AI4GREENSME

R4.2 Recommendations for the Implementation of the AI4Green Training Program

MBB

25.02.2025

Introduction

Dear Participant,

Welcome to the AI4GREENSME training course!

This document presents the (R4.2) Recommendations for the Implementation of the AI4Green Training Programme, in line with the project's objectives. It provides structured guidance on the course developed under Work Package 3 (WP3) and outlines the collaborative activities that support their continued use and impact.

The recommendations take the form of concise instructions detailing how the course should be conducted, ensuring consistency and effectiveness in its delivery. Additionally, this document includes guidance on the piloting phase, along with a proposed calendar to facilitate its implementation. These elements aim to maximize the programme's reach and effectiveness in promoting AI-driven sustainability practices.

We wish you a pleasant learning experience!

Best regards,

The AI4GREENSME Team

Course Overview

A comprehensive training programme has been developed to equip SME decision-makers with the necessary competencies to effectively integrate AI-driven solutions into their management and production processes. By adopting these practices, SMEs can enhance their environmental sustainability while optimizing efficiency. The course is specifically designed for decision-makers within SMEs, enabling them to leverage AI technologies for improved environmental performance and long-term business resilience.

Who can benefit from the AI4GreenSME resources?

The contents of AI4GreenSMEs are designed for SME professionals, especially those with responsibilities in sustainability, digitalisation, production, innovation or business management.

However, the online course and collaborative activities of the AI4GreenSMEs project, developed with funding from the Erasmus+ programme, are available under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence. This means that they can be freely reused, adapted and shared, provided that the original authorship is acknowledged. The following are some types of entities that, in addition to SMEs, can benefit from their implementation:

- Chambers of commerce and business associations

- Industrial clusters and sectoral platforms

- Vocational and continuing education centres

- Universities, engineering or business schools

- Technology or innovation centres

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- · Public administrations with policies to support SMEs

- · NGOs or entities promoting the green and digital economy

- · International consortia in cooperation or innovation projects

- · Large companies wishing to train their network of suppliers

These entities can use the course to train internal staff, train partner companies or develop collaborative projects between organisations with common objectives.

No prior technical training in AI or CE is required, although an interest in applying digital solutions to the green transition is necessary.

Learning Objectives

The e-learning platform employs a blended approach, combining theoretical lessons (10 in total), assessments, interactive activities, didactic proposals, and sector-specific digital tools to serve as a comprehensive reference for SME decision-makers. This diverse methodology enables (future) professionals to develop a well-rounded understanding of AI and circular business models.

Designed with flexibility in mind, the platform easily adapts to the profiles of SME managers, allowing them to tailor the content to their specific needs. This personalized learning experience ensures that decision-makers can effectively apply AI-driven strategies to enhance sustainability and business efficiency.

The 10 lessons are:

- ● **Lesson 1 - Circular Economy Literacy**

Gain an understanding of the foundational principles of the circular economy and its

distinction from traditional linear models. Learn to apply systems thinking and life cycle assessment to evaluate sustainability impacts, and explore the role of supply chain and logistics in promoting circular practices.

- **Lesson 2 - Artificial Intelligence Literacy**

Understand the principles and concepts of artificial intelligence (AI), including commonly used terms and AI learning tasks. Explore various practical applications of AI, from professional to social interactions, and learn how AI systems are designed, evaluated, and utilized to support decision-making and problem-solving.

- **Lesson 3 - Applications of AI in Circular Economy**

Explore how artificial intelligence (AI) can enhance circular economy practices by optimizing resource use, minimizing waste, and extending product lifespans. Learn about AI's role in supporting strategies such as refuse, rethink, reduce, reuse, repair, refurbish, remanufacture, repurpose, recycle, and recover. Understand how AI integrates multiple strategies to create sustainable, efficient systems.

- **Lesson 4 - Ethical and Social Implications**

Understand the ethical principles guiding AI development and green practices, focusing on how these principles apply to Green SMEs. Assess the social implications of AI technologies and green practices, recognizing potential impacts and responsibilities. Develop strategies to integrate ethical and social considerations into AI deployment, ensuring alignment with green practices while fostering sustainability.

- **Lesson 5 - Data for AI for Circular Economy**

Understand the role of data in AI-driven circular economy solutions, focusing on life-cycle assessment and FAIR principles. Identify crucial data sources for driving AI applications within Green SMEs and learn the data requirements for developing effective AI models. Assess the relevance, quantity, quality, and accuracy of data to support AI-driven sustainability practices. Explore best practices in ethical data management, privacy, and security.

- **Lesson 6 - AI-driven Product Design and Innovation**

Learn how AI technologies can enhance ecodesign processes to create sustainable products and services. Understand the role of AI in optimizing resource use, predicting maintenance needs, and developing innovative business models aligned with circular economy principles. Analyze real-world case studies to see successful implementations of AI in ecodesign across various industries.

- **Lesson 7 - Circular Business Models and Market Opportunities**

Identify key market trends and opportunities related to climate protection and the emergence of AI. Understand how to integrate circular business models into company systems and operations. Explore the benefits of adopting a circular model for SMEs, such as cost savings, resource efficiency, and enhanced competitiveness. Learn how technological advancements and social movements drive the transition towards more sustainable and circular business practices.

- **Lesson 8 - Policy and Regulatory Considerations**

Acquire a general understanding of the policy-making process, key institutions, and political trends concerning environmental and technological matters. Learn to navigate AI and environmental regulations, ensuring compliance while leveraging opportunities for innovation. Distinguish between mandatory and recommended obligations and be

aware of legal duties related to environmental and AI issues.

- **Lesson 9 - Building your AI4CE Roadmap**

Understand how AI can optimize the transition to a circular business model. Identify and prioritize the initial steps required for your business, and develop a customized roadmap using data analysis. Learn to translate your roadmap into concrete actions and overcome implementation challenges for a sustainable and efficient future

- **Lesson 10 - Evaluating AI4Green Projects**

Identify key metrics for evaluating the success of AI-powered green initiatives. Learn to apply evaluation frameworks to assess the environmental and social impact of AI solutions. Make informed decisions regarding funding and implementation based on quantitative and qualitative data, ensuring the long-term success and sustainability of AI4GreenProjects.

Each lesson contains:

- Introductory video script
- Lesson pre-test
- Learning content & reading materials
- Reflective activity
- Final quiz (graded)

Since participants in the AI4GreenSME course have varying levels of prior knowledge and different learning needs, a series of pre-test quizzes are included to help them assess their understanding before starting the course. These quizzes serve as self-evaluation tools and do not contribute to the final certification for course completion.

The lesson pre-test and final quiz each consist of 10 multiple-choice questions, with three answer options per question. The pre-test serves as a self-assessment tool, allowing learners to gauge their initial knowledge of the topic, while the final quiz evaluates their understanding after completing the lesson.

Additionally, a reflective activity includes three open-ended questions, encouraging participants to relate the course content to their own professional context. This approach fosters deeper engagement and practical application of the concepts learned.

Description of the Learning Platform

The online training platform has been developed by project partners B+P (Malta), and may be accessed through the following www.ai4greensme-course.eu.

Through this online platform, learners may:

- Register to access all the AI4GREENSME contents in the form of 10 lessons.
- Study and download all training materials.
- Take end-of-lesson assessments in the form of quizzes to assess their level of knowledge.
- Obtain digital badges upon successfully completing each lesson.
- Obtain a general AI4GREENSME certificate upon successfully completing all lessons.

Digital badges are verifiable, portable, and visual representations of skills, achievements, or competencies earned through learning experiences. On the AI4GREENSME, they serve as micro-credentials that showcase specific accomplishments and can be shared online.
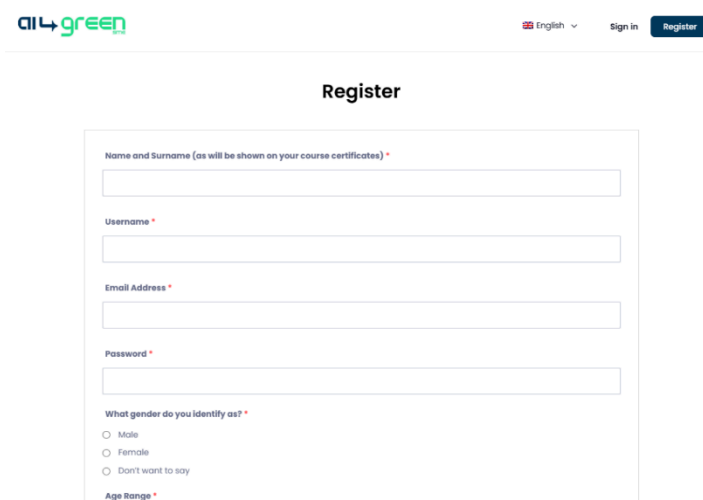
A detailed description of each of the functionalities incorporated into the course is provided below.

Platform Registration

Users can create a free account by clicking the "Register" button on the platform's homepage. The registration process is simple and requires only the essential information needed to set up the account and meet project reporting requirements.
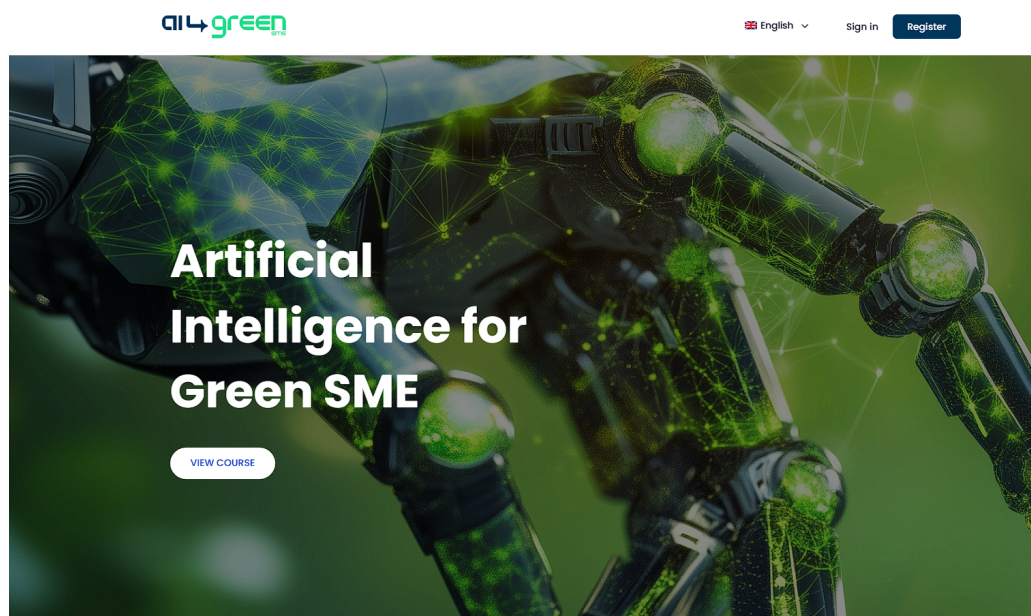
Once the user has registered, they can access their course and their profile from the platform homepage, using their unique username and password.

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Artificial Intelligence for Green SME (AI4GreenSME)

Course Duration: 14 hours

Course Description: This course aims to provide Artificial Intelligence (AI) training to small and medium-sized enterprises' (SMEs) current and future managers and decision-makers vis-à-vis the transition towards the circular economy.

Course Certification: On successfully completing each lesson, you will receive a badge for that particular lesson and you will also be awarded a certificate, comprising the Europass supplement upon successfully completing the whole course.

COMPLETED

Lesson 1: Circular Economy Literacy

Read More

COMPLETED

Lesson 2: Artificial Intelligence Literacy

Read More

NOT STARTED

Lesson 3: Applications of AI in Circular Economy

Read More

NOT STARTED

NOT STARTED

NOT STARTED

After logging in, users gain full access to the course, including the 10 lessons outlined in the previous section. They can also view their profile, enrolled courses, and earned badges by clicking on their username.
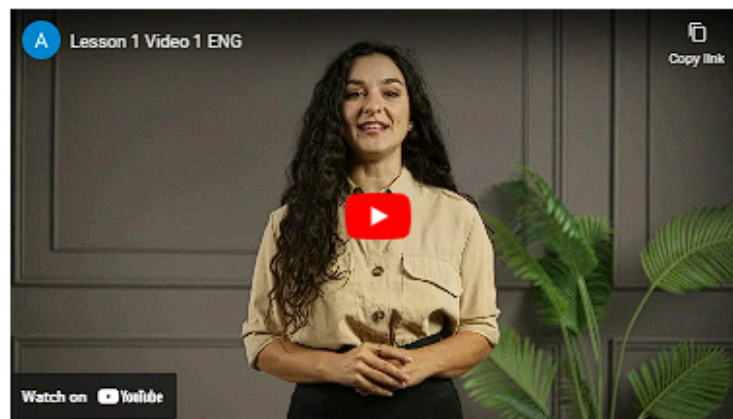

Lessons

Each lesson module starts with a description of the learning outcomes and a short introductory video, offering an overview of the lesson's content and what learners can expect to gain.

Lesson 1: Circular Economy Literacy

Learning Outcomes:

1. Explain the foundational principles of the circular economy, distinguishing it from traditional linear economic models.

2. Demonstrate an understanding of systems thinking and life cycle assessment by analyzing how different stages of a product's life impact the overall sustainability of a circular economy.

3. Analyze the role of supply chain and logistics in the circular economy, assessing the applicability of circular practices at each stage of the supply chain.

4. Identify and evaluate various circular design principles and innovative approaches, applying them to create sustainable product and service solutions.

5. Assess the role of consumer behavior and extended producer responsibility (EPR) in driving circularity, understanding how companies can engage consumers and be accountable for the entire lifecycle of their products, including post-consumer waste.

6. Envision the future of the circular economy by exploring future opportunities and challenges that will shape the evolution of circular practices, and how businesses can prepare for and contribute to this transition.

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Lessons are structured into specific subsections, each exploring the topic from multiple perspectives.

Certification

Learners who achieve a minimum score of 70% in any lesson will automatically receive a verified digital badge which serves as a micro-credential, showcasing specific accomplishments (lessons) and can be verified and shared online.

Circular Economy Literacy

This lesson explores the principles of circular economy, focusing on the balance between sustainability and resource management. Participants examined key concepts like waste reduction, recycling, and lifecycle design while gaining practical skills to assess and implement sustainable practices. Designed for individuals passionate about creating a greener future, the course bridges theory with actionable solutions for real-world impact.

The lesson is part of the AI4GreenSME Erasmus+ Project (023-1-ES01-KA220-VET-000150941). Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Verify

Upon successfully completing all 10 lessons, they will be awarded a Certificate of Completion for the full AI4GreenSME course.

Co-funded by the European Union

CERTIFICATE OF COMPLETION

This is to certify that

Alex Pepi

successfully completed the online training course entitled

ARTIFICIAL INTELLIGENCE FOR GREEN SME

at **www.ai4greensme.eu** comprising the following:
Lesson 1 – Circular Economy Literacy | Lesson 2 – Artificial Intelligence Literacy
Lesson 3 – Applications of AI in Circular Economy | Lesson 4 – Ethical and Social Implications
Lesson 5 – Data for AI for Circular Economy | Lesson 6 – AI-driven Product Design and Innovation
Lesson 7 – Circular Business Models and Market Opportunities | Lesson 8 – Policy and Regulatory Considerations
Lesson 9 – Building your AI4CE Roadmap | Lesson 10 – Evaluating AI4Green Projects

12/01/2025

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Accessibility

Ensuring web accessibility is essential for providing an inclusive user experience, particularly for individuals with visual impairments, cognitive disabilities, or other accessibility needs. The AI4GREENSME platform utilises a well-designed accessibility toolbar which enhances usability by allowing users to adjust key visual elements, such as font size, contrast settings, grayscale mode, and link visibility. These features enable a more personalised browsing experience, improving readability and navigation without requiring technical expertise or extensive modifications to the website's content. Implementing such tools helps meet accessibility standards and fosters a more inclusive digital environment.
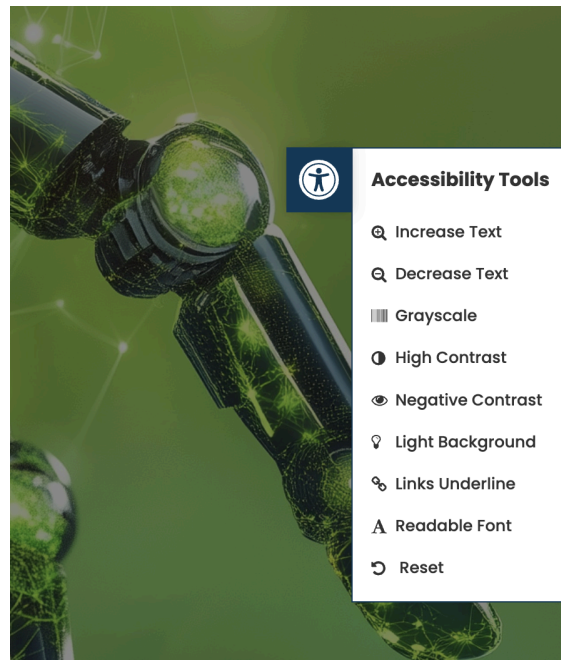
Piloting Phase & Collaborative Activities

The AI4GreenSME project partners aim to pilot the course materials with at least 140 SMEs, targeting both current SME managers and aspiring decision-makers looking to advance into leadership roles.

In addition, each partner country will engage 4 c-VET trainers, bringing the total to 20 trainers participating in the piloting phase and collaborative activities.

The piloting phase and implementation of collaborative activities under A4.3 will take place between 1st February and 31st May 2025. The e-learning platform pilot may begin as soon as the platform is fully operational and publicly accessible, anticipated by end-February.

Once the platform is live, project partners are encouraged to actively promote the course and drive SME participation through multiple communication channels, including:

- Social media campaigns to generate awareness and engagement
- Targeted mailshots to relevant databases, particularly through Chambers of Commerce
- One-to-one outreach to SMEs to encourage enrollment
- Promotion at events, including dedicated multiplier events in each partner country

This strategic outreach will ensure strong participation and maximize the impact of the AI4GreenSME training programme.

Collaborative Activities

The collaborative activities for the AI4GreenSME project are tentatively scheduled for April-May 2025, with the goal of promoting cross-border collaboration and knowledge

sharing among SMEs. These structured online activities, facilitated by c-VET trainers, will offer valuable opportunities to disseminate the e-learning platform further and collect feedback from both SMEs and c-VET providers.

A total of **10 collaborative activities** will be organized, one for each of the **10 lessons** developed in WP3, as follows:

1. **Activity 1** - Circular Economy Literacy [OMNIA]

2. **Activity 2** - Artificial Intelligence Literacy [SciFy]

3. **Activity 3** - Applications of AI in Circular Economy [VCCI]

4. **Activity 4** - Ethical and Social Implications [B&P]

5. **Activity 5** - Data for AI in Circular Economy [B&P]

6. **Activity 6** - AI-driven Product Design and Innovation [VCCI]

7. **Activity 7** - Circular Business Models and Market Opportunities [MEUS]

8. **Activity 8** - Policy and Regulatory Considerations [MEUS]

9. **Activity 9** - Building your AI4CE Roadmap [MBB]

10. **Activity 10** - Evaluating AI4Green Projects [CCI Vratsa]

Each activity will include the following participants:

- **6-8 SMEs**

- **2 c-VET trainers**

This brings the total engagement to **60-80 SMEs** and **20 c-VET trainers** across all activities.

Partners responsible for each activity are tasked with selecting a suitable date between **April and May 2025** and creating the meeting link via their platform of choice. This coordinated effort will ensure the smooth implementation of the collaborative activities and further strengthen the project's impact.

Collaborative Activities Structure

Each collaborative activity will follow the structure outlined below:

1. A **scenario** and **prompt questions** will be shared with participants prior to the activity. These prompts are designed to help participants brainstorm and prepare, ensuring they can contribute meaningfully to the discussion during the activity.

2. Participants are strongly encouraged to complete the relevant lesson on the **e-learning platform** prior to the activity to ensure they are well-prepared.

3. At the start of the activity, the hosting partner will provide a brief introduction to the project, explain the objectives of the session, and present the discussion questions.

4. During the activity, participants will contribute to the discussion, drawing from their learning on the e-learning platform as well as their personal experiences. The **c-VET trainer** will guide the conversation to ensure productive engagement.

Draft agenda:

● Introduction by hosting partner
● Introduction of c-VET trainer and their background
● Tour de Table for SMEs in presenting themselves
● Readout of Scenario
● Discussion questions to be discussed by all on call for the last portion of the call.
● Conclusion

Each activity is expected to last approximately **1 hour.**

Recommendations for replicating collaborative activities

One of the key contributions of the project has been the creation of the transnational collaborative activities phase, developed after the online training. These activities are easily replicable in other contexts (local, regional or international) and offer high added value to the training process. To this end, it is recommended that:

· The activities are designed to be carried out through virtual or face-to-face meetings between people from different organisations, sectors or countries.

· Where possible, participants should be selected in advance, ensuring sectoral or geographical diversity to enrich the discussion.

· The worksheets proposed in AI4Green, or an adaptation thereof, are used, to serve as a common working guide. Both their content and dynamics can be adapted (for example, by adapting them to a specific sector, or by modifying the time allocated or the format of the meeting).

· Facilitators or experts are included to accompany the session, present the activity and moderate the debate.

· Clear coordination by the organisation is established: call for participation, technical support, sending of materials, collection of results, etc.

· In the original design of the project, each participating country appointed external trainers to facilitate the sessions. It is recommended to replicate this approach by selecting profiles that:

  o Have experience in circular economy, sustainability, digitalisation or artificial intelligence.

  o Are trained to moderate meetings and encourage active participation.

o Can resolve content or methodological questions during the sessions.

· The organising entity takes on the general logistics: setting dates, preparing the digital infrastructure, distributing the worksheets and providing technical support during the activity.

SME Recruitment

To ensure a balanced transnational representation, SME participants from all partner countries should be evenly distributed across the collaborative activities.

When engaging with SMEs, partners should ask them to rank their preferred activities, while making it clear that final allocations may differ from their top choice due to space limitations and the need for fair distribution across sessions. This approach ensures inclusivity from different partner countries and maximizes the exchange of diverse perspectives.

[MBB has created a shared excel sheet to track of registered SMEs for each activity](#).

[Please also find a draft registration form/expression of interest to engage SMEs](#), using Microsoft Forms (Google forms does not allow ranking of preferences).