MODULE DESCRIPTION CARD – SYLLABUS

This module is a part of the Intensive International Education Programs in the field of the Artificial Intelligence organised at Poznan University of Technology as part of the „IMPACT – Innowacyjne Międzynarodowe Programy w AI, Cyberbezpieczeństwie i Teleinformatyce" project implemented SPINAKER Program of the National Agency for Academic Exchange, financed by the European Social Development Fund 2021–2027 (ESDF).

Module name:	Number of hours:	Lecturer:
Agentic AI	4	Mikołaj Morzy, Ph.D., D.Sc.

Module Descriptions:

The module introduces students to the cutting-edge frontier of Agentic AI, which involves building and orchestrating teams of multiple AI models that work together to solve complex real-world problems. The focus is on moving beyond single AI prompts to a new paradigm of collaborative and autonomous AI.

The course covers the foundational elements of Agentic AI:

- Agents: Defining their purpose.
- Tasks: Defining and assigning them to specific Agents.
- Knowledge: How it can be provided to help Agents perform Tasks better.
- Crews: Assembling Agents into powerful collaborative teams with specific roles.
- Tools: Equipping Agents with access to the internet, custom code, and external APIs to enable them to take real action.

The module is highly hands-on and practical, utilizing the CrewAI framework for live programming and building autonomous AI teams from the ground up.

Purpose of the support under Module:

The overall objective of the Innovative International Education Program in Artificial Intelligence within the IMPACT project is to raise the competencies of international students in key digital technologies and to support personalized, flexible, and modern education aligned with current global needs in the area of artificial intelligence and machine learning.

The specific purpose of this module is to equip students with the essential practical skill of building autonomous Agentic AI teams by teaching them to:

- Go beyond single AI prompts and understand the foundational elements of the Agentic AI paradigm.
- Define the purpose of individual Agents and define Tasks to be assigned to them.
- Learn how to provide Knowledge to improve Agent performance.
- Assemble agents into collaborative Crews and equip them with Tools (like internet access and APIs) so they can take real action.
- Apply these concepts using the CrewAI framework through live programming.

POZNAN UNIVERSITY OF TECHNOLOGY

Method of support under Module:

Support within the module is provided with the participation of the instructor and includes the following elements:

- Lectures on the foundational elements of Agentic AI, including Agents, Tasks, Knowledge, Crews, and Tools.
- Live programming demonstrations and hands-on sessions using the CrewAI framework in every lecture.

The course is designed to take students from understanding the theory to building their own autonomous AI teams.

Module-related learning outcomes:

Descriptions of the new competences:

Participants gain new skills in orchestrating complex AI systems, specifically learning how to build, define, and equip autonomous AI teams (Crews) that collaborate to complete projects using the CrewAI framework.

Knowledge:

1. Student has structured knowledge of the key concepts of Agentic AI.
2. Student understands the paradigm shift from single-prompt AI to collaborative teams of AI experts.
3. Student understands how to provide Agents with external capabilities, such as access to the internet and custom code (Tools).

Skills:

1. Student can critically assess and define the purpose of individual Agents and assemble them into powerful Crews.
2. Student is able to apply the CrewAI framework for live programming and building autonomous AI teams.
3. Student is able to equip agents with Tools like external APIs and the internet to enable them to take real action.

Social competences:

1. Student recognizes that Agentic AI is the most exciting frontier in AI today and a skill that is defining the future of technology.
2. Student demonstrates readiness to take the next step in their AI journey and move beyond basic AI interactions.

Criteria for verifying learning outcomes

Learning outcomes are verified through an evaluation assessing the student's knowledge of the foundational elements of Agentic AI using an online single-choice test.

Method of verification/validation of learning outcomes

Workload

10 h (including work with teaching materials provided by the lecturer, consultation, and the student's own work) – 0,5 ECTS point

Level of the European Qualifications Framework