, and REST APIs. The course also introduces frontend technologies such as JavaScript and React, as well as application containerization using Docker and Docker Compose. An important part of the course is the use of LLM-based tools to support software development, testing, debugging, and refactoring, with an emphasis on critically evaluating generated code.

**Advanced Information Systems Design**

The goal of this course is to familiarize students with advanced concepts regarding conceptual modeling, requirements engineering and software design as well as advance their skills in use of UML in software design.

**Foundations of Artificial Intelligence**

The course introduces students to the fundamental concepts of artificial intelligence and machine learning. It covers data analysis and preprocessing, regression, classification, unsupervised learning, neural network fundamentals, and model evaluation. In the second part of the course, students explore modern solutions based on large language models, including embeddings, semantic search, Retrieval-Augmented Generation (RAG), integration of LLMs with external systems and APIs, and the fundamentals of building generative AI applications. The course emphasizes the practical application of AI methods as well as the evaluation of the quality and limitations of developed solutions.

**Enterprise Resource Planning Systems 2**

The aim of the course is to provide students with knowledge about the principles of operation of integrated ERP (Enterprise Resource Planning) systems that support enterprise resource management processes. The course will cover the key functions and modules of these systems, their significance in implementing an organization's business strategy, and the role of integrating various areas of enterprise activity in effective planning, management, and control of business processes.

**Internet Technologies**

The goal of the course is to familiarize students with selected languages and tools used to create web applications. During the course, students will learn how to use the JavaScript language and build simple applications on the browser and server side.

**Cloud Computing**

The aim of the course "Cloud Computing with Oracle Cloud Infrastructure" is to familiarize students with fundamental and advanced topics related to cloud services. Students will learn about cloud service and deployment models (IaaS, PaaS, SaaS; public, private, and hybrid clouds) and will practically work with resources in Oracle Cloud. Throughout the course, students will create and manage virtual machines, utilize data storage services (Block Storage, Object Storage), build cloud networks (VCN), configure security settings, manage users and access rights (IAM), create and administer databases (Autonomous Database), and monitor cloud resources ensuring high availability. The course also introduces cloud-native architectures, containerization, and serverless solutions. The classes are practice-oriented and prepare students for independent work in cloud environments.

**The study program also includes 1 humanities subject to choose from the list of elective subjects (all students of a given year attend the subject chosen by a majority vote)**

**Business Communication**

The course focuses on conveying basic knowledge in the field of broadly understood communication in business. Some of the topics covered in the course include: business communication skills, knowledge of communication and conflict styles, social influence theories and other factors that have an influence on effective communication. Students will gain skills needed in the process of negotiating, conducting meetings, preparing and delivering presentations. Special attention will be paid to the specific aspects of face-to-face and online communication – both synchronous and asynchronous. The course will also revise students' knowledge of business etiquette in an international context.

**Stress Management**

This course focuses on the effects of stress as it relates to student life and the workplace. We compare the differences between stress, anxiety, and arousal. The different types of

stress, the nature of stress, determinant causes, and the physiological and psychological reactions to stress are considered with a major part of the course focusing on coping strategies. The activity portion of the class will introduce and implement physiological, cognitive and behavioural stress management techniques.

**Public Speaking Skills**

The course is intended to develop students' skills in presenting and speaking in public in general, including in a virtual context. It is based on the assumption that theory will be limited to the necessary minimum. The main emphasis will be placed on the analysis of speeches available to the public (texts of speeches, videos of presentations, e.g. Ted Talks) and lectures/online presentations in order to identify obvious mistakes that should be avoided, but also the methods used by speakers which are worth adopting. We will especially focus on the elements less often covered in Business English textbooks, such as body language, working with breath and voice, as well as building the presenter's brand. 12 hours will be devoted specifically to students' presentations with ample time for retakes.

**Japanese Business Etiquette**

The aim of the course is to familiarize students with the ways of proper behavior in both every day and more exceptional situations (both in Poland and Japan); Providing students with space to work through difficult experiences and social situations; Developing in students the habit of appropriate behavior in specific.