VET TOOLBOX

PROJECT NAME

2021-1-BE01-KA220-VET-000035895

Strategic DG-VET Innovative training material and methodology to support the development of digital and green skills of NEET youth from rural areas to empower their employability.

Co-funded by the Erasmus+ Programme of the European Union

Partnership

Co-funded by the Erasmus+ Programme of the European Union

Contents

Introduction

DGVET is a project aimed at revolutionizing the approach to skill development for NEET youth, especially those from rural areas. This initiative focuses on enhancing **employability** through marketable **digital and green skills**, targeting a demographic often overlooked in traditional employment statistics. To ensure the success and longevity of this project, critical aspects like sustainability, transferability, and accessibility of the project's results have been emphasized.

In line with our mission, we have developed **an interactive e-learning platform**. This platform is not just a repository of innovative training materials; it is a dynamic learning environment. With its attractive and creative layout, the platform is designed to be user-friendly, ensuring that learners can engage with the content intuitively and seamlessly. This e-learning platform serves as the cornerstone of our strategy to empower NEET youth, providing them with the tools and knowledge necessary to build a brighter future in the evolving job market.

Key results

Project Result 1: Data collection for the profiling of NEETs and the Digital and Green Economy (DaGE) sectors at national & European level.
Project Result 2: Agriculture 4.0: Equipping young NEETs with basic & advanced digital and green skills.
Project Result 3: DG-VET gamified e-learning platform & online community.
Project Result 4: DG-VET Toolbox for VET teachers / trainers and policy makers.

Find out More:
https://dgvet.bloo.cloud/
https://www.facebook.com/projectdgvet

The Toolbox

For educators, trainers, organizations, and legislators involved in Vocational Education and Training (VET), the DG-VET Toolbox is an essential resource. Its main objectives are to: (1) guarantee the accessibility and durability of the project's results; and (2) optimize the transferability of the instruments, resources, and techniques created throughout the project. Innovative training materials, comprehensive instructions for using the E2E (Employee to Employer) online tool to implement apprenticeship schemes in the Digital and Green Economy sectors, and tools for VET organizations to develop and implement acceleration programs targeted at young and female entrepreneurs in these sectors are all included in this extensive toolbox. In addition, it includes policy briefs to support and create training courses and programs in the Digital and Green Economy, as well as a combined report of evidence and data from piloting initiatives. By the project's 23rd month, the toolbox—which is intended for VET professionals, experts, representatives of public organizations, and decision-makers—will be free to download in English and partner languages from the project's website and e-learning platform.

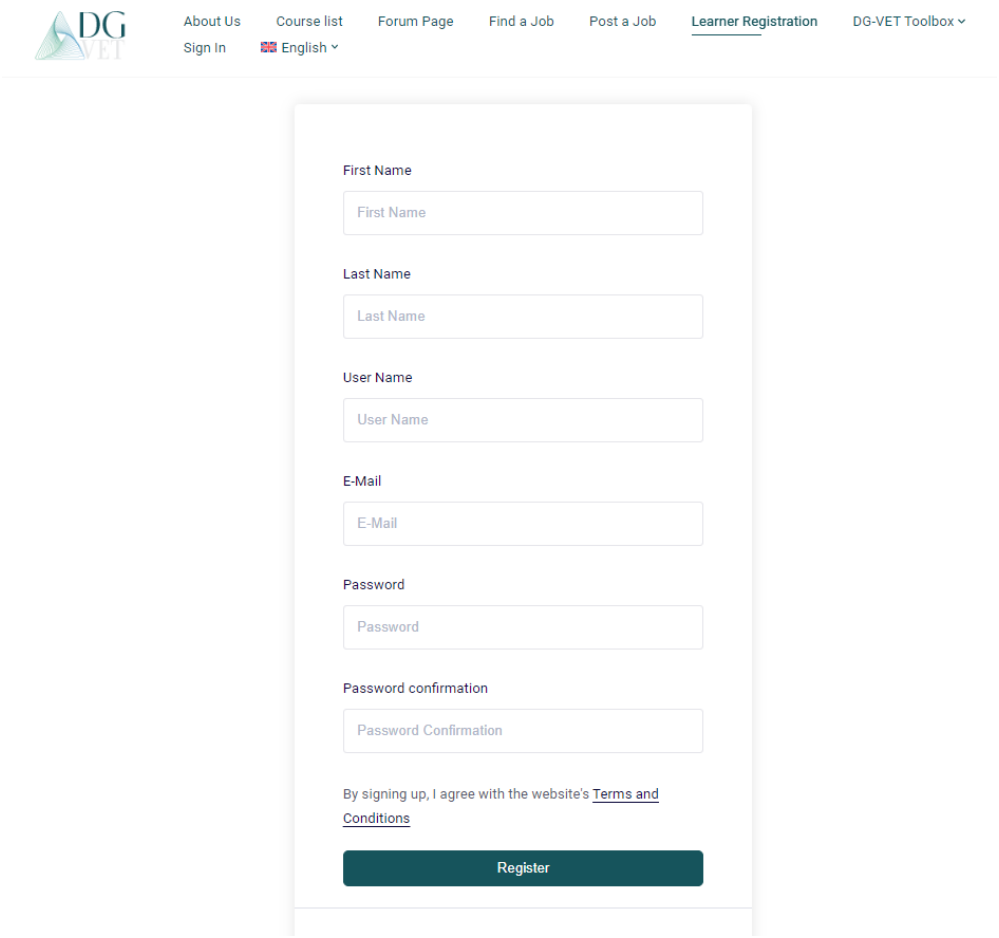
How to read this document

This document serves as a comprehensive guide designed to support the development of marketable digital and green skills among NEET youth, particularly from rural areas. Readers will be able to explore each section methodically, beginning with the E2E PLATFORM', which illustrates platform navigation, essential for accessing and utilizing learning resources. The sections on 'Posting a Job' and 'Finding a Job' offer guidance for interacting with job opportunities, vital for career advancement in the digital and green sectors. Explore 'Using the Networking Area' and 'Managing Your Profile' to understand the importance of online networking and profile management in professional development. 'Accessing Training Material' provides systematic instructions for engaging with the educational content, crucial for skill acquisition. The document also encompasses innovative training materials and methodologies, presenting insights into effective program implementation. In conclusion we have incorporated 'Policy Briefs', offering strategic perspectives for promoting and sustaining educational initiatives, important for addressing broader economic and global challenges.

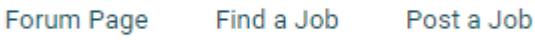
How to use E2E platform

https://dgvet.bloo.cloud/

To gain full access to the platform, it is necessary for users to complete the registration process. This involves providing all required information to create an account. Once this step is complete, a confirmation email will be sent to you. If you do not find the email in your inbox, it's advisable to check your spam folder. This email will contain a link, which you must click to activate your account and start utilizing the platform's features.

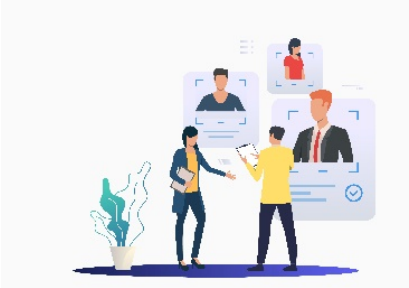


On the home Page, there are 3 tabs which complete the E2E Platform.



Guidelines for Posting a Job

Particularly in the fields of the Digital and Green Economy, the "Post a Job" portion of the DG-VET website is essential in bridging the gap between vocational education and the labor market. With the help of this function, companies can connect with a specific group of highly qualified individuals who have received training in cutting-edge technologies and environmentally friendly procedures. Employers can access a pool of competent people who are specially educated and trained in areas relevant to their industry needs by posting employment openings on the DG-VET portal. This accelerates the hiring process and guarantees that the candidates have the particular skills and abilities needed in these quickly changing industries. This area provides a useful tool for VET professionals and graduates to locate employment opportunities that align with their career goals and skill set, making the transition from education to work easier. In general, the "Post a Job" feature promotes a mutually beneficial partnership between companies and VET experts, augmenting job prospects and bolstering the expansion and vibrancy of the Digital and Green Economy domains



<u>Job Listing Form Details:</u>

Your Email:
Enter your professional email address. This will be used for account creation and communication.

Password:
Choose a secure password, at least 8 characters long, for your account.

Verify Password:
Re-enter your password to verify accuracy.
Clarifications: You can skip the above steps if you have already sign up in the platform.

Job Title:
Clearly state the title of the apprenticeship position (e.g., Digital Marketing Apprentice, Renewable Energy Technician Trainee).

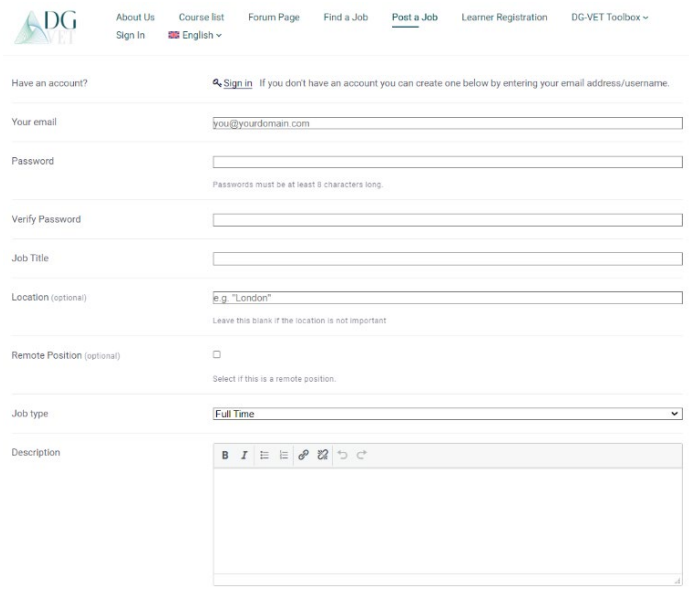
Location (optional):
Specify the physical location of the job, if applicable
Leave blank if location is not important or if the apprenticeship can be conducted remotely.

Remote Position (optional):
Check this option if the apprenticeship can be performed remotely.

Job Type:
Select 'Full Time' for full-time apprenticeships.

Description:
Provide a detailed description of the apprenticeship, including responsibilities, learning outcomes, and any specific projects the apprentice will be involved in.
Mention how this role fits within the Digital and Green Economy sectors.

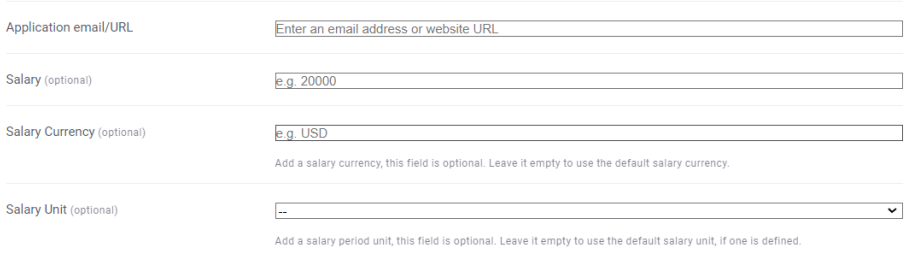
Application Email/URL:
Specify an email or URL where applicants can send their applications or learn more about the application process.



Salary (optional):
Indicate the salary, if applicable. Use numerical values (e.g., 20000).

Salary Currency (optional):
Specify the currency for the salary (e.g., EUR). Leave blank to use the default currency.

Salary Unit (optional):
Choose the salary period (e.g., per hour, per week, per month). Leave blank to use the default unit.



Company Details:

Company Name: Enter the name of your company.

Website (optional): Provide the URL of your company's website.

Tagline (optional): A brief description of your company.

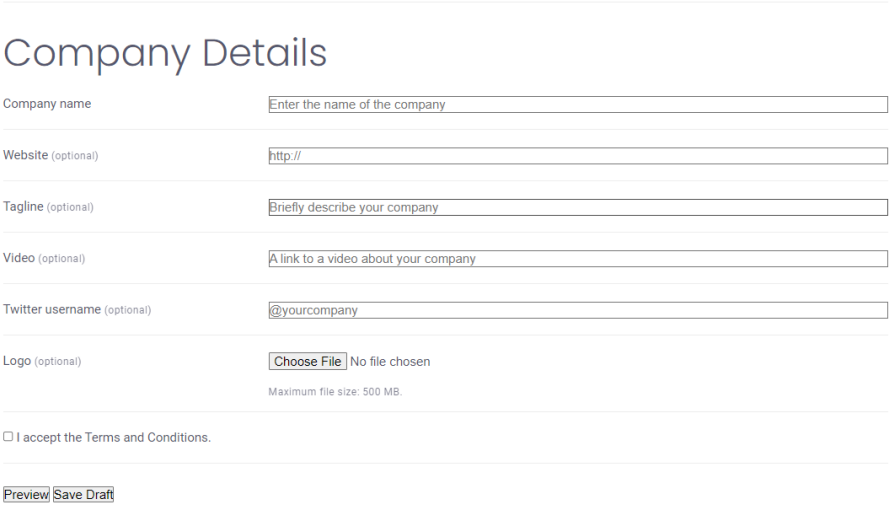
Video (optional): Link to a company video, if available.

Twitter Username (optional): Your company's Twitter handle.

Logo (optional): Upload your company logo (Max file size: 500 MB).

Terms and Conditions:
Confirm that you accept the platform's Terms and Conditions.

Save Draft:
Use the 'Save Draft' button to save your progress if you are not ready to submit the job listing. This feature allows you to come back and complete or edit your post later.



Additional Tips for Employers:

Be Specific: Clearly outline the skills and qualifications you're looking for.

Highlight Opportunities: Emphasize learning opportunities and potential career paths within your company.

Promote Your Company: Use the company details section to showcase your company's ethos and commitment to the Digital and Green Economy sectors.

Once you have filled out all the necessary information, review your listing for accuracy before submitting. This will ensure that potential apprentices have a clear and complete understanding of the opportunity.

Redirection to Preview Page:
After clicking 'Preview', you will be redirected to a new page where you can see how your job listing appears.

Edit Listing:

If you need to make changes, click the 'Edit Listing' button. This will take you back to the job listing form where you can make necessary edits.

Submit Listing:

Once you are satisfied with the listing in the preview, click the 'Submit Listing' button to publish your job post on the platform.

Final Steps:

Review Final Submission:

Ensure all details are correct after any edits. Preview again if needed.

Confirmation:

After submission, you should receive a confirmation that your job listing is under review.

Guidelines for Finding a Job

This section of our platform is dedicated to assisting you in locating and pursuing apprenticeship opportunities in the exciting disciplines of the green economy and digital economy. A helpful job search tool that will assist you in finding appropriate job openings can be found in this section. This resource is your doorway to a wide spectrum of apprenticeship opportunities, regardless of your preferences for certain places, roles, or skill sets. We've included a step-by-step tutorial on how to use this search function to match your career goals with suitable possibilities below.

<u>Using the Job Search Tool:</u>

Search Here:

This is your main tool for finding relevant job listings.

Keywords:

Enter specific keywords related to the apprenticeship you are seeking. Examples include job titles (e.g., "Software Developer Apprentice"), skills (e.g., "Renewable Energy"), or industries (e.g., "Green Economy").

Use terms that closely match your interests and qualifications to find the most relevant opportunities.

Location:

Type in a specific location if you are looking for apprenticeships in a particular city, region, or country.

If you are open to a broader range of locations or if the exact location is not a priority for you, you can leave this field blank.

Remote Positions Only:
Check this box if you are specifically looking for remote apprenticeships. This will filter the search results to show only those positions that offer the flexibility of working remotely.

Tips for Job Seekers:

Use Relevant Keywords: Tailor your search with keywords that best describe the type of apprenticeship you're interested in.

Explore Various Options: Try different keyword and location combinations to explore a wide range of opportunities.

Regularly Update Your Search: New apprenticeships are posted frequently, so regularly updating your search criteria can help you find the latest opportunities.

Prepare Your Application: Have your resume, cover letter, and any other required documents ready to apply as soon as you find a suitable position.

Navigating Search Results:

Review Job Listings: Carefully read through the job descriptions in the search results.

Check Eligibility: Ensure you meet the qualifications and requirements listed in the job posting before applying.

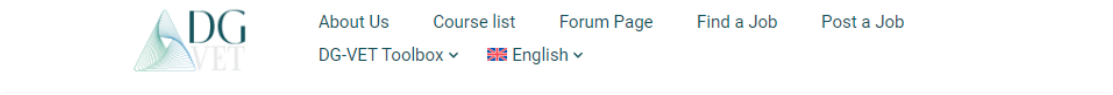
Apply: Follow the application instructions provided in the job listing. This may involve sending your resume to an email address or applying through a linked URL.

By following these guidelines, you can effectively navigate and utilize the 'Find a Job' tool to find apprenticeship opportunities that align with your career goals in the Digital and Green Economy sectors.

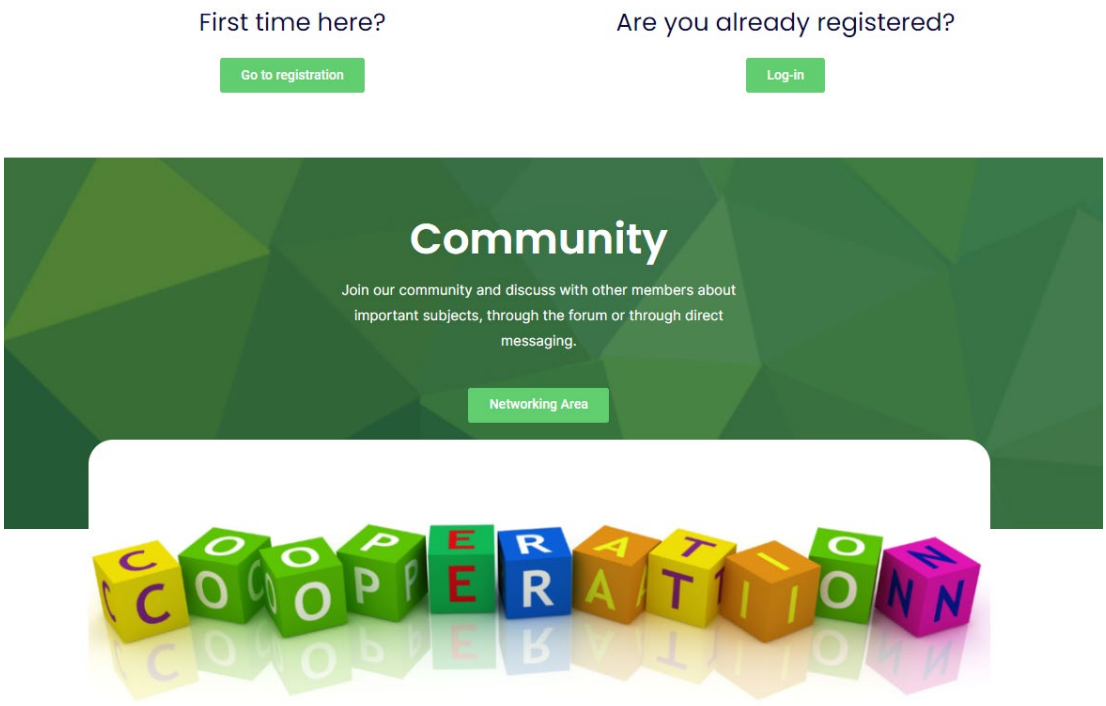
Guidelines for Using the Networking Area

This space is designed to help you connect, engage, and network with other members who share your interest in the Digital and Green Economy sectors. Follow these steps to make the most of this feature:

Accessing the Networking Area:
Navigate to the Forum Page: From the upper bar of the platform, select the 'Forum' page.



Locate the Networking Area: Scroll down on the Forum page until you find the 'Networking Area' and select it.



<u>Using the Networking Area Features:</u>

View Active Members: Upon entering the Networking Area, you will see the number of active members.

Search Members: Use the 'Search Members...' feature to find specific individuals or those with particular interests or skills.

Sort Members: Utilize the 'Search Order By' dropdown list to sort members. Options include:
Alphabetical: To view members in alphabetical order.
Newest Registered: To see the most recently joined members.
Last Activity: To find members who have been recently active.
Interacting with Members:

<u>Click on any member's profile to view their details:</u>

Name: The member's name.

Public Message: Click here to send a message to the public forum mentioning this member, initiating or joining a discussion.

Activity Status: Shows how recently the member was active (e.g., Active 3 weeks, 1 day ago).

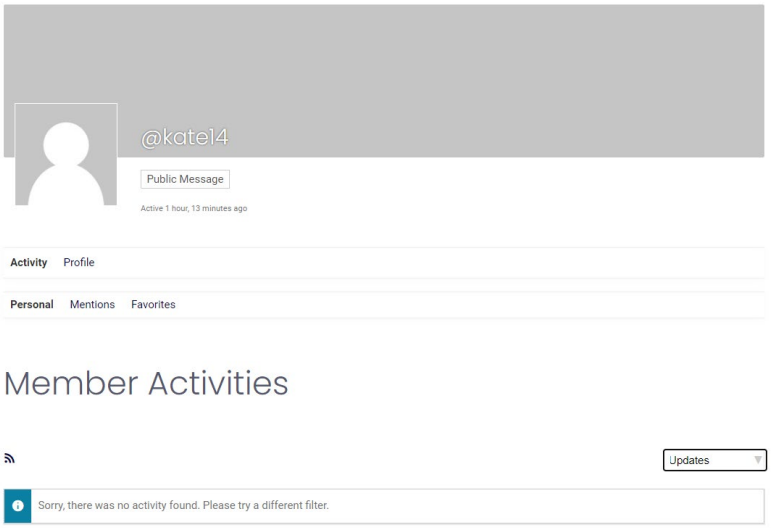
Explore Member Profiles: In each member's profile, you can view their.

Activity Profile: Overview of the member's recent activities.

Personal Mentions: Instances where the member has been mentioned in discussion.

Favorites: The member's favorite discussions or topics.

Member Activities: Detailed log of the member's activities within the network.



Posting a Public Message:

Using the 'Public Message' Tab:

When you click 'Public Message' in a member's profile, you will be redirected to the main forum.
In the forum, you can compose and share your message or thoughts, tagging or mentioning the selected member. This facilitates public discussions and allows other members to join in or follow the conversation.

Networking Tips:

Engage Actively: Regularly participate in discussions and mention other members to foster engagement.

Update Your Profile: Keep your profile updated with relevant interests and activities to attract meaningful connections.

Use Filters Wisely: Utilize search and sorting features to find members who align with your professional interests or can offer valuable insights.

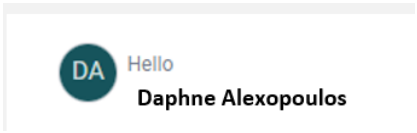
The Networking Area is a dynamic space designed to foster professional connections and collaborations. By actively participating and engaging with other members, you can build a strong network within the Digital and Green Economy sectors.

Implementing apprenticeship schemes within the Digital and Green Economy sectors through End-to-End (E2E) online tools offers a comprehensive array of benefits, addressing the rapidly evolving nature of these fields and their increasing demand for skilled professionals. The Recruitment Process facilitated by E2E tools optimizes candidates for efficient job matching and ensuring a synergistic fit between apprentices and employers. In terms of Learning and Training Experience, E2E tools provide apprentices with customized learning paths tailored to their individual learning styles and paces, which significantly enhances skill acquisition. Moreover, employers can monitor apprentice development closely, enabling timely support and interventions. A continuous feedback loop ensures that apprentices are consistently improving and aligning with their learning objectives. Increased Accessibility and Flexibility are also key benefits. The digital and green economy sectors often offer remote learning and work opportunities, making apprenticeships more accessible to a diverse range of candidates. Additionally, E2E platforms facilitate flexible scheduling, accommodating apprentices with various commitments. These schemes play a crucial role in Building a Future-Ready Workforce. Apprenticeships are designed to align with the industry's evolving demands, ensuring the acquisition of future-ready skills and skilled professionals already integrated into the company's culture and processes. In the Green Economy sector, there's a focus on Sustainable Practices and Innovation, with apprenticeships concentrating on sustainable practices and green technologies. Meanwhile, in the Digital sector, apprentices can engage in projects at the forefront of technological advancements and digital transformation initiatives. Networking and Professional Development are enhanced through community-building features of E2E tools, connecting apprentices with peers, mentors, and industry professionals. This

exposure to a professional network and industry events opens doors for future career growth and opportunities.

In conclusion, apprenticeship schemes in the Digital and Green Economy sectors, facilitated by the E2E online platform, show the way for a more inclusive, innovative, and skilled workforce. This approach is instrumental in preparing individuals to effectively tackle the challenges and opportunities of the future.

Guidelines for Managing Your Profile

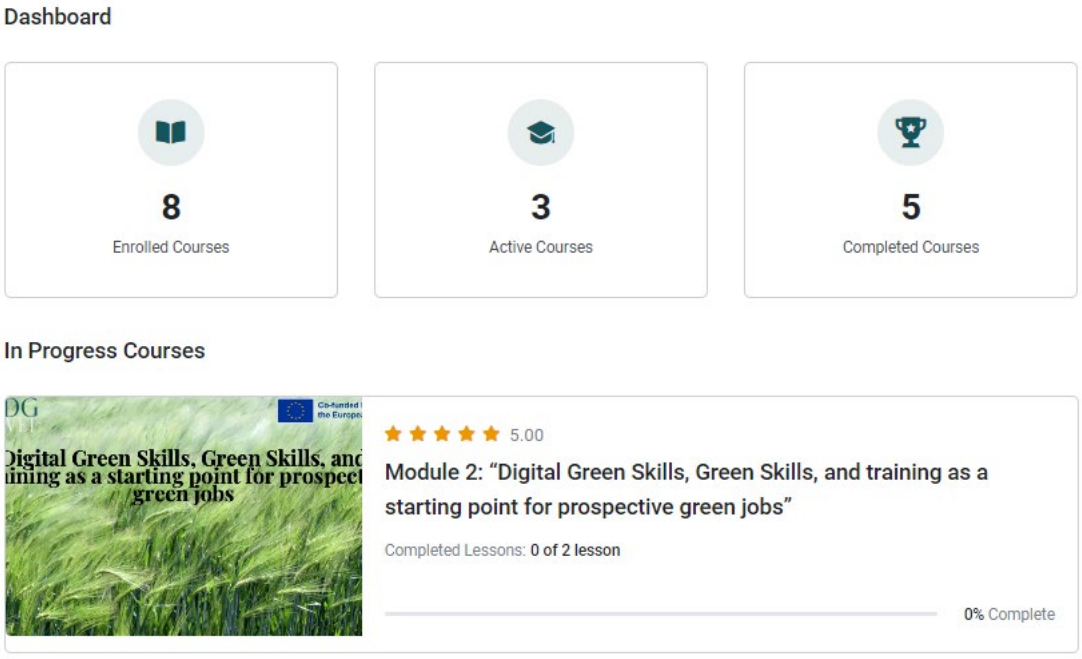


Accessing Your Profile:

Click on your profile name in the right upper corner to access various aspects of your profile and activities.

Dashboard:

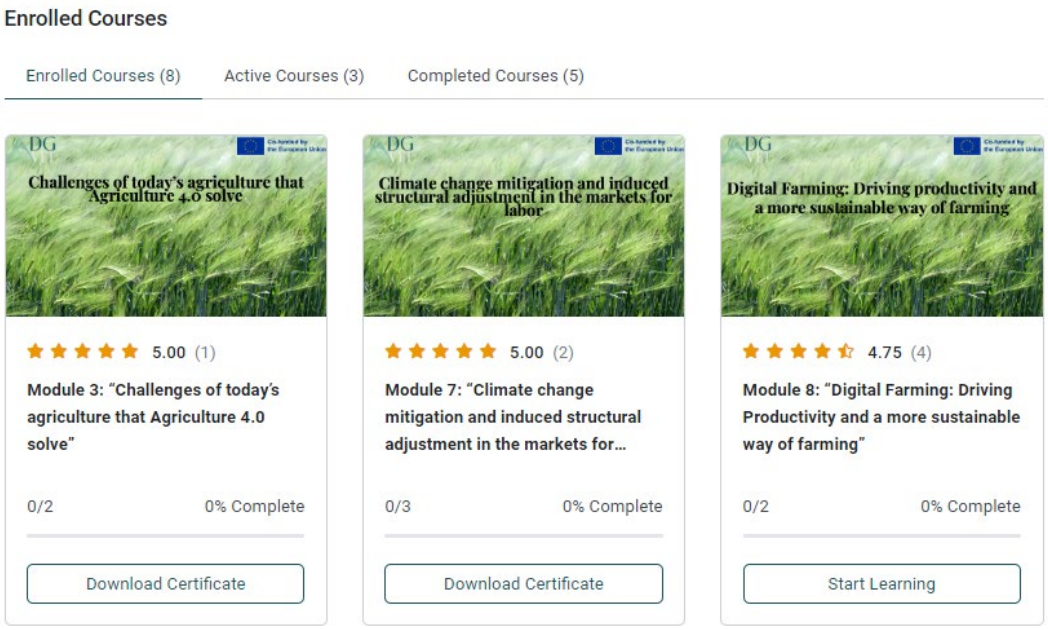
Overview: View a summary of your activities including enrolled, active, completed, and in-progress courses.



My Profile:

Enrolled Courses:

Course Status: Track your progress with an overview of enrolled (8), active (3), and completed (5) courses.
Progress Tracking: See detailed progress for each course.



Wish list:
Access a list of courses you've marked as interested or wish to enroll in the future.

Reviews:
View and manage reviews you've provided for courses.

My Quiz Attempts:
Quiz Analysis: Review your quiz attempts with details like total marks, correct/incorrect answers, earned marks, and results.
Detailed Overview: Access in-depth information on each quiz attempt.

Settings:

Profile Updates Section
Edit your profile information, including uploading profile and cover photos.
Contact Information: Update your first name, last name, username, and phone number.
Professional Profile: Modify your skill/occupation and bio.
Public Display Name: Choose how your name is displayed publicly.

Change Password Section
Current Password: Enter your current password.
New Password: Choose a new password.
Re-type New Password: Confirm the new password.
Click 'Reset Password' to update your password.

Order History:
View a log of your course enrollments and purchases.

Question & Answer:
Access and manage your interactions in Q&A sections of courses.

Calendar:
Keep track of your scheduled courses, deadlines, and important dates.

Logout:
Securely exit your profile.

Tips for Profile Management:
Regular Updates: Keep your personal and professional information up-to-date to ensure effective communication and networking.

Course Tracking: Regularly check your course progress and Wishlist to stay on top of your learning goals.

Engage in Reviews and Q&A: Actively participate in course reviews and Q&A sections to enhance your learning experience.

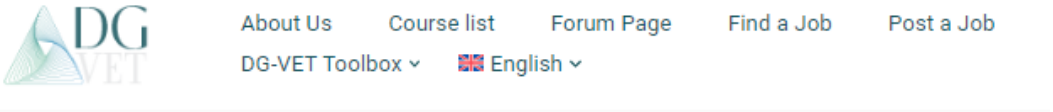
Profile Visibility: Ensure your public display name and bio reflect your professional persona.

By following these guidelines, you can effectively manage and utilize your profile on the platform, keeping track of your courses, progress, and engagements in the Digital and Green Economy sectors.

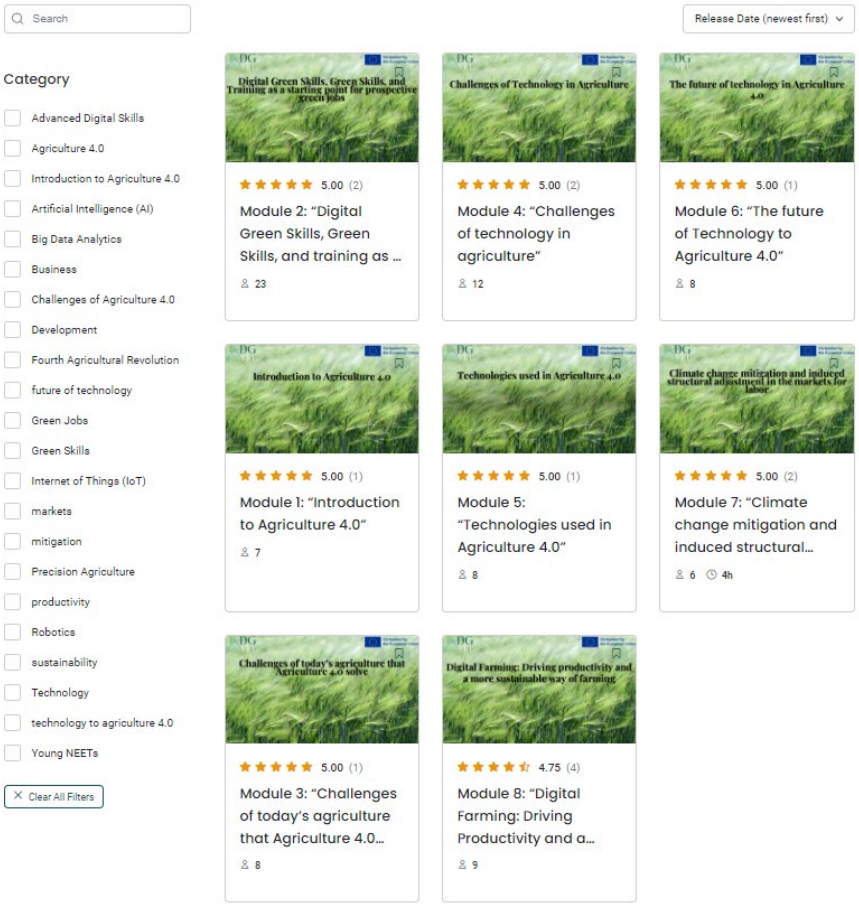
Step-by-Step Guidelines for Accessing Training Material

How to Find Modules:

Accessing Course List: Click on the 'Course List' section in the top bar of the platform.
This will display a list of available modules.



To sign up for a module, simply browse the 'Course List', click on the module you wish to enroll in, and a new page with detailed information about the course will appear.

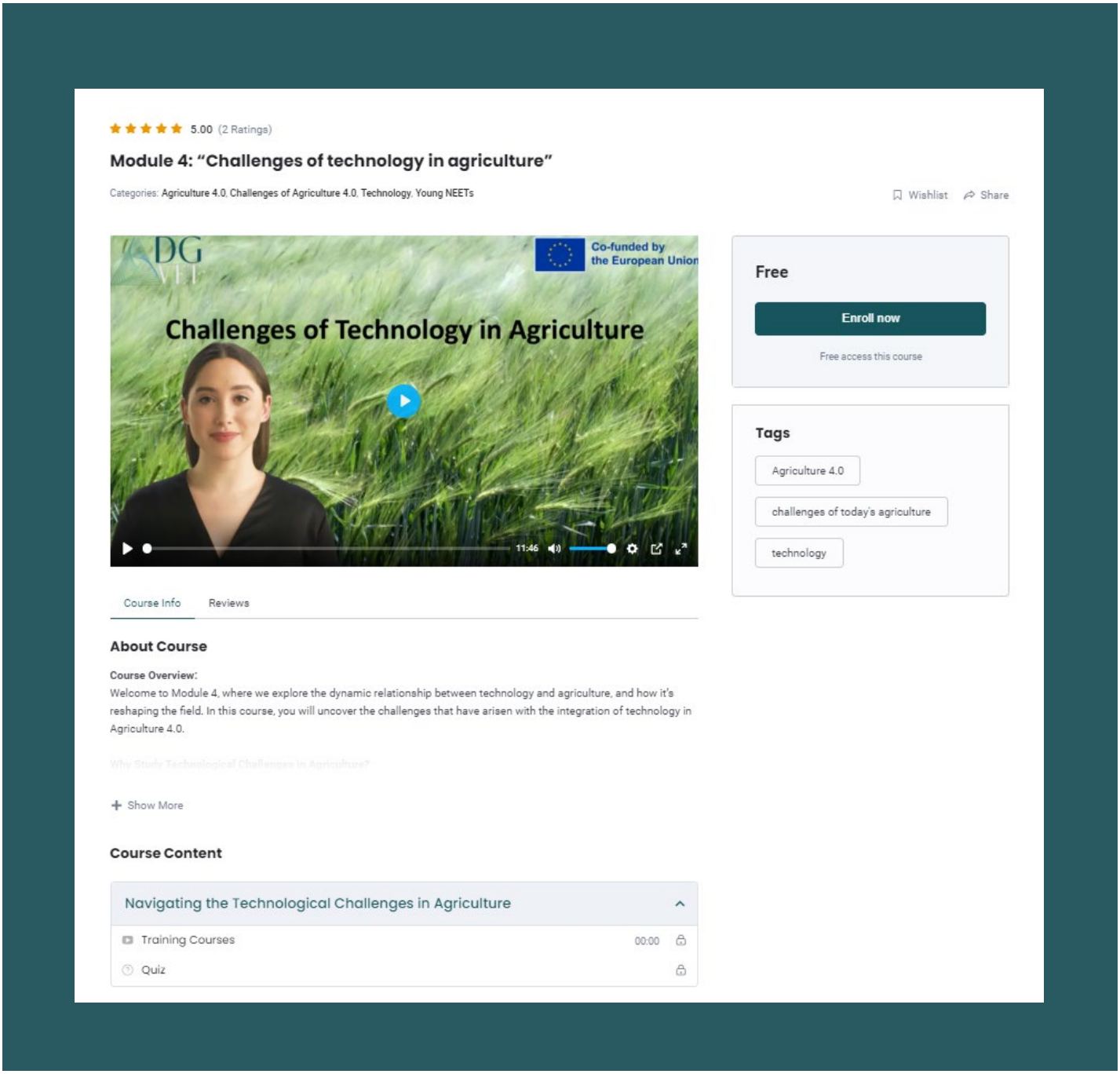


Course Overview

Welcome to the course overview page, where a wealth of information awaits to guide you on your educational journey. Here, you'll find the "**Course Info"** section, providing a detailed description of the course along with any prerequisites needed to ensure you're fully prepared. In the "**Reviews**" section, read through the experiences and feedback of previous participants, offering

insights into what to expect. For any queries you might have, the "**Q&A"** area covers common questions and answers, serving as a handy guide for both prospective and current students.

Stay updated with the latest developments through our "**Announcements**" section, which contains important notices relevant to the course. Enhance your learning experience with our "**Resources**" section, offering additional materials and resources to complement the course content. Speaking of content, the "**Course Content**" section provides a thorough breakdown of what the course covers, helping you understand the scope and depth of the curriculum. Lastly, don't miss the "**Introduction Video**," a brief yet informative piece that introduces you to the course, setting the stage for an engaging and informative educational experience.

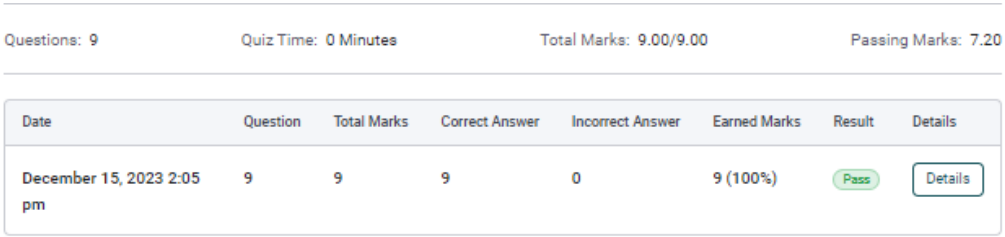


For enrollment, simply click the 'Enroll Now' button to sign up for your chosen module. Once enrolled, start the course by clicking 'Start Learning'. As you progress, engage with the course by reading and watching the relevant material, and feel free to add comments related to the course content for a more interactive learning experience.

Quiz Attempts:

Complete the associated quiz. You have up to 10 attempts to pass.

You can check the details of your completed quiz:



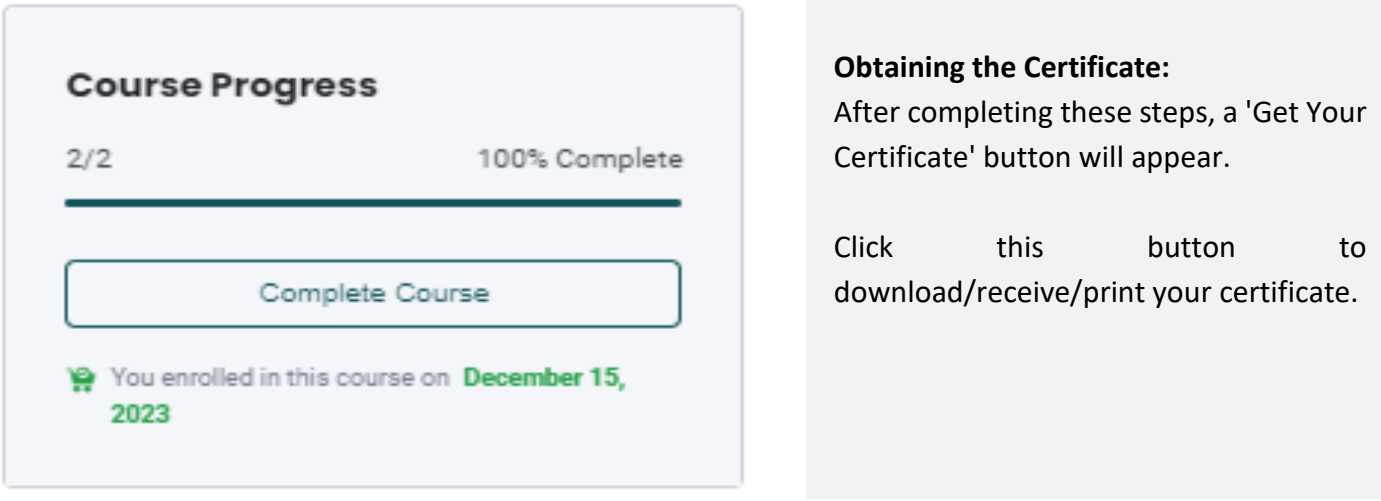
After passing the quiz, click 'Mark as Complete'.

How to Get a Certificate:

Completing the Course:

Once you've passed the quiz and marked the course as complete, return to the first page of the course.

Click 'Complete the Course'.



Obtaining the Certificate:

After completing these steps, a 'Get Your Certificate' button will appear.

Click this button to download/receive/print your certificate.

Module 4: "Challenges of technology in agriculture"

Credential ID	Issued By	Issued Date
#f049c0eaab249e45	Authorised Name	December 15, 2023

The platform also includes other main functions such as 'Navigation Back and Forth', which allows you to use the platform's navigation buttons to move back to previous pages or forward to the next sections, and 'Jumping Between Courses', enabling you to easily switch between courses by returning to the 'Course List' and selecting a different module.

A detailed methodology for designing and implementing innovative acceleration programs for potential young and women entrepreneurs within the Digital and Green Economy sectors in the context of VET

To start with, VET trainers developing acceleration programs for young and women entrepreneurs in the Digital and Green Economy sectors should focus on frameworks that support inclusive and dynamic environments, emphasize practical training and experiential learning, and consider strategies that balance focus and foresight in entrepreneurial development.

To develop a detailed methodology for designing and implementing innovative acceleration programs for potential young and women entrepreneurs within the Digital and Green Economy sectors in the context of VET (Vocational Education and Training) organizations, VET trainers might want to consider asking the following key questions and how DGVET project replies to those needs:

1.1 Needs Assessment:

2. What are the specific skill gaps and knowledge requirements within the Digital and Green Economy sectors for young and women entrepreneurs?

3. How can we identify the unique needs and challenges faced by potential entrepreneurs in these sectors through a comprehensive needs assessment?

1.2 Curriculum Design:

4. What core competencies and skills should be integrated into the curriculum to address the specific demands of the Digital and Green Economy sectors?

5. How can the curriculum be designed to foster innovation, sustainability, and adaptability?

1.3 Pedagogical Approaches:

6. What teaching and learning methods can be employed to enhance practical skills, critical thinking, and problem-solving abilities?

7. How can technology be leveraged to create engaging and interactive learning experiences?

1.4 Inclusivity and Diversity:

8. How can the programs be designed to ensure inclusivity and diversity, particularly in promoting the participation of women entrepreneurs and underrepresented groups?

9. What strategies can be implemented to create an inclusive and supportive learning environment?

1.5 Mentorship and Networking:

10. How can VET organizations establish mentorship programs to connect young and women entrepreneurs with experienced mentors in the Digital and Green Economy sectors?

11. What networking opportunities can be integrated to facilitate collaboration and knowledge exchange?

1.6 Assessment and Feedback:

12. What methods of assessment will be used to measure the effectiveness of the programs and the progress of participants?

13. How can continuous feedback mechanisms be implemented to adapt and improve the acceleration programs over time?

1.7 Resource Allocation:

14. What resources, including financial, technological, and human resources, are required to implement and sustain the acceleration programs?

15. How can partnerships and funding sources be identified to support the initiative?

1.8 Stakeholder Engagement:

16. How can VET organizations collaborate with industry partners, government agencies, and other stakeholders to ensure the relevance and effectiveness of the acceleration programs?

17. What mechanisms can be established to involve experienced entrepreneurs, mentors, and subject matter experts in the design and delivery of the programs?

1.9 Monitoring and Evaluation:

18. How will the success of the acceleration programs be monitored and evaluated in terms of participant outcomes and impact on the Digital and Green Economy sectors?

19. What indicators will be used to measure the long-term success and sustainability of the programs?

Innovative Training Material

Introduction to the Course:

"Agriculture 4.0: Integrating Technology for a Sustainable Future"

Embark on an interesting journey with "Agriculture 4.0: Integrating Technology for a Sustainable Future," a course specifically designed to redefine your understanding of modern agriculture. This comprehensive program focuses on the fusion of cutting-edge technology and sustainable practices, marking a revolutionary shift in the agricultural sector. With a special focus on empowering rural youth and women NEETs, this course is not just an educational experience but a movement towards a circular and regenerative economy.

As a participant, you will traverse through the evolving landscape of Agriculture 4.0, from its foundational concepts to the forefront of digital farming and climate change mitigation. The course structure is a carefully curated journey across 8 modules, each blending theoretical knowledge with practical applications. This approach ensures that you are not merely a passive learner but an active player in the agricultural transformation. By the end of this program, you will gain not just insights but also the tools to make a tangible impact in shaping a sustainable future for agriculture. Prepare to be challenged, inspired, and transformed as you step into the world of Agriculture 4.0.

Module Information

Module info 1_introduction to Agriculture 4.0	
Summary	The introduction to Agriculture 4.0 outlines the need to train and upgrade rural young people for the circular and regenerative economy. The module focuses on providing digital learning resources based on micro-learning principles, incorporating multimedia formats for blended learning.
Content Breakdown (Units)	1. **Introduction to Agriculture 4.0:** Overview of the need for training in the circular and regenerative economy. • Adapted training materials for practical implementation. 2. **Main Objectives:** • Introduction to Agriculture 4.0 and its components. • Providing insights into the main idea of Agriculture 4.0 for the target group. 3. **Learning Outcomes:** • Understanding the concept of Agriculture 4.0. • Familiarity with the main objectives, including enlarging food productivity, rational spread, acclimatization to global warming, reducing food waste, reducing farming costs, and time-saving. 4. **Practical Applications:** • Application of Agriculture 4.0 principles to address global challenges like food production, poverty reduction, climate change adaptation, and resource efficiency. • Real-world examples of Agriculture 4.0 technologies contributing to increased crop production and sustainability. 5. **Tools, Technologies & Resources:** • Technologies such as automated equipment, sensors, data analysis, artificial intelligence, IoT, Big Data, Blockchains, Scout drones, Cloud Computing, etc. • References to the evolution from Agriculture 1.0 to Agriculture 4.0 and potential future developments in Agriculture 5.0.
Learning Outcomes	1. **Understanding Agriculture 4.0 Concept:** • Define Agriculture 4.0 and its core components. • Explain the evolution of agriculture from 1.0 to 4.0. • Recognize the significance of Agriculture 4.0 in addressing global challenges. 2. **Main Objectives of Agriculture 4.0:** • Summarize the main objectives of Agriculture 4.0, including enlarging food productivity, rational spread on a global scale,

	acclimatization to global warming, reducing food waste, reducing farming costs, and time-saving. • Connect each objective to its relevance in the context of contemporary challenges.
Practical Applications	Apply Agriculture 4.0 principles to real-world scenarios related to: • Increasing food productivity to meet growing global demand. • Addressing food poverty through sustainable farming. • Adapting to global warming and mitigating climate change impacts. • Implementing strategies to reduce food waste at various stages of the agricultural cycle. • Optimizing farming costs through technology. • Utilizing time-saving techniques in farming practices.

Tools, Technologies & Resources (if applicable)	• **Technological Tools:**
	  • Automated equipment: Implementing machinery with automation features.
	  • Sensors: Utilizing sensors for data collection and monitoring.
	  • Data Analysis: Analyzing data for informed decision-making.
	  • Artificial Intelligence: Integrating AI in farming processes.
	  • IoT (Internet of Things): Connecting devices for smart farming.
	  • Big Data: Managing and analyzing large sets of data for insights.
	  • Blockchains: Ensuring transparency and traceability in the agricultural supply chain.
	  • Scout drones: Employing drones for agricultural monitoring.
	  • Cloud Computing: Storing and accessing data in the cloud.
	• **Educational Resources:**
	  • Interactive games: Gamifying learning for engagement.
	  • Podcasts: Providing audio resources for diverse learning.
	  • E-learning videos: Delivering visual content for understanding concepts.
	  • Interactive case studies: Offering practical insights through real-world scenarios.
	  • Infographic resources: Visualizing information for easy comprehension.
	• **References and Further Reading:**
	  • Citing research articles and references on Agriculture 4.0 and its evolution.
	  • Referring to the European context and initiatives like the EU Green Deal.

How VET organizations /trainers can use this module to design and implement innovative acceleration programs	This module provides a foundational understanding of Agriculture 4.0, making it suitable for VET organizations/trainers aiming to equip young and women entrepreneurs in the digital and green economy sectors. The practical applications and examples offer a basis for hands-on learning, and the reference to the European context and the EU Green Deal aligns the content with current initiatives. VET organizations and trainers can utilize this module to: • Introduce learners to the core concepts and objectives of Agriculture 4.0. • Facilitate discussions on the practical applications of Agriculture 4.0 principles. • Provide hands-on activities and case studies to reinforce learning. • Incorporate the mentioned tools and technologies into practical training sessions. • Connect the module content to current initiatives and trends in the European context.
Link to module in the platform	https://dgvet.bloo.cloud/courses/introduction-to-agriculture-4-0/

Module info 2_ Digital Green Skills, Green Skills, and training as a starting point for prospective green jobs

Summary	This module emphasizes the need to train and upgrade rural young people for roles in the circular and regenerative economy. It introduces Green Skills for the Digital Age, exploring various skills and competences related to engineering, science, operation management, monitoring, and green knowledge. The module aims to prepare individuals for prospective green jobs by providing training through digital learning resources.
Content Breakdown (Units)	1. **Introduction to Green Skills for the Digital Age:** • Overview of the importance of training for circular and regenerative economy roles. • Description of adapted training materials using micro-learning principles. 2. **Main Objectives:** • Introducing Green Skills and their significance for the creation of green jobs. • Explanation of the term "green skill" and its role in sustainable economic growth. 3. **Engineering and Technical Skills:** • Hard skills related to the design, construction, and assessment of technology. 4. **Science Skills:** • Competences derived from broad bodies of knowledge essential to innovation activities. 5. **Operation Management Skills:** • Know-how related to organizational change to support green activities. 6. **Monitoring Skills:** • Technical and legal aspects of business activities distinct from engineering or science. 7. **Green Knowledge and Skills using Practical Examples:** • Practical examples of tools, mobile applications, platform services, bio-pesticides, fog computing model, and Water Use Efficiency (WUE).
Learning Outcomes	Knowledge of tools for soil health monitoring, mobile applications for agriculture, platform services for farmers' data, bio-pesticides, herbicides, the "Fog computing model," and the importance of Water Use Efficiency (WUE). **Green Skills:** • Discussion on the long-term benefits of greening economies. • Classification of green employment based on skills and tasks related to environmental sustainability. **Skill Index Groups:** • **Engineering and Technical Skills:** • Hard skills for designing, constructing, and assessing technology, crucial for R&D in eco-buildings and renewable energy systems. • **Science Skills:**

	• Competencies derived from extensive knowledge, essential across value chains and utility sectors.
	• **Operation Management Skills:**
	  • Know-how related to organizational change supporting green operations.
	• **Monitoring Skills:**
	  • Technical and legal aspects of business activities distinct from engineering or science.
	Green Knowledge and Skills using Practical Examples:
	• Presentation of initiatives like the H2O Maghreb project, emphasizing market-oriented training in wastewater treatment and water management.
	Methodology – Activities:
	• Links to YouTube videos for additional learning materials.
	Resources:
	• External resources for further exploration and understanding of digital farming and agriculture's connected future.

Practical Applications	1. **Engineering and Technical Skills:**
	  • Application of skills in designing, constructing, and assessing technology for R&D in eco-buildings and renewable energy systems.
	2. **Science Skills:**
	  • Application of competencies derived from extensive knowledge in innovation activities across value chains and the utility sector.
	3. **Operation Management Skills:**
	  • Application of knowledge related to organizational change to support green operations and an integrated vision of the company.
	4. **Monitoring Skills:**
	  • Application of skills in evaluating whether technical requirements and legal standards have been met.
	5. **Green Knowledge and Skills using Practical Examples:**
	  • Practical use of tools for soil health monitoring.
	  • Application of mobile applications for disseminating information about crops and livestock.
	  • Use of platform services for managing farmers' data.
	  • Implementation of bio-pesticides and herbicides in alignment with European legislation.
	  • Understanding and application of the "Fog computing model" and the importance of Water Use Efficiency (WUE).

Tools, Technologies & Resources (if applicable)	1. **Tools:**
	  • Soil monitoring tools.
	  • Mobile applications for agriculture.
	  • Platform services for managing farmers' data.
	  • Bio-pesticides and herbicides.
	2. **Technologies:**
	  • Fog computing model.
	  • Water Use Efficiency (WUE).
	3. **Resources:**
	  • YouTube videos for additional learning materials.
	  • External resources for further exploration of digital farming and agriculture's connected future.

How VET organizations /trainers can use this module to design and implement innovative acceleration programs	This module offers a comprehensive overview of green skills, providing VET organizations/trainers with insights into training methodologies and practical examples. It can be utilized to design targeted programs for young and women NEETs interested in pursuing careers in the circular and regenerative economy. 1. **Strategic Introduction:** • VET organizations can strategically introduce trainers to the Green Skills in the Digital Age module, emphasizing its pivotal role in shaping future green jobs within the circular and regenerative economy. 2. **Practical Skill Reinforcement:** • The module equips trainers to reinforce theoretical learning with practical applications, using interactive tools like case studies, games, and multimedia resources for a hands-on approach. 3. **Industry-Relevant Submodule Emphasis:** • Trainers can tailor programs to focus on the five submodules, emphasizing engineering, science, operation management, monitoring skills, and green knowledge that directly align with industry demands. 4. **Digital Integration for Real-World Simulations:** • Utilizing digital platforms, trainers can create simulated real-world scenarios, allowing learners to practically apply their knowledge in controlled environments, fostering skill development. 5. **Alignment with Current Industry Trends:** • Trainers are prompted to align their programs with current digital trends, ensuring that learners are equipped with skills that meet the evolving demands of the digital and green economy.
Link to module in the platform	https://dgvet.bloo.cloud/courses/perfect-diet-meal-plan-3/

Module info 3_Challenges of today's agriculture that Agriculture 4.0 solve

Summary

The module focuses on addressing the pressing issues in the agriculture sector, particularly the challenges arising from the wheat war, pandemic-related disruptions, and climate change. It emphasizes the need to train and upgrade rural youth, especially women NEETs, for employment in the circular and regenerative economy. The training material adopts a micro-learning approach with multimedia resources to facilitate blended learning.

Content Breakdown (Units)

1. **Introduction:**
   - Highlights the fragility of the global food system.
   - Explores the impact of the wheat war, pandemic, and climate change on food prices and poverty.
2. **Proposed Submodules:**
   - Discusses Agriculture 4.0 as a response to agricultural challenges.
   - Emphasizes the growth of the Agriculture 4.0 market.
   - Introduces the concept of producing more with fewer inputs.
3. **Precision Agriculture (Agriculture 4.0):**
   - Defines Precision Agriculture as a strategy for resource-efficient and sustainable farming.
   - Discusses the potential benefits, including higher yields and reduced resource usage.
   - Cites real-world examples of smart technologies like parallel drive tractors.
4. **Traceability and Transparency:**
   - Addresses disruptions in the supply chain due to conflicts.
   - Advocates for the use of technology for traceability and transparency.
   - Highlights the Farm to Fork Strategy and its relevance.
5. **IoT Devices and Real-Time Monitoring:**
   - Explains the role of IoT devices in monitoring grain stocks and real-time data collection.
   - Discusses the importance of real-time monitoring for food security.
   - Gives examples of IoT applications in agriculture globally.
6. **Machine Learning in Agriculture:**
   - Explores the role of ML in addressing agricultural challenges.
   - Discusses data acquisition, pre-processing, and classification as fundamental steps.
   - Highlights the potential of big data in transforming agriculture.
7. **Industry 4.0 and Agriculture:**
   - Examines the impact of Industry 4.0 on job creation and equalities.

- Addresses challenges and uncertainties in implementing Industry 4.0 in industrial enterprises.

Learning Outcomes

By the end of this module, learners will:

- Understanding the vulnerabilities of the global food system.
- Familiarity with Agriculture 4.0 concepts and its potential benefits.
- Knowledge of Precision Agriculture and its applications.
- Awareness of traceability, transparency, and the Farm to Fork Strategy.
- Insights into the role of IoT and real-time monitoring in agriculture.
- Understanding the application of machine learning in addressing agricultural challenges.
- Awareness of the impact of Industry 4.0 on job structures and societal equality.

Practical Applications

- Implementing Precision Agriculture techniques for resource-efficient farming.
- Adopting traceability and transparency measures in supply chain management.
- Integrating IoT devices for real-time monitoring of agricultural processes.
- Applying machine learning tools for data-driven decision-making in agriculture.
- Assessing the implications of Industry 4.0 in job creation and societal equality.

Tools, Technologies & Resources (if applicable)

Tools, Technologies & Resources:

- Precision farming tools and sensors.
- IoT devices for real-time monitoring.
- Machine learning algorithms for data analysis.
- Agricultural big data analytics platforms.
- Industry 4.0 technologies for job creation and equality.
- Introduce learners to the concepts of Agriculture 4.0 and Industry 4.0.
- Facilitate hands-on activities with precision farming tools and IoT devices.
- Encourage practical applications of machine learning in agriculture.
- Foster discussions on the societal implications of Industry 4.0 in the agriculture sector.
- Align the module with current trends and initiatives in the European context.

How VET organizations /trainers can use this module to design and implement innovative acceleration programs	This module offers a comprehensive overview on how to trin critical thing to challenges Agriculture 4.0 is currently facing and it would assist VET trainers to: • Introduce learners to the concepts of Agriculture 4.0 and Industry 4.0. • Facilitate hands-on activities with precision farming tools and IoT devices. • Encourage practical applications of machine learning in agriculture. • Foster discussions on the societal implications of Industry 4.0 in the agriculture sector. • Align the module with current trends and initiatives in the European context.
Link to module in the platform	https://dgvet.bloo.cloud/courses/camarabelux/

Module info 4_Challenges of technology in agriculture

Summary	Module 4 addresses the challenges and opportunities presented by technology in agriculture. It covers the digital divide, large investments required, Climate-Smart Agriculture (CSA), food waste, and data collection. The goal is to equip young individuals with the knowledge to navigate and contribute to a technologically advanced agricultural sector.
Content Breakdown (Units)	1. **Digital Divide:** Focuses on the lack of digital education among farmers, exploring disparities, and emphasizing the importance of digital literacy for improved productivity and working conditions. 2. **Large Investment in Infrastructure:** Discusses the financial challenges hindering the adoption of new technologies, emphasizing the economic benefits and the need for global investment in agriculture. 3. **Climate-Smart Agriculture (CSA):** Examines the impact of climate change on agriculture, introduces CSA principles (mitigation, adaptation, productivity), and showcases global examples of countries implementing CSA. 4. **Food Waste:** Explores the complexities of food waste, differentiates between loss and waste, identifies causes, and suggests technological solutions, highlighting the environmental and economic implications. 5. **Data Collection:** Examines the role of data in addressing agricultural challenges, introduces technologies like GPS, GIS, drones, and sensors, and emphasizes the benefits of data-driven decision-making.
Learning Outcomes	By the end of this module, learners will: 1. **Digital Divide:** • Understand the disparities in digital literacy. • Recognize the importance of technology in improving farming conditions. • Identify strategies to bridge the digital divide. 2. **Large Investment in Infrastructure:** • Comprehend the economic benefits of technological advancements in agriculture. • Analyze challenges related to infrastructure investment. • Explore potential solutions for financing. 3. **Climate-Smart Agriculture (CSA):** • Grasp the principles of CSA. • Recognize the significance of CSA in addressing climate change. • Identify countries successfully implementing CSA practices. 4. **Food Waste:** • Understand the causes of food waste in agriculture. • Explore technologies mitigating food waste. • Recognize the environmental and economic impact of food waste. 5. **Data Collection:** • Recognize the importance of data in agriculture. • Identify technologies used for data collection. • Understand the practical benefits of data-driven farming.

Practical Applications	• **Digital Divide:** Implement digital literacy programs for farmers. Develop apps or platforms providing easy access to relevant agricultural information. • **Large Investment in Infrastructure:** Collaborate with financial institutions for funding programs. Facilitate workshops on economic benefits of technology adoption. • **Climate-Smart Agriculture (CSA):** Organize workshops on implementing CSA practices. Facilitate knowledge-sharing platforms among farmers. • **Food Waste:** Promote awareness on responsible consumer habits. Introduce apps connecting farmers with markets to reduce overproduction. • **Data Collection:** Conduct training on using data-driven technologies. Develop partnerships with tech companies for affordable access to data tools.
Tools, Technologies & Resources (if applicable)	• Digital literacy apps/platforms. • Investment planning and financial literacy tools. • CSA implementation guidelines and case studies. • Food waste tracking apps. • Data collection tools and training resources.
How VET organizations /trainers can use this module to design and implement innovative acceleration programs	This module empowers VET organizations and trainers to create holistic, practical, and innovative programs that prepare individuals for the evolving landscape of technology in agriculture. • **Design Acceleration Programs:** Tailor programs addressing digital literacy, financial planning, CSA implementation, and data-driven farming. • **Interactive Workshops:** Conduct workshops using case studies, interactive technologies, and real-world examples. • **Tech Collaborations:** Foster partnerships with tech companies to provide hands-on experience with cutting-edge agricultural technologies. • **Resource Development:** Create guides, tutorials, and toolkits for practical application in agricultural settings. • **Networking Opportunities:** Facilitate connections between learners and industry experts, creating a supportive ecosystem for knowledge exchange.
Link to module in the platform	https://dgvet.bloo.cloud/courses/perfect-diet-meal-plan-2/

Module info 5_Technologies used in Agriculture 4.0

Summary	Module 5 provides a comprehensive exploration of cutting-edge technologies in agriculture, covering Agricultural Drones, Irrigation Controllers, Aeronautical Meteorology, and Agricultural Sensors. Learners will gain insights into the types, applications, and regulations surrounding these technologies, fostering a deep understanding of how they contribute to modern farming practices.
Content Breakdown (Units)	1. **Introduction to Agricultural Drones** • Overview of drones in agriculture • Types of drones: Fixed-wing vs. Multi-rotor • Selection criteria based on tasks and regulations 2. **UAS Regulation in the EU** • Open, Specific, and Certified categories • Subcategories A1, A2, A3 • Requirements for remote pilots and drone classes 3. **Basic Navigation in Drone Operation** • Drone controls: Roll, Pitch, Yaw, Throttle • Human limitations and their impact on drone operations • Aeronautical meteorology for drone flights 4. **Irrigation Controller Technologies** • Surface, Sprinkler, and Drip Irrigation methods • Automation in irrigation: Benefits and challenges • Developing an automatic irrigation system 5. **Agricultural Sensors and GPS Tracking Devices** • Types of sensors: Optical, Electrochemical, Mechanical, Dielectric • Role of location sensors and electronic sensors • Introduction to Agriculture Sensors IoT
Learning Outcomes	By the end of this module, learners will: 1. Understand the characteristics of different agricultural drones and select the appropriate type for specific tasks. 2. Navigate through EU regulations for drone operations, distinguishing between open, specific, and certified categories. 3. Demonstrate proficiency in basic drone navigation and recognize the impact of human limitations on drone operations. 4. Evaluate irrigation methods and implement automated irrigation systems based on farm needs. 5. Identify the types and applications of agricultural sensors and GPS tracking devices, promoting precision agriculture.

Practical Applications	• **Precision Farming:** Implementing drone technology for precise mapping and 3D modeling of farms. • **Automated Irrigation:** Applying knowledge to develop and implement automatic irrigation systems for optimal water management. • **Regulatory Compliance:** Ensuring adherence to EU regulations when operating drones in agricultural settings. • **Weather-Informed Farming:** Utilizing aeronautical meteorology data for informed decision-making in agriculture.
Tools, Technologies & Resources (if applicable)	• **Drone Mapping Software:** To create topographical maps and 3D models. • **Automatic Irrigation Systems:** Various tools and devices for automating irrigation processes. • **Weather Forecast Apps:** Accessing real-time weather information for aeronautical meteorology. • **Agricultural Sensors and GPS Devices:** Implementing precision agriculture technologies.
How VET organizations /trainers can use this module to design and implement innovative acceleration programs	VET organizations and trainers can leverage this module to: • Offer practical training on operating different types of agricultural drones. • Provide insights into compliance with EU regulations in the agriculture sector. • Conduct hands-on sessions on designing and implementing automated irrigation systems. • Introduce learners to the application of sensors and GPS devices in precision agriculture. • Facilitate discussions on the practical challenges and benefits of integrating modern technologies into agricultural practices.
Link to module in the platform	https://dgvet.bloo.cloud/courses/akmi/

Module info 6_The future of technology in Agriculture 4.0

Summary	Module 6 explores the integration of Artificial Intelligence (AI) in Agriculture 4.0. Beginning with a historical perspective on AI, the module delves into its evolution, from philosophical roots to contemporary applications. The discussion centers on the role of AI in addressing the challenges of modern agriculture, emphasizing the need for increased efficiency and productivity. The module also categorizes AI, explores its subsets, and outlines the AI life cycle. Practical applications in agriculture, such as intelligent chemical spraying and predictive analytics, are highlighted. The advantages of employing AI in agriculture, including optimized resource utilization and disease identification, are discussed. The module concludes by emphasizing the transformative impact of AI on the agricultural sector.
Content Breakdown (Units)	1. **Historical Evolution of AI** • Classical roots to Alan Turing's question. • Popularization by John McCarthy. • Symbolic approaches and early investigations. 2. **Role of AI in Modern Agriculture** • Impact of population growth on farming. • Limitations of traditional technologies. • The imperative for innovative strategies. 3. **Categories and Subsets of AI** • Weak AI, General AI, and Super AI. • Reactive Machines, Limited Memory, Theory of Mind, and Self-Awareness. 4. **AI Applications in Agriculture** • Intelligent chemical spraying for cost savings. • Predictive analytics for informed decision-making. • Robotic harvesting to address workforce shortages. 5. **Advantages of AI in Agriculture** • Optimized resource exploitation. • Disease identification and management. • Enhanced crop yield and quality.
Learning Outcomes	Upon completing this module, participants will: 1. Understand the historical evolution of AI and its relevance to modern agriculture. 2. Comprehend the impact of technology on farming practices and the limitations of traditional approaches. 3. Categorize and differentiate between types of AI, recognizing their applications in agriculture.

	4. Evaluate practical applications of AI in agriculture, including intelligent chemical spraying and predictive analytics. 5. Recognize the advantages and transformative potential of AI in optimizing resource utilization and enhancing crop management.
Practical Applications	• **Precision Agriculture Programs:** Implement AI-driven precision agriculture programs for VET learners, focusing on data-driven decision-making in crop management. • **AI-Based Crop Disease Identification:** Develop training modules on utilizing AI for crop disease identification, emphasizing the role of technology in sustainable agriculture. • **Simulation of Robotic Harvesting:** Create practical simulations or hands-on experiences demonstrating the use of AI in robotic harvesting, addressing the evolving workforce landscape.
Tools, Technologies & Resources (if applicable)	• **AI Development Platforms:** Introduce learners to platforms like TensorFlow or PyTorch for AI model development. • **Agricultural Data Sets:** Provide access to agricultural datasets for hands-on experience in AI applications. • **Virtual Labs:** Utilize virtual labs for simulating AI applications in agriculture, offering a risk-free learning environment.
How VET organizations /trainers can use this module to design and implement innovative acceleration programs	VET organizations and trainers can utilize this module to design and implement innovative acceleration programs by: 1. **Integrating Practical Workshops:** Incorporate hands-on workshops where learners apply AI in simulated agricultural scenarios. 2. **Collaborating with Industry Partners:** Facilitate partnerships with agricultural tech companies for real-world exposure and potential internships. 3. **Fostering Critical Thinking:** Encourage critical thinking by challenging learners to propose AI solutions for specific agricultural challenges. 4. **Showcasing Success Stories:** Share case studies of successful AI implementations in agriculture, inspiring learners and providing tangible examples.
Link to module in the platform	https://dgvet.bloo.cloud/courses/squaredev/

Module info 7_Climate change mitigation and induced structural adjustment in the markets for labour

Summary	Module 7 focuses on the intricate relationship between climate change mitigation efforts and induced structural adjustments in labor markets. The module consists of five submodules that delve into various aspects, including adjustments in labor markets, the concept of green jobs, risks and benefits of induced structural adjustments, the impact of climate change mitigation on the agricultural sector, and a state-of-the-art analysis with a future outlook.
Content Breakdown (Units)	**1 Adjustment in the Markets for Labour** • Overview of climate change mitigation policy impact on labor markets. • Analysis of changes in job market dynamics due to policies. • Short, medium, and long-term perspectives on job changes. **2 Green Jobs** • Definition and significance of "green jobs." • Exploration of sectors contributing to green jobs. • Discussion on OECD/Eurostat's definition of green jobs. • Analysis of the proportion of green jobs in total employment. **3 Risks, Benefits, and Needs** • Examination of benefits and risks of induced structural adjustments. • Identification of skills needed in the green and digital economy. • Analysis of climate policies on job demand and supply. • Exploration of a "Just Transition" for equitable job outcomes. **4 Climate Change Mitigation and Agriculture** • Rationale for addressing climate change in agriculture. • Recognition of agriculture's dual role in climate change. • Exploration of mitigation strategies in agriculture. • Analysis of potential job creation in the sector. **5 State of the Art and Future Outlook** • Evaluation of current impact of climate change mitigation on employment. • Projection of future employment trends in renewable energy and agriculture. • Assessment of policy interventions in managing the green transition. • Exploration of challenges and opportunities in the transition. • Consideration of interlinkages between green and digital transitions.
Learning Outcomes	By the end of this module, learners will: • Understand the impact of climate change mitigation and induced structural adjustments on labor markets. • Recognize the importance of acquiring green and digital skills for enhanced employability.

	• Explore the various ways in which labor markets adapt to climate policies. • Comprehend the creation, substitution, elimination, and transformation of jobs in the context of climate change mitigation. • Identify sectors with the potential for job creation and understand the implications for labor markets. • Grasp the concept of "green jobs" and their significance in the context of climate change mitigation. • Analyze the benefits, risks, and needs associated with climate change mitigation and induced structural adjustments in the labor market. • Explore the impact of climate change mitigation on the agricultural sector and its potential for job creation.
Practical Applications	By the end of this module, learners will: • Develop insights into the changing landscape of labor markets due to climate change mitigation policies. • Understand the skill sets required for emerging green jobs and their role in a sustainable economy. • Explore the potential for job creation in the agricultural sector through climate change mitigation. • Gain knowledge about policy interventions and strategies for managing employment transitions in the context of green growth.
Tools, Technologies & Resources (if applicable)	• Interactive climate opportunity map • Video resources on climate change mitigation • Interactive quizzes on green jobs • Graphs and charts illustrating environmental job trends
How VET organizations /trainers can use this module to design and implement innovative acceleration programs	This module aims to equip young NEETs with a comprehensive understanding of the labor market dynamics influenced by climate change mitigation efforts, fostering a proactive approach to acquiring skills for a sustainable future. • Design training programs focusing on green and digital skills development. • Facilitate discussions on the implications of climate change mitigation for labor markets. • Provide resources and tools for understanding the evolving job landscape. • Offer practical insights into the agricultural sector's role in climate change mitigation and job creation. • Engage learners through interactive activities such as quizzes and maps to enhance understanding

Link to module in the platform	https://dgvet.bloo.cloud/courses/dg-vet-mts/

Module info 8_Digital Farming Driving productivity and a more sustainable way of farming

Summary	This module on digital Farming addresses current agricultural challenges through sustainable practices and technology integration. The module explores Sustainable Farm Management, Knowledge Services, Digital Farmer Profiling, Technology in Agriculture, and Water Use Efficiency.
Content Breakdown (Units)	**1. Sustainable Farm Management** • Introduction to sustainable agriculture. • Integration of Industry 4.0 in precision agriculture. • Principles of Holistic Management. 2. **Knowledge and Information Services** • Mobile applications for weather, pest diagnosis, and farm information. • Role of Knowledge Management and Expert Systems. 3. **Digital Farmer Profiling Platforms and Services** • Blockchain-based platforms for data sharing. • Examples: CGIAR, i2i Data Portal, Smallholder Finance Explorer, GODAN. 4. **Digital Technology and Sustainable Agriculture** • "Fog computing model" for cleaner and energy-efficient agriculture. • Introduction to organic pesticides. 5. **WUE (Water Use Efficiency/Effectiveness)** • Definition, formula, and importance in irrigation.
Learning Outcomes	By the end of this module, learners will: • Understand sustainable farm practices and Industry 4.0 integration. • Use mobile apps for weather, pest diagnosis, and farm information. • Utilize blockchain-based platforms for data sharing. • Apply "Fog computing model" and knowledge of organic pesticides. • Recognize the importance of Water Use Efficiency in irrigation.
Practical Applications	• Implement precision agriculture using Industry 4.0 technologies. • Utilize mobile apps for real-time weather and pest management. • Incorporate blockchain for secure farmer data sharing. • Integrate "Fog computing model" for energy-efficient farming. • Apply Water Use Efficiency principles in irrigation.

Tools, Technologies & Resources (if applicable)	• Industry 4.0 technologies (IoT, AI, Big Data). • Mobile applications (Meghdoot, riceXpert, Crop Doctor). • Blockchain platforms (CGIAR, i2i Data Portal). • "Fog computing model" for sustainable computing. • Organic pesticides (Neem, Nicotine Sulphate, Sabadilla, Rotenone, Pyrethrum).
How VET organizations /trainers can use this module to design and implement innovative acceleration programs	VET organizations and trainers can utilize this module to design and implement innovative acceleration programs by implementing: 1. **Curriculum Development:** • Integrate digital farming principles into VET agricultural programs. • Emphasize Industry 4.0 technologies and sustainable practices. 2. **Practical Training:** • Use mobile apps and blockchain platforms in training simulations. • Conduct hands-on sessions on implementing the "Fog computing model." 3. **Collaboration:** • Foster partnerships with agriculture and tech industries for real-world insights. • Encourage students to participate in blockchain-based agricultural projects. 4. **Research Projects:** • Engage students in research on the impact of digital farming on traditional practices. • Facilitate projects applying Water Use Efficiency principles in local contexts.
Link to module in the platform	https://dgvet.bloo.cloud/courses/perfect-diet-meal-plan/

Piloting Activities Report

The main purpose of this part of the toolbox is to explore the feedbacks received from the piloting activities of the project which aimed at understanding the learning experience from VET trainers and VET learners through the e-learning platform.

Methodology

Data for this report were sourced from two questionnaire sets – one for VET trainers and the other for VET NEET learners. These questionnaires included multiple-choice and open-ended questions covering

various aspects of the DGVET pilot activities. The analysis focuses on identifying key themes, challenges, and opportunities, comparing the perspectives of both respondent groups.

The target was 20 VET trainers from each country (140 in total) and 30 young women / NEET from each country (210 in total). The partnership reached out to the target groups and explored the possibility to participate in the e-learning platform and provide their feedback.

Evaluation from VET trainers

The DG VET Piloting Evaluation Questionnaire was designed to assess the effectiveness of the DG VET training program from the perspective of VET Trainers. The questionnaire comprised a series of 18 questions that covered various aspects of the training platform, including content adequacy, user experience, learning outcomes, and the program's impact on employability opportunities.

Demographics

Respondents were from various countries including Belgium, Cyprus, Austria, Bulgaria, Spain, Greece, and others, reflecting a diverse geographical representation.

Questions

Respondents were invited to answer questions related to the user-friendliness and quality of the platform, and to reflect on whether the time spent on the platform was well-aligned with their learning needs. They were also asked to evaluate the learning outcomes of specific modules and to evaluate the forum for peer engagement, and the effectiveness of its E2E matchmaking tool in surfacing job opportunities. Crucially, question 18 assessed the perceived impact of DG VET training on future employability chances.

Key results

Table 1: Responses Summary for Platform Usability and Design

QUESTION	YES	NO
Q2. Curriculum Adequacy	92.5%	7.5%
Q3. Platform User-friendliness	84.2%	15.8%
Q4. Satisfaction with Platform Quality	89%	11%
Q5. Adequate Time Allocation	93%	7%

Table 2: Responses Summary for Learning Outcomes

Modules	Satisfaction from 1-5				
	=1	=2	=3	=4	=5
1	4.8%	0.7%	8.9%	28.8%	56.8%

2	3.4%	2.1%	6.8%	31.5%	56.2%
3	3.4%	2.1%	9.6%	24.7%	60.3
4	3.4%	2.1%	9.6%	24.7%	60.3%
5	4.1%	2.1%	7.5%	24.0%	62.3%
6	3.4%	2.1%	6.8%	29.5%	58.2%
7	4.1%	0.7%	8.9%	24.0%	62.3%
8	3.4%	1.4%	7.5%	25.3%	62.3%

Table 3: Responses Summary for Platform Features and Opportunities

FEATURE	YES	NO
Q15. Insightful knowledge	93.8%	6.2%
Q16. Forum Engagement	88.4%	11.6%
Q17. E2E Matchmaking Tool	83.6%	16.4%

Evaluation from young / women and NEETS

The questionnaire aimed to assess various aspects of the user experience, satisfaction, and content relevance of the platform. The learners were asked to provide their feedback in a set of 18 questions, both open questions and multiple choice.

Demographics

The demographic spread of the respondents was geographically diverse, encompassing the DGVET countries but at the same time explored potentials of including people from different areas and regions. This diversity offers a broad perspective on the platform's reception across different cultural and regional contexts.

Questions

Like the VET trainers' responses, the questionnaire consisted of a set of questions designed to evaluate the platform in a number of ways. It started by determining if people thought the content was appropriate and evaluating the suitability of the selected topics (Q2). The platform's user-friendliness (Q3) was the next area of focus, with the goal of gaining understanding of how simple and understandable it is. The satisfaction with the platform's quality and design (Q4), which considered both the functional and aesthetic aspects, was then inquired about. Inquiry into time efficiency (Q5) was another aspect of the questionnaire that tested users' perceptions of how much time was appropriate for using the platform. Respondents had the chance to submit in-depth comments and draw attention to any topics not addressed in the structured questions during an open-ended portion (Q6). A scoring scale was utilized to assess the issues' relevancy (Q7) and determine how applicable the content was. Finally, 'Digital Green Skills and training' (Q8) was singled out for attention to receive

focused input on this subject. This extensive list of inquiries sought to assess the platform comprehensively and from several angles.

Key Results

Table 1: Responses Summary for Platform Usability and Design

QUESTION	YES	NO
Q2. Curriculum Adequacy	93%	7%
Q3. Platform User-friendliness	86.3%	13.7%
Q4. Satisfaction with Platform Quality	91.8%	8.2%
Q5. Adequate Time Allocation	92.3%	7.7%

Table 2: Responses Summary for Learning Outcomes

Modules	Satisfaction from 1-5				
	=1	=2	=3	=4	=5
1	3.8%	0.5%	5.5%	29.0%	61.2%
2	2.7%	1.6%	7.1%	28.4%	60.1%
3	2.7%	1.6%	7.1%	27.9%	60.7%
4	3.3%	1.6%	8.2%	31.1%	55.7%
5	3.28%	2.19%	6.01%	27.32%	61.20%
6	2.7%	1.6%	6.0%	28.4%	61.2%
7	3.3%	0.5%	8.2%	27.9%	60.1%
8	2.7%	1.1%	7.1%	26.2%	62.8%

Table 3: Responses Summary for Platform Features and Opportunities

Feature	YES	NO
Q15. Insightful knowledge	94.5%	5.5%
Q16. Forum Engagement	889.1%	10.9%
Q17. E2E Matchmaking Tool	88%	12%

Policy Briefs for the promotion and wider establishment of initiatives for the provision of Digital and Green Economy training courses and programs

Introduction

This policy brief highlights the critical importance of promoting training courses in Agriculture 4.0, focusing on integrating technology for sustainable farming. Aimed at empowering rural youth, especially women NEETs, this training is essential for adapting to the rapidly evolving agricultural landscape, marked by technological advancements and the pressing need for sustainable practices.

Two major forces are driving the current transformation of the agriculture sector: the quick advancement of technology and the pressing need to combat climate change. "Agriculture 4.0," a notion that combines cutting-edge digital technologies with environmentally friendly farming methods, has emerged as a result of this shift, changing the way we handle and produce food. In this regard, offering training in Agriculture 4.0 is a deliberate investment in the long-term sustainability and resilience of the agriculture sector, not just a reaction to a changing business.

This training ensures that the agriculture industry not only adjusts to these changes but thrives in an ecologically conscious and technologically sophisticated landscape by giving farmers and agricultural professionals the skills and information needed to navigate and take advantage of these improvements.

Challenges and Opportunities:

- Identifying the current lack of adequately trained professionals in digital and green economy sectors.
- Highlighting how skilled workers in these areas can drive both economic growth and environmental sustainability.

Importance of Training Courses in Agriculture 4.0:

The curriculum created for digital-age skill development takes a holistic approach to meeting the demands and difficulties of contemporary agriculture. This multifaceted approach addresses a range of factors that are critical to the industry's progress. The course modules, which cover everything from sophisticated digital agricultural technology to fundamental Agriculture 4.0 principles, form the foundation of the curriculum.

These programs are carefully designed to give students the fundamental knowledge and abilities needed in modern agriculture. This includes an in-depth understanding of **AI applications**, precision farming techniques, and Climate-Smart Agriculture practices, ensuring that learners are well-prepared to navigate and innovate in the technologically advanced landscape of modern agriculture.

A key focus of the program is the Empowerment of Rural Youth and Women. This initiative ensures inclusive growth and diversity in the agricultural workforce, specifically targeting rural youth and women NEETs. This kind of strategy is essential for supporting international initiatives aimed at empowering women and marginalized groups in the agriculture sector.

The training in Agriculture 4.0 is a direct response to urgent global concerns including food security, climate change adaptation, and sustainable resource management. It goes beyond simple education. The curriculum prepares individuals to tackle these significant challenges with innovative and practical solutions, contributing to a more resilient and sustainable future.

In terms of Economic Growth and Job Creation, the training plays a critical role. By equipping learners with cutting-edge skills and knowledge, the program fosters job creation in new and emerging areas of agriculture. This contributes substantially to economic growth by enabling more efficient, productive, and sustainable farming practices, which are essential in the modern context.

The program also places a strong emphasis on encouraging resilient and sustainable agricultural practices. To mitigate the effects of climate change and ensure long-term food security, this component of the training is essential. By emphasizing resilient and sustainable methods, the curriculum creates the foundation for future farming techniques that are both economically and environmentally sound.

Finally, the enhancement of Agricultural Productivity and Efficiency is a significant outcome of the training. With a strong emphasis on technological integration, the program not only enhances agricultural productivity but also improves efficiency, leading to reduced waste and maximized output. This technological integration is key to transforming traditional agricultural practices into more advanced, efficient, and sustainable operations.

In summary, this holistic training approach in Agriculture 4.0 encapsulates the essentials of skill development for the digital age, empowerment of key demographic groups, response to global challenges, economic growth, and the promotion of sustainable and efficient agricultural practices. This comprehensive curriculum is designed not only to educate but also to innovate and transform the agricultural landscape.

General Policy Recommendations

First, **funding and support from the government are essential**. Governments need to fund Agriculture 4.0's training initiatives with priority and acknowledge the technology's strategic significance. Food

security on a national and international scale is facilitated by this support, which is essential to the agricultural sector's growth and sustainability.

Secondly, it is impossible to exaggerate the importance of public-private partnerships. Training programs can be more comprehensive and effective when government, business, and educational institutions work together. These kinds of collaborations are necessary to integrate real-world knowledge with academic understanding, which enhances the educational process and guarantees that the instruction is applicable to the demands of the modern workforce.

Furthermore, **Accessibility and Inclusion** must be a cornerstone of these initiatives. It is imperative to ensure that Agriculture 4.0 training programs are accessible to everyone, especially focusing on rural communities, women, and marginalized groups. This inclusive approach will not only foster equitable development but also harness diverse talents and perspectives in agriculture. Integrating Agriculture 4.0 into **Existing Educational Curricula** is another critical step. Incorporating these concepts into educational programs at various levels will help build a strong foundation of knowledge and skills from an early age. This integration is key to preparing future generations for a technologically advanced agricultural sector.

Continuous Learning and Skill Updating is also essential in an industry characterized by rapid technological advancements. It is imperative to ensure that Agriculture 4.0 training programs **are accessible to everyone**, especially focusing on rural communities, women, and marginalized groups. This inclusive approach will not only foster equitable development but also harness diverse talents and perspectives in agriculture. Thus, there is a high need for more attention on the inclusion and exclusion effects of Agriculture 4.0 technologies and responsible innovation processes (Klerkx & Rose, 2020).

Encouraging **lifelong learning and regular skill enhancement** among agricultural professionals will ensure they remain adept and adaptable to new technologies and methods in agriculture. Zhai et al. (2020) explore the challenges of employing agricultural decision support systems in Agriculture 4.0, suggesting the need for continuous learning and improvement in the agricultural sector (Zhai, Martínez, Beltran, & Martínez, 2020).

Lastly, Global Collaboration and Knowledge Sharing are fundamental for the growth and evolution of Agriculture 4.0 training. Fostering **international partnerships will facilitate the sharing of knowledge**, innovative ideas, and best practices. Such global exchange is vital for enhancing training programs and contributing to the advancement of agricultural practices worldwide.

Implementing these policy recommendations will significantly strengthen Agriculture 4.0 training programs, leading to a more skilled agricultural workforce, innovative practices, and a more secure, sustainable future for global food systems.

Specific Recommendations for VET institutions:

In the field of Agriculture 4.0 education, educating students for the future of farming requires a dynamic and multifaceted approach. In order to ensure alignment with current market trends and technological advancements, curriculum that contain the latest issues in Agriculture 4.0 must be developed and continuously refined. Investing in **cutting-edge training facilities** that imitate authentic agricultural settings and are outfitted with the newest technology is equally significant.

With this configuration, students can learn the instruments and methods of Agriculture 4.0 in a real-world, **hands-on setting.** It is imperative that we **strengthen the connection between academia and industry** by forming alliances with farms and agricultural technology businesses. These relationships can offer students invaluable chances for hands-on learning, internships, and eventually employment.

Specific Recommendations for VET educators:

In the rapidly changing field of Agriculture 4.0, teachers **must never stop learning.** It is imperative to remain current with emerging technology and techniques, and participating in ongoing professional development makes this possible. In addition, **implementing student-centered teaching strategies** that encourage problem-solving, critical thinking, and practical learning is essential to enhancing the impact and engagement of the educational process.

In order to enhance practical problem-solving skills, this approach is supplemented by creating **a collaborative learning environment** where team projects and group activities are meant to mimic real-world agricultural difficulties. The establishment of a strong feedback and assessment mechanism is also essential. In addition to aiding in evaluating the training programs' efficacy, this kind of system offers crucial insights for **ongoing development**, guaranteeing that the educational options continue to stay current and successful in preparing students for the challenges of contemporary agriculture.

Specific Recommendations for Policy Makers:

A **diversified strategy** is necessary for the successful implementation of Agriculture 4.0 training programs in Vocational Education and Training (VET) institutions. To begin with, these institutions **need financial support and incentives** in order to create and implement such innovative programs. In addition, **a thorough policy framework** is required that not only promotes but also makes it easier for Agriculture 4.0 concepts to be smoothly incorporated into vocational training courses. Involving a

variety of stakeholders is essential for ensuring that training programs are in line with both present industry demands and emerging trends.

This is achieved by **establishing forums for discussion among educators, business executives, and legislators.** Ensuring equity and accessibility is essential; in order to foster inclusivity, these programs must be available to students from all backgrounds, especially those from underserved or rural areas. Maintaining high standards of quality in these programs is crucial to **fulfilling industry demands** and winning employers' respect. Furthermore, these programs can be made much better and more relevant by encouraging **a culture of research** and innovation in Agriculture 4.0 teaching and training approaches. Ultimately, the results of these initiatives may be assessed by putting in place **a strong monitoring and evaluation system**, and the knowledge gathered from these assessments is crucial for guiding future policy and practice. With this all-encompassing strategy, training programs for Agriculture 4.0 are certain to be inclusive, effective, and at the forefront of both industry and education.

Conclusions

In conclusion, investing in Agriculture 4.0 training is essential for building a resilient, sustainable, and technologically advanced agricultural sector. It empowers individuals, to be at the forefront of agricultural innovation, ensuring food security and environmental sustainability for future generations. A multimodal strategy that includes strong public-private partnerships, government funding and support, and a strong emphasis on accessibility and inclusivity is critical to the progress and efficacy of Agriculture 4.0 training programs.

Building a skilled and forward-thinking agricultural workforce requires incorporating Agriculture 4.0 into current curricula and placing a strong emphasis on ongoing education and skill development. Global cooperation and information exchange also significantly contribute to the enrichment of these training programs by combining a variety of innovations and experiences. Agriculture 4.0 training can improve agricultural sustainability and production by focusing on these important areas. It can also make sure that the agricultural industry is resilient and adaptable to changing global conditions and rapid technological improvements.

Literature and further reading

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Co-funded by the Erasmus+ Programme of the European Union