



3.1 Train the Trainers Materials

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Authors	Norbert Edomah (PAU); Abiola Bamigboye (PAU), Iva Perkovic (MUNDUS), Benedetta Cassarini (CNOS-FAP)
Reviewers	Claudia Gioitti (AREA), Adriano Mauro (AREA), Ademola Elizabeth (LAWMA)
Abstract	This deliverable provides a summary of activities that led to the development of the train-the-trainer program for the GreenVETAfrica project. We started off from the results of the skills gap analysis (deliverable 2.3) to develop a curriculum that addresses the identified skill gaps on waste management which then fed into the development of the training programme to address the skill gaps. This deliverable is focused on addressing the skill needs of the trainers in VET institutions to enable them to train other VET students on the essential skills of green waste management.
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PU	Public, fully open, e.g. web	PU
CL	Classified, information as referred to in Commission Decision 2001/844/EC	
CO	Confidential to GreenVETAfrica project and Commission Services	

* **R:** Document, report (excluding the periodic and final reports)

DEM: Demonstrator, pilot, prototype, plan designs

DEC: Websites, patents filing, press & media actions, videos, etc.

OTHER: Software, technical diagram, etc.

EXECUTIVE SUMMARY

The Train-the-Trainers program for Green Waste Management embodies a forward-thinking approach to vocational education, with results promising to elevate the quality and relevance of technical and vocational skills training. It acknowledges the influential role of trainers in shaping the outcome of education and vocational competence. The motivation for this transformation arises from the dynamic nature of vocational education and the pivotal role of teachers in this process.

The program is supported by extensive research, emphasizing the importance of enhancing the professionalism and skill levels of VET teachers and trainers to meet the evolving needs of the industry. A blend of innovative pedagogical methods and the integration of educational media and technology offers flexible and engaging avenues to capture the attention of today's tech-savvy youth.

The research highlights the transformative impact of technology in education, motivating the integration of digital tools and inventive pedagogical strategies to enhance learner engagement and participation. The program adopts a blended learning approach, modernizing and digitizing VET programs to align with the expectations and learning preferences of contemporary students. As a comprehensive response to the identified needs, the program focuses on pedagogical upskilling, digital pedagogy, Green Waste Management education and provides guidelines for aspiring entrepreneurs. It acknowledges the scarcity of pedagogical training opportunities for teaching staff and offers a five-pronged training strategy to bridge this gap.

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ABBREVIATIONS

AR	Augmented Reality
Q&A	Question & Answers
SME	Small Medium Enterprise
ToT	Train of Trainers
VET	Vocational Educational Training
VR	Virtual Reality
WBL	Work Based Learning
WP	Work Package

1. INTRODUCTION

The creation of the Train-the-Trainers program for Green Waste Management is a resolute response to bridge the significant skills gap within the realm of vocational education in the green waste management sector in Nigeria and Ghana. It is not merely a reaction that the skill gaps were identified in Work Package 2, but a meticulously crafted initiative informed by comprehensive needs assessments. In an era of rapid industry evolution and educational transformation, it stands as an unequivocal commitment to empower educators with the competencies essential in the dynamic landscape of waste management.

This program is inherently research-driven, underpinned by the latest insights in vocational education and the integration of technology in modern learning. It seamlessly integrates findings from recent needs assessment evaluations conducted for educators in Nigeria and Ghana, embracing best practices and pioneering pedagogical strategies. The revolution in pedagogy and content delivery is a deliberate response to the evolving educational environment, shaped by both tradition and innovation.

At its heart, the program recognises the profound technological acumen of contemporary learners. It capitalizes on this proficiency by combining traditional teaching approaches with cutting-edge digital tools and multimedia. This synthesis makes learning captivating and relevant, adhering to the preferences and expectations of today's students. Far from offering a one-size-fits-all solution, the program takes a nuanced approach, addressing distinct facets including pedagogical upskilling, digital pedagogy, micro-entrepreneurship foundation to deliver training on Green Waste Management. Each component is thoughtfully customized to target precise needs and challenges, ensuring a well-rounded approach to vocational education enhancement.

In this light, the Train-the-Trainers program emerges as a meticulously designed and forward-looking educational endeavour that seeks to transform vocational education, while nurturing educators who can inspire and educate the next generation of waste management professionals and entrepreneurs.

2. PROGRAMME FRAMEWORK

GreenVETAfrica Train the Trainers program features five meticulously crafted modules that empower VET educators to meet the dynamic demands of vocational training. The "Pedagogical Upskilling" module equips trainers with adaptive teaching styles, insights into trainee needs, and classroom management skills to cater to diverse modern learners. In "Digital Pedagogy," trainers explore innovative strategies using technology to engage, motivate, and empower learners in self-directed education. "Digital Tools for Teaching, Learning, Assessment, and Validation" revolutionizes VET by embracing digital tools, data-driven techniques, and program digitization for enhanced efficiency and accessibility. The "Green Waste Management (Technical Foundations)" module prepares educators for environmental sustainability, providing hands-on knowledge of modern waste management machinery and equipment. Lastly, "Foundation of Micro-Entrepreneurship Skills for Micro-SMEs" focuses on nurturing entrepreneurship skills, promoting ownership and adaptability amid complexity and uncertainty. This holistic program readies VET trainers to navigate the ever-evolving vocational education landscape, ensuring their readiness for the multifaceted challenges of the future.

The training modules were developed in response to the identified skills gap (as already outlined in Work Package 2), each of them according to the partners' expertise in the field). Different project partners developed the training modules which involved different delivery modes, including pre-recorded asynchronous classes, online synchronous classes and some physical classroom training. Before embarking on the training of trainers, we conducted interviews to understand the training needs of the trainers so as to incorporate them in the learning delivery of the various modules. Training materials were developed and stored in an online open access repository where the trainers and many more people who would like to have access to training on waste management can easily access.

All training contents (which were developed into five modules) were developed and made available on the project website in the form of pdf presentations.

MODULE 1: PEDAGOGICAL UPSKILLING

This module is a comprehensive journey into pedagogical upskilling, enabling trainers to adapt to diverse learning contexts, understand competences deeply, foster effective relationships with students, ensure inclusivity in their teaching, and maintain classroom control while avoiding conflicts. This module sets the foundation for the entire training program, equipping trainers with the essential skills and knowledge to excel in vocational education. This foundational module delves into the art and science of pedagogical upskilling, providing trainers with the essential skills needed to navigate the dynamic world of vocational education.

Split into three specialised units, it offers a comprehensive understanding of key competencies and strategies required to excel in training and mentoring.

1. **Competence-Based Approach:** this unit's primary objective is to instil in trainers a focus on competencies within their educational practice. It begins with a thorough exploration of the concept of competencies, drawing inspiration from the European Community's competency framework as a potential reference. Trainees will learn to adapt this framework to the specific subjects they teach, tailoring competencies to their unique educational contexts.
2. **Dual System and Work-Based Learning (WBL):** the second unit introduces trainers to the concept of a dual system and Work-Based Learning (WBL). It aims to integrate practical learning experiences into the educational journey, forging stronger connections between the classroom and the world of work. Participants will delve into the essence of dual vocational training and learn to tailor WBL to their country's specific conditions. The unit emphasizes training students within the WBL framework, defining verifiable competencies through this approach, structuring internship pathways, establishing company agreements for WBL, and understanding the distinctions between internships and the dual system. The

ultimate goal is to enable trainers to effectively assess the results of the educational pathway in terms of skills acquired.

3. Individualised Learning Path: the third unit equips trainers with the theoretical and practical tools needed to create individualized learning paths for students. This involves understanding the components of individualised learning paths, identifying the key stakeholders involved in their development, and gaining expertise in drafting and monitoring individualized educational projects. The unit also focuses on individual educational planning and introduces various methodologies for observation and verification.

MODULE 2: DIGITAL PEDAGOGY

This module aims to prepare trainers to leverage technology as a powerful tool in education. By mastering the art of digital pedagogy, they will be well-equipped to create engaging, technology-enhanced learning experiences for their students and effectively manage their classrooms in the digital age.

The module aims to equip participants with the essential knowledge and skills to harness the full potential of technology in teaching. Comprising two units, it covers a broad spectrum of topics, from utilizing educational technologies to designing inclusive learning activities.

1. **Digital Pedagogy:** the first unit centers on the principles of digital pedagogy. Participants will explore the pivotal role of technology in modern teaching and its potential for enhancing learning outcomes. They will gain a comprehensive understanding of various educational technologies, from apps to platforms, and discern their key features and advantages. Creating and sharing multimedia content for digital teaching and learning is a focal point, alongside the application of effective methods and strategies such as active learning, meaningful learning, and cooperative learning. The objective is to enable trainers to design engaging and inclusive learning activities that cater to diverse student needs.
2. **Classroom Management:** the second unit addresses the critical aspect of classroom management in a digital era. Participants will explore innovative models of technology-supported classroom management, including the principles and implementation of the flipped classroom model. Effective strategies for promoting cooperative learning and positive interdependence among students are discussed in detail. The unit emphasizes the teacher's role as a facilitator and manager in a technology-enhanced learning environment, fostering an environment of responsibility and collaboration. Additionally, participants will develop skills in evaluating activities and providing constructive feedback, ensuring that the learning experience remains effective and engaging.

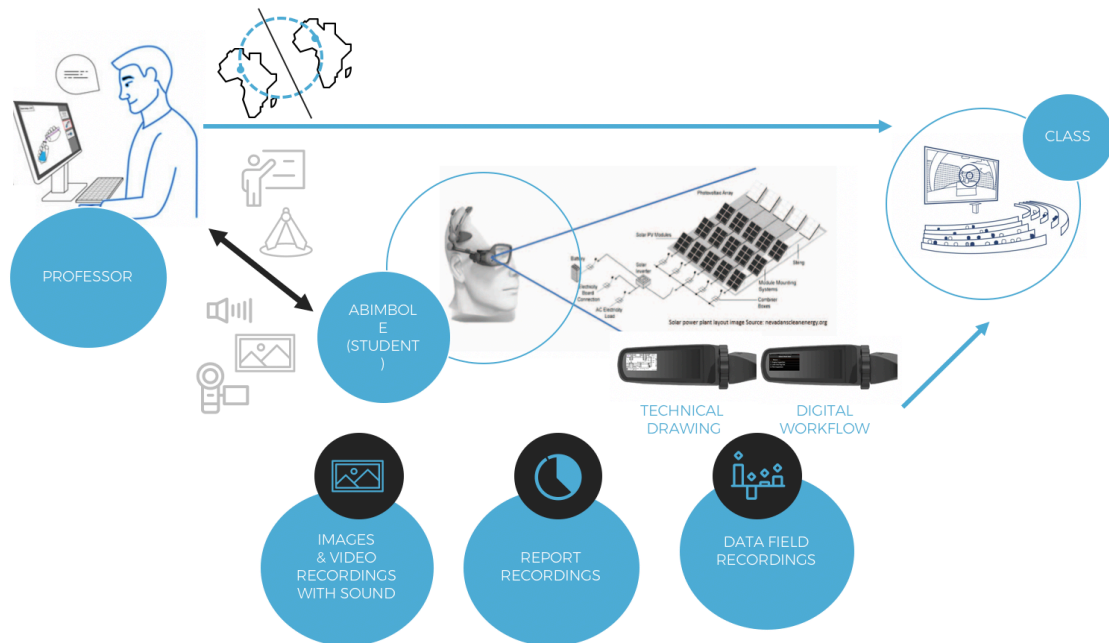
MODULE 3: DIGITAL TOOLS FOR TEACHING AND LEARNING

The third module, "Digital Tools for Teaching, Learning, Assessment, and Validation," marks a transformative paradigm shift in the realm of vocational education. This module is dedicated to exploring a range of digital tools. It includes an examination of accessible technologies, innovative methods for creating and deploying digital educational content, and the digitalization of VET programs. This digitalization process amplifies efficiency, simplifies data collection, and embraces the possibilities of remote expert solutions. It is a profound response to contemporary educational trends, aligning the program with the principles of using technology to redefine and improve the educational experience. Some lessons covered in this module include:

1. What is a smart remote expert solution? This covers a broad introduction to smart digital remote solutions used to aid remote support for field services
2. Basic requirements for smart remote expert solutions
3. Case studies of smart remote expert solutions in different fields.

4. Technology Evolution: Which will highlight the sequential evolution in technology and what has been the drivers of technological change.
5. What is Augmented Reality? This exposes the learners to the world of Augmented Reality (AR) and Virtual Reality (VR) and how they can be utilized in addressing waste management issues.
6. What is Cloud Computing? This module introduces the learners to the amazing world of Cloud computing and how it can be utilized in addressing waste management challenges.

FIGURE 1: REMOTE EXPERT SOLUTION



MODULE 4: TECHNICAL FOUNDATION FOR GREEN WASTE MANAGEMENT

This module serves as the bridge between theoretical and practical knowledge, ensuring trainers are well-versed in both the environmental and technical aspects of Green Waste Management. This comprehensive approach prepares them to impart critical knowledge to the next generation of professionals in the field, making them valuable mentors and educators in the realm of waste management.

Introduction to Green Waste Management and the Environment

This module within our program serves as a foundational pillar, ensuring that participants are well-equipped with the knowledge and expertise required to navigate the technical dimensions of Green Waste Management and the environment. With a comprehensive understanding of environmental principles, waste management hierarchy, recycling, and the intricacies of waste treatment and disposal, participants are prepared to lead the next generation of waste management professionals.

1. **Introduction to the Environment:** this unit initiates the journey by providing participants with an insightful introduction to the environment. It sets the stage for comprehending the contextual significance of Green Waste Management, placing it within the broader environmental framework.

2. **Introduction to Waste and Waste Management:** building upon the environmental context, this unit delves into the fundamental concepts of waste and waste management. Participants will gain a holistic understanding of the waste stream and the critical role waste management plays in maintaining environmental equilibrium.
3. **Waste Management Hierarchy:** this unit takes a closer look at the hierarchy of waste management. It will provide a structured perspective on the different stages of waste management and how they contribute to environmental sustainability.
4. **Recycling:** recycling is a cornerstone of waste management. This unit explores the intricacies of recycling processes, from collection to processing, emphasizing the importance of recycling in resource conservation and waste reduction.
5. **Organic Waste Management and Waste to Energy:** organic waste and waste-to-energy processes are pivotal in waste management. This unit provides a comprehensive understanding of the management of organic waste, as well as the conversion of waste into energy. Participants will gain insights into sustainable practices that harness waste for the generation of energy.
6. **Waste Disposal and Treatment:** participants will delve into the critical aspects of waste disposal and treatment. This unit covers various methods of waste disposal, including landfilling and incineration, while emphasizing the importance of environmentally responsible waste treatment practices.
7. **Environmental Sustainability:** sustainability is at the core of waste management. This unit focuses on the principles and practices of environmental sustainability within the context of waste management. Participants will explore strategies to reduce the environmental footprint of waste management.
8. **Circular Economy:** circular economy is an emerging concept with profound implications for waste management. This unit delves into the principles of a circular economy, exploring how waste can be minimized through innovative approaches to resource utilization and recycling.
9. **Green Jobs:** The field of Green Waste Management offers a range of career opportunities. This unit provides insights into these green jobs, offering participants an understanding of potential career paths and prospects within the industry.
10. **Site Visits:** learning extends beyond the classroom. This unit facilitates real-world exposure through site visits, allowing participants to witness waste management practices in action. It provides a practical dimension to the theoretical knowledge acquired throughout the module.

Green Waste Management (Technical Foundations)

This module, within the overarching program, aims to provide participants with a holistic understanding of the technical foundations of Green Waste Management. By the end of this module, they will have a profound insight into the equipment, machinery, safety protocols, and fundamental systems crucial to this vital field, ensuring they are well-prepared to train the next generation of waste management professionals.

1. **Introduction to Waste Management Equipment and Machinery:** this unit provides a comprehensive overview of waste management equipment and machinery used across the entire value chain. Participants will gain insights into the specific purposes and functionalities of various tools and technologies integral to waste management. Safety is a paramount focus, and the unit offers detailed protocols and guidelines for the safe handling of waste management equipment, emphasizing a safety-first approach in waste management practices.
2. **Health, Safety, and Environment (HSE) for Waste Management:** the HSE unit delves into the comprehensive understanding of Health, Safety, and Environment principles specifically tailored to waste management operations. Participants will be equipped to identify and assess potential health and environmental hazards inherent in waste handling. The unit promotes a safety-first ethos, emphasizing

the paramount importance of ensuring the well-being of both personnel and the environment throughout waste management practices.

3. **Basics of Electrical Systems in Waste Management:** the electrical systems unit lays the foundational knowledge of electrical systems relevant to waste management equipment. Participants will comprehend the fundamental principles of electrical circuits, wiring, and electrical components utilized in waste management machinery. Safety measures and best practices concerning electrical systems are extensively covered to ensure that participants have the knowledge to work with electricity safely and efficiently in the context of waste management.
4. **Basics of Mechanical Drive Systems in Waste Management:** this unit introduces participants to mechanical drive systems and their pivotal role in waste management. Understanding mechanical components, such as gears, belts, and pulleys, used in waste management machinery is a primary focus. The module aims to equip participants with the expertise to ensure the safe and efficient operation of mechanical systems within the waste management field.

MODULE 5: FOUNDATION OF MICRO-ENTREPRENEURSHIP SKILLS FOR MICRO-SMES

The fifth module, "Foundation of Micro-Entrepreneurship Skills for Micro-SMEs," represents the program's holistic approach to vocational training. It underscores the transformative potential of entrepreneurship education by providing a robust foundation for critical skills. From entrepreneurial training and administration processes to effective budgeting and sales techniques, this module fosters a spirit of ownership, control, autonomy, and adaptability, particularly in the face of complexity and uncertainty. Some important lessons in this module include:

1. Creativity and problem solving: In this lesson, learners will learn the art and process involved in problem solving;
2. Introduction to Entrepreneurship: In this module, the learners will learn the essential rudiments of managing a business and making it profitable;
3. Opportunity Analysis: How do we analyse market needs and explore the opportunities they present? This is what this module aims to deliver;
4. Market Research: This module will focus on how the process of evaluating the viability of a new service or product through research conducted directly with potential customers;
5. Business Model: This module will cover everything that refers to a company's plan for making a profit;
6. Business Finance: This module will cover the act of securing economic support to supply funds for your business expenses;
7. Pitching your business: Can you pitch your idea to potential investors who can provide you with funding and/or other resources, such as industry experience. Knowing the components of an effective pitch can help you to engage with this audience and gain their support.

3. TRAINING METHODOLOGY AND IMPLEMENTATION

NEEDS ASSESSMENT FOR ENSURING PROPER CONTENT DEVELOPMENT

The learning modules were determined based on a needs' analysis conducted during the project's preparation phase. The partnership identified these five modules as aligning perfectly with the learning objectives and the needs of trainers in both Ghana and Nigeria.

Furthermore, we recognized the importance of delving deeper into the participants' requirements and assessing their knowledge levels just before developing the training contents. To accomplish this, we executed a comprehensive needs analysis research, just before content development. This research involved a combination of **online questionnaires** and **in-depth interviews with teachers** to gain valuable insights from the field. The process unfolded as follows:

1. The project partners in Ghana and Nigeria identified teachers and trainers who would participate in the training, mainly from two institutions: Institute for Industrial Technology (IIT) from Nigeria and Ramseyer from Ghana.
2. A specialised questionnaire was developed to evaluate their background knowledge, educational levels, current professional expertise, and motivation for participation.
3. One-on-one interviews were conducted to acquire a more profound understanding of participants' needs and backgrounds.

In total, we received responses from 40 teachers through questionnaires (15 from Nigeria and 25 from Ghana) and conducted six in-depth interviews with teachers (3 from Ghana and 3 from Nigeria). The findings and conclusions from this research were compiled in a report¹, providing valuable insights to inform content development and tailor it to their specific needs. Through the use of online questionnaires and interviews, we ensured multiple perspectives were considered, resulting in comprehensive data that will guide the customization of the Training of Trainers program to meet the distinct requirements of the teaching community. This approach aims to maximize the program's impact on enhancing the overall quality of vocational education in the GVA region.

The trainers/trainers were obtained from the following groups:

- **VET Teachers and Instructors:** VET educators can gain insights and training materials to effectively teach green waste management to their students, fostering an informed and skilled workforce.
- **Environmental and Sustainability Professionals:** Professionals in the environmental and sustainability sectors can stay updated with best practices and innovative methods for green waste management, enhancing their expertise in the field.
- **Micro-Entrepreneurs:** Individuals interested in starting or expanding micro-enterprises in green waste management, such as recycling businesses or waste collection services, can benefit from the entrepreneurial aspects of the training.
- **Other experts** interested in pursuing training in fields related to environmental studies, waste management, or sustainability can acquire practical skills and knowledge to enhance their employability in the green industry.
- **Community Leaders:** Community leaders, local government officials, and non-profit organisations can develop a deeper understanding of green waste management to implement sustainable practices within their communities.

¹ Check the results and conclusions here: https://drive.google.com/file/d/176zjAViYxiOJ4co_fXP_hC8KD8KUZIm-/view?usp=drive_link

- **Industry Experts and Consultants:** Professionals already working in the field of waste management can expand their knowledge base and stay aware of evolving trends and technologies.
- **Any Individual Interested in Sustainability:** Any individual with an interest in environmental sustainability, waste reduction, and green practices can participate to gain personal insights and contribute to making more sustainable choices in daily life.
- **Job Seekers:** Job seekers looking to enhance their employability and explore career opportunities in green industries, including green waste management, can acquire relevant skills and knowledge.

TRAINING GOALS AND METHODOLOGY FOR THE IMPLEMENTATION

Based on those findings, partners proceeded with content development. The main objectives of the training were set:

- **Skill Development:** To equip learners with the practical skills and knowledge required to effectively manage and mitigate green waste, including waste reduction, recycling, and sustainable disposal methods.
- **Environmental Awareness:** To raise awareness about the environmental impact of improper waste management and instil a deep understanding of the importance of green waste management for sustainability.
- **Entrepreneurship and Employment:** To foster an entrepreneurial mindset among learners, enabling them to explore opportunities for micro-entrepreneurship in the green waste sector and enhance their employability in this field.
- **Innovation and Best Practices:** To introduce learners to innovative and best practices in green waste management, allowing them to stay updated with the latest trends and technologies in the industry.
- **Sustainability and Resource Efficiency:** To promote sustainable practices and resource efficiency in green waste management, emphasizing the responsible use of resources and minimizing environmental impact.
- **Social Impact and Community:** To encourage learners to understand the broader societal and community impact of green waste management, including creating cleaner and healthier environments.

Following this, the training modules were meticulously designed in alignment with the expertise of our partners. Initially, our partners started on the creation of training outlines for each module, a crucial step to establish clear and tangible learning objectives and outcomes for the teacher module. Subsequently, the partnership advanced to the development of the module's content. These modules were thoughtfully divided into units, each centered around the most pertinent topics relevant to their respective content, ensuring a structured and comprehensive approach to the training material.

TRAINING ORGANISATION AND IMPLEMENTATION

In light of the information collected from the needs analysis described above, the train-the-trainer courses were developed starting from the definition of a training outline containing all key course information: Objectives, knowledge domain, duration of the course (amount of hours), details of the content (divided into learning units), learning outcomes, brief description of the target audience for the course, mode of course delivery, tools and materials, and additional useful resources.

The use of this tool made it possible to create a common standard within the consortium in the development of the course and, most importantly, made it possible to explicit the learning outcomes and to orient the training contents accordingly. This **learning outcome-based approach** allowed us to shift the focus from what is taught to what is learned, ensuring that the training is designed with the end goal in mind and making it more likely to achieve the desired result. This also facilitates the **transferability of what has been learned by trainers to their**

students, as foreseen in WP4, by allowing a better tailoring of the training content and methods to the specific needs and capabilities of the target group.

Each training module was **organized** by combining a part of **online face-to-face lectures**, divided into more theoretical parts and more practical live workshop parts led by the facilitator, and a part of **individual work** on the basis of **exercises assigned** by the facilitators to be discussed during the next class.

Balancing the theory with a part of **practical work** both live during the sessions, **through Q&As and group work**, and individually between classes was considered a key element for learning and also to allow the trainers to test the tools and methods learned, in the classroom with their own students, reporting back to the group their own experiences and suggestions.

The first 3 modules also include final project work.

EVALUATION OF THE TRAINING AND ITS OUTCOMES

To assess the effectiveness of our training implementation, the quality of materials, the proficiency of facilitators, and the attainment of our learning objectives, along with monitoring participants' progress and competence development, we are currently in the process of creating comprehensive evaluation tools. This evaluation methodology will encompass two essential components:

- An assessment of students' competencies and their satisfaction with the training.
- An evaluation of teachers' performance and their satisfaction with the training's implementation.

This evaluation will be conducted within the combination of different approaches:

- Anonymous online questionnaires for participants
- Participants feedback collected in focus groups during the final sessions after each module
- An evaluation report by each facilitator after the module implementation
- Participants feedback (both students and teachers) collected during the focus groups in the last week of the training, once the whole program has been completed

Those tools will contain feedback and conclusions on following:

For Participants:

- Evaluation of materials and methodology
- Evaluation of contents
- Evaluation of facilitators
- Feedback on competences development (self-evaluation)
- General feedback and suggestions for improvement

For Facilitators:

- Feedback on students/group - satisfaction, competences development, students' impressions and feedback
- Impressions about the quality of materials
- Feedback on methodology of delivering the training
- Self-evaluation

Finally, our efforts will be collected in WP5, as a part of Impact assessment and Report (D5.2), which will encompass comprehensive insights into the outcomes and results of the Training of Trainers (ToT). It will also provide a more in-depth examination of the training's impact, with a specific focus on assessing participants' competencies and concrete learning outcomes. This follow-up evaluation will take place 6 months after the training implementation, enabling participants to reflect on how their engagement in the training has positively influenced both their personal and professional development.

4. TRAINING SCHEDULE

Table 1 shows the details of the training schedules which include the dates, module title, and necessary materials, as well as the link to join the online training session.

Unit	Activity / Training title	Date	N. of Hours	Method description	Learning environment	N. of Participants	Tools/ Materials/ Resources/Link to live sessions
Competence-Based Approach	Module 1	16 Oct	2 hrs 3-5pm CET + 2 hrs individual work	2 hrs online + 2 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt
Digital Pedagogy	Module 2	17 Oct	2 hrs 3-5pm CET + 2 hrs individual work	2 hrs online + 2 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt
Dual system and WBL	Module 1	18 Oct	2 hrs 3-5pm CET + 2 hrs individual work	2 hrs online + 2 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt
Competence Based approach	Module 1	20 Oct	2 hrs 3-5pm CET + 2 hrs individual work	2 hrs online + 2 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt
Dual system and WBL	Module 1	24 Oct	2 hrs 3-5pm CET + 2 hrs individual work	2 hrs online + 2 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt

Unit	Activity / Training title	Date	N. of Hours	Method description	Learning environment	N. of Participants	Tools/ Materials/Resources/Link to live sessions
Digital Pedagogy	Module 2	26 Oct	3 hrs 3-6pm CET + 1h individual work	3 hrs online + 1 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt
Digital Pedagogy	Module 2	31 Oct	3 hrs 3-6pm CET + 1h individual work	3 hrs online + 1 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt
Digital Pedagogy	Module 2	2 Nov	3 hrs 3-6pm CET + 1h individual work	3 hrs online + 1 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt
Individualized learning path	Module 1	3 Nov	2 hrs lesson + 2 hrs live exercises 2-6pm CET	online course + 2 practical workshop	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt
Classroom management	Module 2	7 Nov	3 hrs 3-6pm CET + 1h individual work	3 hrs online + 1 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt
Remote Expert Solution for Vocational Technical Training Programmes	Module 3	8 Nov	3 hrs 3-6pm CET + 1h individual work	3 hrs online + 1 individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection
Classroom management	Module 2	9 Nov	3 hrs 3-6pm CET + 1h individual	3 hrs online + 1 individual working hrs	Quiet environment that allows	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktkr-nnt

			work	based on assignments	for concentration		nnt
Individualized learning path	Module 1	10 Nov	2 hrs lesson + 2 hrs live exercises 2-6pm CET	online course + 2 practical workshop	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktr-nnt
Remote Expert Solution for Vocational Technical Training Programmes	Module 3	14 Nov	2 hrs 3-5pm CET + 26 hrs individual work	2 hrs online Q&A + 26 individual working hrs based on assignments (assignment + test + use case smart remote expert based on the upcoming Module 4)	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection LINK LIVE SESSION: https://us06web.zoom.us/j/81843286048?pwd=v7z6lsH60Yu0PnmVzOc1auqod9K0CL.1
Pedagogical upskilling_Final sharing of Project work	Module 1	16 Nov	21 hrs Individual work + 3 hrs 3-6 pm CET debate about the project work	21 hrs individual working hrs based on project work + 3 hrs 3-6 pm debate about the project work	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktr-nnt
Instructional design_Final sharing of Project work	Module 2	21 Nov	20 Individual work + 3 hrs 3-6pm CET debate about the project work	20 hrs individual working hrs based on project work + 2 hrs 3-5pm debate about the project work	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zbf-ktr-nnt
Introduction to the Environment and Waste Management	Module 4.1	27 Nov	2 hrs 3-5pm CET + 1 hr Q&A + 6 hrs individual work	2 hrs online + 1 hr Q&A + 6 hrs individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zgk-fvzq-bmw
Waste Management	Module 4.1	28 Nov	2 hrs 3-5pm CET +	2 hrs online + 1 hr Q&A + 8 hrs	Quiet environment	50 (25 Nigeria,	https://meet.google.com/zbf-ktr-nnt

Hierarchy and Recycling			1 hr Q&A + 8 hrs individual work	individual working hrs based on assignments	t that allows for concentration	25 Ghana)	m/zgk-fvzq-bmw
Organic Waste Management and Waste to Energy	Module 4.1	29 Nov	2 hrs 3-5pm CET + 1 hr Q&A + 6 hrs individual work	2 hrs online + 1 hr Q&A + 6 hrs individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zgk-fvzq-bmw
Waste Disposal and Treatment	Module 4.1	4 Dec	2 hrs 3-5pm CET + 1 hr Q&A + 2 hrs individual work	2 hrs online + 1 hr Q&A + 4 hrs individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zgk-fvzq-bmw
Environmental Sustainability and Circular Economy	Module 4.1	5 Dec	2 hrs 3-5pm CET + 1 hr Q&A + 10 hrs individual work	2 hrs online + 1 hr Q&A + 10 hrs individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zgk-fvzq-bmw
Green Jobs	Module 4.1	6 Dec	2 hrs 3-5pm CET + 1 hr Q&A + 8 hrs individual work	2 hrs online + 1 hr Q&A + 8 hrs individual working hrs based on assignments	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	https://meet.google.com/zgk-fvzq-bmw
Waste Management Equipment and Machinery	Module 4.2 Unit 1	7 Dec	2 hrs 4-6pm CET + 1 hr Q&A + 3 hrs individual work	2 hrs online session	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	meet.google.com/vqw-ojag-aoi
Health, Safety, and Environment	Module 4.2 Unit 2	12 Dec	2 hrs 4-6pm CET + 1 hr Q&A + 3 hrs individual work	2 hrs online session	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	meet.google.com/vqw-ojag-aoi
Basics of Electrical Systems	Module 4.2 Unit 3	13 Dec	2 hrs 4-6pm CET + 1 hr Q&A + 3 hrs individual work	2 hrs online session	Quiet environment that allows for	50 (25 Nigeria, 25 Ghana)	meet.google.com/vqw-ojag-aoi

					concentration		
Basics of Mechanical Drive Systems	Module 4.2 Unit 4	14 Dec	2 hrs 4-6pm CET + 1 hr Q&A + 3 hrs individual work	2 hrs online session	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	meet.google.com/vqw-ojag-aoi
Remote Expert Solution for Vocational Technical Training Programmes	Module 3	19 Dec	2 hrs 3-5pm CET + 20 hrs individual work	2 hrs online for assignment review and Q&A + 20 hrs individual working hrs to outline the workflow (based on schematics and collect materials visual/technical drawing etc)	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection https://us06web.zoom.us/j/83875941513?pwd=y8OBZuekzsWDysfmt87mFAEU4cCvVD.1
Foundation of micro-entrepreneurship skills for Micro-SMEs	Module 5 Unit 1: Creativity Unit 2: Intro to Entrepreneurship	20 Dec	4 hrs 2-5pm CET	3 hours of online interactive training + 1 hour of self-paced individual assignment	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection
Foundation of micro-entrepreneurship skills for Micro-SMEs	Module 5 Unit 3: Opp. Analysis Unit 4: Market Research	9 Jan	4 hrs 2-5pm CET	3 hours of online interactive training + 1 hour of self-paced individual assignment	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection https://us06web.zoom.us/j/82134841626?pwd=LUdaqWtYiQMjC4vnwIvT3xgkF8wJ.1

Foundation of micro-entrepreneurship skills for Micro-SMEs	Module 5 Unit 5: Business Modeling	10 Jan	4 hrs 2-5pm CET	3 hours of online interactive training + 1 hour of group assignment	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection
Remote Expert Solution for Vocational Technical Training Programmes	Module 3	11 Jan	2 hrs 3-5pm CET + 14 hrs individual work	2 hrs online for assignment review and Q&A + 14 hrs individual working hrs to test the workflow	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection
Foundation of micro-entrepreneurship skills for Micro-SMEs	Module 5 Unit 6: Business finance	17 Jan	4 hrs 2-5pm CET	1 hr of group presentations on BMC + 2 hours of online interactive training + 1 hour of self-paced individual assignment	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection
Remote Expert Solution for Vocational Technical Training Programmes	Module 3	18 Jan	2 hrs 3-5pm CET debate about the project work	2 hrs 3-5pm debate about the project work including the individual assessment (questionnaire)	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection
Foundation of micro-entrepreneurship skills for Micro-SMEs	Module 5 Unit 7: Pitching	24 Jan	4 hrs 2-5pm CET	1 hr of interactive training on pitching best practices + 3 hours of group mock pitches	Quiet environment that allows for concentration	50 (25 Nigeria, 25 Ghana)	Laptop, internet connection

TABLE 1: TRAIN THE TRAINERS PROGRAM SCHEDULE

5. TRAINING MATERIALS ACCESSIBILITY FOR REPLICATION

All the contents of the training programme have been published online and made accessible to teachers and, potentially, anyone interested. More specifically, a dedicated section “Training Programme” has been created on the greenvetafrica.eu website to facilitate accessibility to the training course.

FIGURE 1: GREENVETAFRICA WEBSITE’S TRAINING PROGRAMME SECTION



More specifically, an introduction to the course has been uploaded and for each training module, the corresponding outline has been uploaded to also favour the autonomous use of the course and its replicability.

FIGURE 2 COURSE INTRODUCTION PUBLISHED ON THE WEBSITE

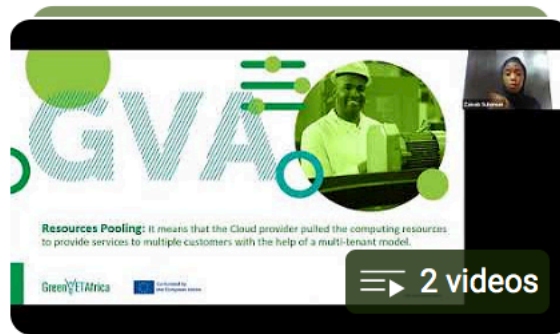


FIGURE 3: ORGANISED TRAINING PROGRAM CONTENTS PUBLISHED ON THE WEBSITE



Always to ensure maximum accessibility of resources, the recorded video presentations are being posted on GreenVETAfrica's YouTube channel in a dedicated playlist, making them accessible to anyone at any time.

FIGURE 4: RECORDED SESSIONS PUBLISHED ON YOUTUBE



Train the Trainers Programme Recorded Lessons

Updated today

[View full playlist](#)

APPENDIX A - MODULES' OUTLINES

Here below Module 1 Outline. All the Modules' Outlines are available on the website on Training Programme webpage <https://greenvetafrica.eu/training-programme>.

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GreenVETAfrica project is co-funded by the

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MODULE OUTLINE		
1	Title:	Module 1: Pedagogical upskilling
2	Abstract with aims & objectives	<p>The Competence Based Approach Unit aims to give the teachers a focus on competences in their work with the students, starting from the concept of competences and from the competency framework proposed by the European Community as a possible reference. They will be led to adapt them to the subject they teach.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Knowledge and definition of competence • Knowledge of some classifications of competencies • Knowledge of the European Competency Framework: <ul style="list-style-type: none"> ○ communicating in the mother tongue ○ learning to learn ○ social and civic competencies ○ spirit of initiative and entrepreneurship • Definition of evidences and meaningful tasks to mobilize skills <p>The Dual system and Work-Based Learning (acronym WBL) Unit aims to include training experiences based on learning on the job in school experiences. The Work-Based Learning (WBL) approach is a method of bringing the educational system more closely into contact with the world of work and business. The Dual System is a possible organizational structure of WBL that is more structured and effective than internship.</p> <p>Objectives</p> <ul style="list-style-type: none"> • Definition of dual vocational training • Tailoring WBL to the specific conditions of the country • Training students at WBL • Definition of verifiable competencies through WBL • Structuring the internship pathway • Establishing company agreements for WBL • Differences between internship and Dual System

Dx.x: Deliverable Title (V x.x)

		<ul style="list-style-type: none"> Verify the results of the pathway in terms of skills learned <p>The Individualised learning path Unit aims to provide theoretical and practical tools for the compilation of a school Individualised learning path, as well as that of the drafting and monitoring of an individualised educational project.</p> <p>Objectives</p> <ul style="list-style-type: none"> Knowledge and definition of the Individualised learning path; Knowledge of its component parts; Knowledge of the main actors taking part in its drafting; Definition of individual educational planning; Knowledge of the main methodologies of observation and verification.
3	Key words	<i>Competency Based Approach, Individualised learning, Special needs learners, Work Based Learning, School-to-Work transition, internship, apprenticeship.</i>
4	Knowledge domain	Work based training and job insertion
5	Duration	40 Hrs
6	Contents (Specify n. of hours of each Unit)	<p>Unit 1: (n. 10 hrs): Competence-Based Approach</p> <ul style="list-style-type: none"> Definition of competence Classification of competencies The European Competency Framework: <ul style="list-style-type: none"> communicating in the mother tongue learning to learn social and civic competencies spirit of initiative and entrepreneurship Definition of evidences and meaningful tasks to mobilize skills <p>Unit 2: (n. 16 hrs): Dual system and WBL</p> <ul style="list-style-type: none"> Training students at WBL Define verifiable competencies through WBL Establish company agreements for WBL Differences between internship and Dual System Verify the results of the pathway in terms of skills learned <p>Unit 3: (n. 14 hrs): Individualised learning path</p> <ul style="list-style-type: none"> Talents and BES: learning as an individual experience Definition of Individualised learning path Structure of an Individualised learning path Main actors in planning, writing, sharing an ILP

Dx.x: Deliverable Title (V x.x)

		<ul style="list-style-type: none"> Main methodologies of observation and verification
7	Learning outcomes (2-3 per module)	<p>Module 1: Pedagogical upskilling</p> <p>LOut1: participants will be able to focus on competences in their work with the students, to adapt the competency framework proposed by the European Community to the subject they teach.</p> <p>LOut2: participants will be able to program training experiences based on learning on the job and to use the Work-Based Learning (WBL) approach as a method of bringing the educational system more closely into contact with the world of work and business.</p> <p>LOut3: participants will be equipped with theoretical and practical tools for the compilation of a school Individualised learning path, as well as skills for drafting and monitoring an individualized educational project.</p>
8	Learners' profile	<p>50 Teachers (25 Ghana, 25 Nigeria) with following profile:</p> <ul style="list-style-type: none"> Teachers and trainers Training tutors Job Service Officers of TVET Centres
9	Delivery mode (face2face, working groups, online, blended)	Blended on-line, working groups, project work, distance learning with remote support from tutors
10	Tools and materials needed for implementation	Laptops, Headphones, Strong Internet Connection with webcams
11	Related Urls and Online Resources	Zoom platform/Teams meet, Google Doc
12	Type of resource (video, lesson plan, etc.)	Video-lessons, Word-Powerpoint presentations and exercises,



APPENDIX B - INVOLVED TRAINERS

Trainers from Ghana:

No.	Name	Organization	Position
1	Daniel Osei Opoku Afriyie	Ramseyer VTI	Electrical Engineering Technology
2	Anna Atugalie Adangabey	Ramseyer VTI	Fashion Designing Technology
3	Grace Serwaa Baah	Ramseyer VTI	Fashion Designing Technology
4	Elizabeth Kissi	Ramseyer VTI	Fashion Designing Technology
5	Rita Gyamfuaa Kumi	Ramseyer VTI	Hospitality & Catering
6	Rosemary Kwofie	Ramseyer VTI	Hospitality & Catering
7	Yaa Anima Adu-Gyamfi	Ramseyer VTI	Hospitality & Catering
8	Jonah Oppong Amaning	Ramseyer VTI	Building Construction
9	Richard Adu-Yaw Asare	Ramseyer VTI	Building Construction
10	Eric Gee Hanson	Ramseyer VTI	Building Construction
11	Isaac Kwabena Dwomoh	Ramseyer VTI	Building Construction
12	Philip Boamah	St. Joseph VTI	Building Construction
13	Charles Ayensu-Doomson	Ramseyer VTI	English Language
14	Daniel Afriyie Tuffour	Ramseyer VTI	Natural Resources Management
15	Emmanuel Sarkodie	Opoku Ware VTI	Management
16	Charles Oppong Takyi	Kumasi VTI	Automotive Engineering
17	Elijah Sarfo Konadu	Kumasi VTI	Health & Safety
18	Ibrahim Abubakar	Kumasi VTI	Welding & Fabrication Technology
19	Josephine Agyemang	Ramseyer VTI	Computerised Accounting
20	Evans Okyere	Ramseyer VTI	General Agriculture
21	John Ofosu Dankyira	Ramseyer VTI	Agriculture (Crops)
22	Philip Adu-Twum	Ramseyer VTI	Science Education
23	Samuel Asamoah Ayeh-Hanson	Ramseyer VTI	Construction Technology
24	Mabel Tiwaah	Ramseyer VTI	Mathematics
25	Emmanuel Osei Senior	Ramseyer VTI	Accounting, Budgeting & MIS
26	Emmanuel Kwaku Simms	Ramseyer VTI	ICT
27	Philomina Afram	Ramseyer VTI	Business Administration
28	Benson Asamoah Akuoku	Ramseyer VTI	Biological Science
29	King William Asiamah Jeffrey	Ramseyer VTI	Management Education
30	Helina Agyeiwaah	Presbyterian Girls SHS	Computer Science

Trainers from Nigeria:

No.	Name	Organization	Position
1	Olusanya Oluwaseyi	Institute for Industrial Technology	Electrical & Electronic Instructor
2	Chike Chibuzor	Institute for Industrial Technology	Automation and Instrumentation Instructor
3	Afeni Deji	Institute for Industrial Technology	Automation and Instrumentation Instructor
4	Tope Ogunlowo	Institute for Industrial Technology	Electrical & Electronic Instructor
5	Ivan Onyekwulu	Institute for Industrial Technology	Assistant Utility Maintenance Instructor
6	Nsimene James	INstitute for Industrial Technology	Work Ethics Instructor
7	Iyara Raymond	Institute for Industrial Technology	Utility Maintenance Instructor

8	Okechukwu David	Institute for Industrial Technology	Work Ethics Instructor
9	Obilor JohnMartins	Institute for Industrial Technology	Electrical & Electronic Instructor
10	John Harvest	Institute for Industrial Technology	Refrigeration/Air Conditioning Instructor
11	Oluwadare Damilola	Institute for Industrial Technology	Mechanical Instructor
12	Toluse Aduragbemi	Institute for Industrial Technology	Mechanical Instructor
13	Akhigbe Israel	Institute for Industrial Technology	Mechanical Instructor
14	Agbo James	Institute for Industrial Technology	Industrial Services and Coordination
15	Bamigboye Abiola	Institute for Industrial Technology	Electrical & Electronic Instructor
16	Anthony Achike	Pan-Atlantic University	Electrical Laboratory Technologist
17	Abas Suliat	Waste Management	BSc. (Edu)
18	Ogundele Taofeeq	Waste Management	BSc. (Edu)
19	Ebereme Peter	Waste Management	B. Tech
20	Okwuegbe Violet	Waste Management	Bsc.
21	Tope Onafeko	Waste Management	MSc.
22	Adebiyi Bisola	Waste Management	Bsc.
23	Dare Adewunmi	Waste Management	BSc.
24	Ajao Adam	Waste Management	MSc. Social Studies
25	Oguntola Omolara	Waste Management	B. Tech.
26	Ogunmuyiwa Ruqayah	Waste Management	B. Agric
27	Anthonia Genesis	Waste Management	OND
28	Adebowale Faluru	Waste Management	HND
29	Chika Anidiobi	Waste Management	MSc.
30	Ibe Nnenna Victory	Waste Management	MSc. (Edu)
31	Aisha Balogun	Waste Management	BSc.