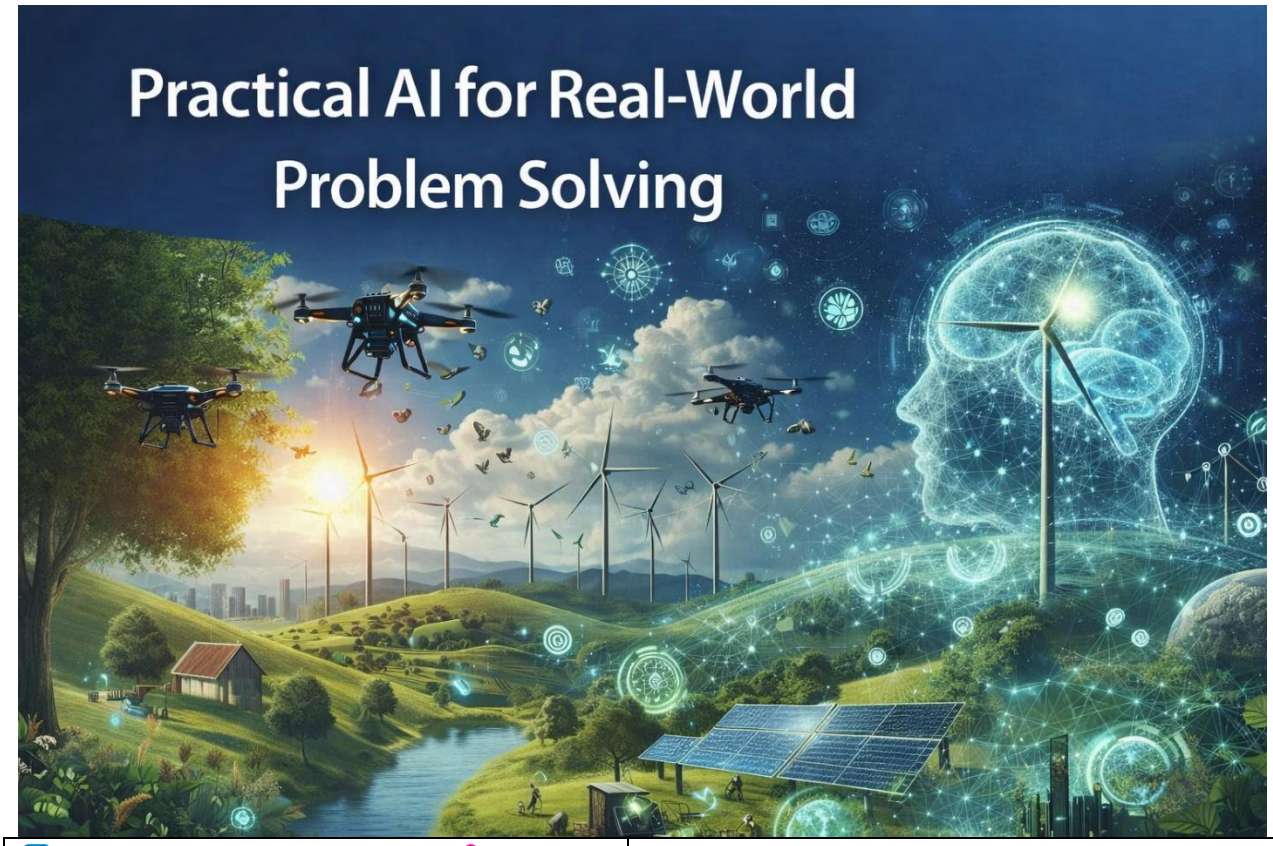
Centre for Cleantech and Biomass Resource Efficiency
at the Agricultural University of Plovdiv



🗓️ **Date:** 15 January 2026, 8:30-17:30, 📍 **Location:** CCBRE, Agricultural University of Plovdiv, bl. "Mendeleev" 12, BG-4000 Plovdiv, Bulgaria	**Course Instructor: Dr. Hadi Mahdipour,** Head of Data Science and AI at CCBRE, Email: hadi.mahdipour@au-plovdiv.bg, Website: https://ccbre.eu/

Practical AI for Real-World Problem Solving

Artificial Intelligence and Machine Learning are no longer abstract research topics—they are powerful tools for addressing **real**, **complex challenges** in industry, the environment, and society. This course is designed to bridge the gap between **theoretical AI concepts** and **practical**, **deployable solutions**.

Practical AI for Real-World Problem Solving introduces participants to the complete machine-learning workflow using Python, with a strong emphasis on **hands-on experience**, **real datasets**, and **interpretability**. Rather than focusing on mathematical formalism alone, the course demonstrates how AI systems are **designed**, **trained**, **evaluated**, and **used in practice**—from raw data to actionable insights.

Participants will work with **environmental**, **biomass**, **waste-management**, and **remote-sensing datasets**, reflecting real challenges addressed by the Centre for Cleantech and Biomass Resource Efficiency (CCBRE). Core topics include **data preprocessing**, **feature engineering**, **supervised learning** (**classification** and **regression**), **unsupervised learning** (**clustering** and **Principal Component Analysis**), **model evaluation**, and **the responsible use of AI outputs for decision-making**.

By the end of the course, participants will be able to:

- ✓ understand how AI models learn from data,
- ✓ design robust and practical machine-learning pipelines,
- ✓ critically evaluate and interpret model results,
- ✓ apply AI methods to real-world sustainability and industrial problems.

The course is suitable for **engineers**, **researchers**, **decision-makers**, and **professionals** who want to move beyond buzzwords and gain **practical**, **transferable AI skills** with immediate real-world relevance.

CCBRE
Local roots. Global vision. Smart science.