



CourseFramework

KA220-VET – Cooperation partnerships in vocational education and training

Course Framework

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CarboNostrum Course Framework

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1

Introduction

This The Course Framework offers an overview of the CarboNostrum project's blended-learning (b-learning) methodology, intertwining with the Quality Assurance Reference Framework for Vocational Education and Training (EQAVET). The Course Framework is part of a set of CarboNostrum pedagogical documents targeted to different audiences. This framework serves as a guide for Vocational Education and Training (VET) organisations seeking to integrate this blended course into their curriculum. The Tutor Guide offers guiding principles for the monitoring, and the Participant Guide provides the steps and instructions for enrolling in the course.

The primary goal of the CarboNostrum Course is to provide training in climate-smart agriculture for Mediterranean lands, adhering to the principles of lifelong learning. The course is structured to enhance participants' knowledge, skills, and competencies, empowering them to understand complex phenomena. It equips learners with the tools to apply and analyse mitigation and adaptation strategies in impoverished and degraded lands of the Mediterranean.

Tailored to the specific needs of individual smallholders and new farmers operating in underprivileged or degraded Mediterranean ecosystems, the CarboNostrum Course addresses the demand for effective climate-smart strategies for their land.

Employing a b-learning methodology that combines in-person and online learning experiences, the course facilitates efficient and flexible learning. It supports the acquisition of knowledge, skills, and competencies necessary for implementing climate-smart agricultural practices.

This document delineates the foundational principles underlying the course and encompasses the following key areas:

- The theoretical basis and the quality assurance framework EQAVET justifying the selection of methods and procedures used in the course, including adult education principles and constructivist trends in online learning;
- Learning outcomes and the content of the modules to be covered;
- Proposed activities for developing the content and enhancing knowledge;
- Course evaluation.

The course content was meticulously designed and incorporates a variety of materials and learning approaches to optimize the learning journey, including exercises, examples, and best practices to facilitate the learning process.



2

CarboNostrum Project Background

Climate change is undoubtedly one of the most intricate challenges Humanity has ever confronted. Its origins can be traced back to the earliest stages of human influence on the natural environment, giving rise to social, cultural, and economic disparities that have evolved over centuries. Despite being a global issue, the burdens and adverse consequences of climate change are not evenly distributed worldwide. The most ecologically delicate landscapes are bound to bear the brunt of its effects early on, exacerbating existing vulnerabilities stemming from centuries of history.

Mediterranean-type ecosystems, in particular, exhibit a heightened fragility in the context of agricultural activities and food production. Prolonged, arid summers followed by intense autumn rains result in maximum soil erosion rates. Compounded by recent geological and paedogenic factors, these soils already suffer from a scarcity of organic matter. Southern European countries, including Portugal, Spain, Italy, Greece, and Turkey, face pronounced environmental disparities when compared to their northern counterparts. Furthermore, some of these nations, especially Portugal, Spain, and Italy, pursued economic and environmental policies in the past century that, in the pursuit of self-sufficiency, promoted agricultural intensification on infertile lands, exacerbating degradation and the inherent fragility of these regions.

The industrialization of the food sector further complicates the situation, imperilling the livelihoods of smallholder farmers across Mediterranean Europe. In the face of climate change, smallholder farmers can anticipate increased desertification and a loss of agricultural productivity, manifesting as reduced yields and higher maintenance costs. Regrettably, these challenges are projected

to intensify according to the latest scenarios presented by the Intergovernmental Panel on Climate Change (IPCC).

Nevertheless, there is room for optimism. Climate-smart agriculture offers a path for smallholders and new farmers to implement management practices that simultaneously boost yields, improve soil properties (e.g., water retention capacity and organic matter content), and effectively sequester atmospheric carbon dioxide, storing it beneath the earth's surface. The soil and climate characteristics of Mediterranean Europe present both an opportunity and a necessity for adopting these changes. Given their significant yet fragile roles, smallholder and new farmers are the ideal starting point for this transformation.

The CarboNostrum project aligns with key global objectives, such as The Paris Agreement's aim to increase soil carbon at a rate of 0.4% annually, as proposed by France during COP21 in 2015. It also supports the IPCC's Guidelines and Scenarios, which seek to limit global warming to 1.5/2 degrees, the sustainability goals, technological challenges, and the European Green Deal's commitments for the new Common Agricultural Policy (2021-27). Furthermore, it complements various national rural development plans in southern European countries.

The purpose of the CarboNostrum project is to empower smallholder and new farmers throughout Mediterranean Europe, encouraging them to reconsider and alter their land management practices to effectively combat climate change and desertification, enhance their economic viability, and contribute to a sustainable and equitable future where no one is left behind.

2.1. CARBONOSTRUM PROJECT GOAL AND TARGET GROUPS

The primary goal of the project is to deliver the CarboNostrum HUB with a comprehensive set of educational and training resources, with the aim of empowering two distinct target groups:

• TARGET-GROUP1 | TG1:

- Smallholder, youthful, and emerging agricultural producers.
- Stakeholders and policymakers

• TARGET-GROUP2 | TG2:

- Agricultural Cooperatives
- Local Development Associations
- Municipalities in rural areas

These resources encompass the most effective tools and knowledge available, facilitating the application of climate change mitigation and adaptation solutions in environmentally stressed and impoverished regions of Mediterranean ecosystems. This will be achieved through course participation and access to research and educational materials.

By doing so, our intended audience will gain the competence to craft their own land management strategies, thereby ensuring the sustainable utilization of natural resources while harmonizing with local wisdom and effectively addressing the sustainable challenges that lie ahead.

3

CarboNostrum Course and the EQAVET Framework

The CarboNostrum Course follows, at a VET provider level, the European Quality Assurance Reference Framework for Vocational Education and Training | EQAVET (2009)¹, and The Quality Assurance Cycle shown in Figure 1², a process that follows the Deming Cycle (Plan-Do-Check-Act) with four-stages that supports continual improvement, as shown below:

The Quality Assurance Cycle

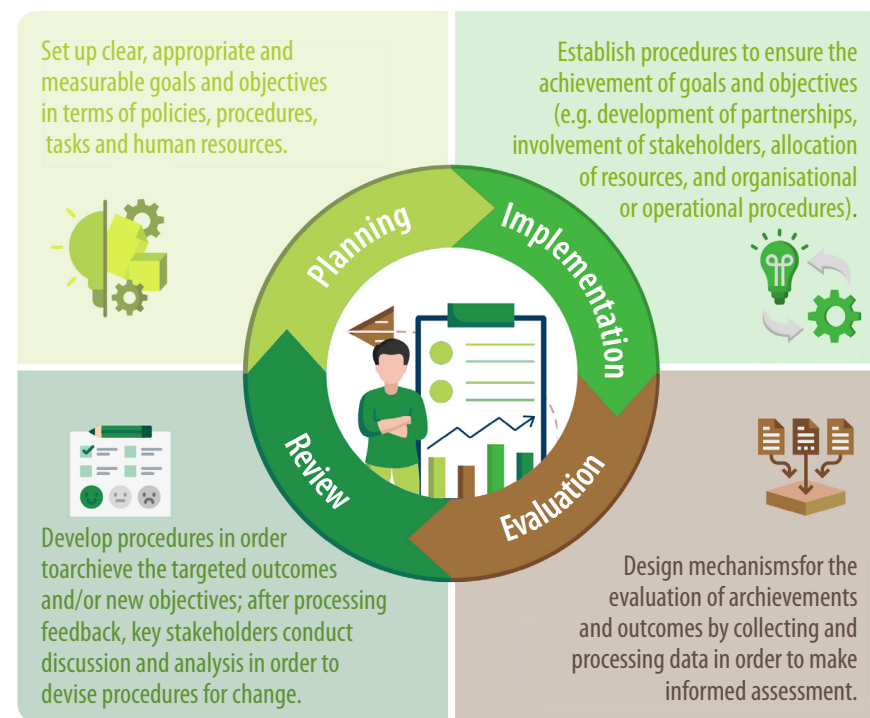


FIGURE 1. The Deming Cycle (Plan-Do-Check-Act)

¹ Visited in October 2022 on <https://ec.europa.eu/social/main.jsp?catId=1536&langId=en>

² Visited in October 2022 on <https://ec.europa.eu/social/main.jsp?catId=1546&langId=en>

The indicative descriptors³ shown in Figure 2 can be applied to both initial (IVET) and continuing VET (CVET) and are applicable to all learning environments: school-based provision and work-based learning.

Indicators for each phase of the quality cycle: provider level

1. PLANNING	2. IMPLEMENTATION	3. EVALUATION	4. REVIEW
<ul style="list-style-type: none"> European, national and regional VET policy goals/objectives are reflected in the local targets set by the VET providers Explicit goals/objectives and targets are set and monitored, and programmes are designed to meet them Ongoing consultation with social partners and all other relevant stakeholders takes place to identify specific local/individual needs Responsibilities in quality management and development have been explicitly allocated There is an early involvement of staff in planning, including with regard to quality development Providers plan cooperative initiatives with relevant stakeholders The relevant stakeholders participate in the process of analysing local needs VET providers have an explicit and transparent quality assurance system in place Measures are designed to ensure compliance with data protection rules 	<ul style="list-style-type: none"> Resources are appropriately internally aligned/assigned with a view to achieving the targets set in the implementation plans Relevant and inclusive partnerships, including those between teachers and trainers, are explicitly supported to implement the actions planned The strategic plan for staff competence development specifies the need for training for teachers and trainers Staff undertake regular training and develop cooperation with relevant external stakeholders to support capacity building and quality improvement, and to enhance performance VET providers' programmes enable learners to meet the expected learning outcomes and become involved in the learning process VET providers respond to the learning needs of individuals by using a learner – centred approach which enable learners to achieve the expected learning outcomes VET providers promote innovation in teaching and learning methods, in school and in the workplace, supported by the use of digital technologies and online-learning tools VET providers use valid, accurate and reliable methods to assess individuals' learning outcomes 	<ul style="list-style-type: none"> Self-assessment/self-evaluation is periodically carried out under national and regional regulations/frameworks or at the initiative of VET providers, covering also the digital readiness and environmental sustainability of VET institutions Evaluation and review covers processes and results/outcomes of education and training including the assessment of learner satisfaction as well as staff performance and satisfaction Evaluation and review includes the collection and use of data, and adequate and effective mechanisms to involve internal and external stakeholders Early warning systems are implemented 	<ul style="list-style-type: none"> Learners' feedback is gathered on their individual learning experience and on the learning and teaching environment. Together with teachers', trainers' and all other relevant stakeholders' feedback this is used to inform further actions Information on the outcomes of the review is widely and publicly available Procedures on feedback and review are part of a strategic learning process in the organisation, support the development of high-quality provision, and improve opportunities for learners. Results/outcomes of the evaluation process are discussed with relevant stakeholders and appropriate action plans are put in place

FIGURE 2. Descriptors and Indicators for each phase of the EQAVET quality cycle: provider level

³ Visited in October 2022 on <https://ec.europa.eu/social/main.jsp?catId=1570&langId=en>

The CarboNostrum Blended Course is planned as a continuing vocational education and training course (CVET) for professionals of the agriculture sector by a transnational team with organisations integrating all major levels of knowledge and capacity building from universities and research centres (AUTH and CSIC), private companies that works closely in territorial management at the municipal level (The USE) and experience with training tools at an international level (AidLearn and MAYLOG), and a local action group that has the ability to provide a link between all these institutions and local farmers and producers (GAL Molise).

In the tables below, it is described and explained how the CarboNostrum Course follows the Quality Assurance Cycle and which EQAVET Descriptors were matched during its development.

1. PLANNING	Descriptors in CarboNostrum	How it is Achieved in CarboNostrum
<ul style="list-style-type: none"> European, national and regional VET policy goals/objectives are reflected in the local targets set by the VET providers 	✓	CarboNostrum Blended Course is a result of a co-financed Erasmus+ Programme project. European, national and regional VET policy goals/objectives were the basis of the project proposal design and a detailed needs analyses was also described that led to the project selection to be financed. Also, the monitoring and evaluation of the process and of the results are detailed in the project proposal.
<ul style="list-style-type: none"> Explicit goals/objectives and targets are set and monitored, and programmes are designed to meet them 	✓	
<ul style="list-style-type: none"> Ongoing consultation with social partners and all other relevant stakeholders takes place to identify specific local/ individual needs 		N/A
<ul style="list-style-type: none"> Responsibilities in quality management and development have been explicitly allocated 	✓	One of the project partners is responsible for the quality assurance, both the project development and project results to provide continuous feedback for improving the project implementation, preventing risk situations, and ensuring the high-quality level of project results.
<ul style="list-style-type: none"> There is an early involvement of staff in planning, including with regard to quality development 	✓	For all the project results it was presented a plan with very precise guidelines which is discussed and agreed within partnership.

1. PLANNING	Descriptors in CarboNostrum	How it is Achieved in CarboNostrum
• Providers plan cooperative initiatives with relevant stakeholders		N/A
• The relevant stakeholders participate in the process of analysing local needs	✓	Relevant stakeholders were involved in the early stages (before the course was designed) of the project development participating in focus groups (one per country), and interviews with experts.
• VET providers have an explicit and transparent quality assurance system in place	✓	AidLearn, as a VET provider, planned the quality assurance system, which was discussed and approved within partnership, that was implemented in the Pilot Action, both for trainers and trainees.
• Measures are designed to ensure compliance with data protection rules	✓	CarboNostrum project partnership provided disclaimers to ensure compliance with data protection rules.

2. IMPLEMENTATION	Descriptors in CarboNostrum	How it is Achieved in CarboNostrum
• Resources are appropriately internally aligned/assigned with a view to achieving the targets set in the implementation plans	✓	<p>The CarboNostrum Blended Course offers a range of pedagogical documents, including the CarboNostrum Blended Course Framework, Participant Guide, and Tutor Guide. These resources are designed to guide vocational education and training institutions in integrating educational materials into their learning offerings.</p> <p>The CarboNostrum Blended Course Framework provides an overview of the blended-learning (b-learning) methodology employed in the CarboNostrum project. This document outlines the foundational principles, including the theoretical basis justifying the selection of methods and procedures for course development (grounded in adult education principles and constructivist trends in online learning). It also covers the learning outcomes, module contents, suggested activities for content development, and the course evaluation process. The content development was carefully crafted with diverse materials and learning approaches to enhance the learning progress of participants, including exercises, examples, and best practices.</p> <p>The Tutor Guide is designed to support tutors in delivering optimal training assistance, ensuring the success of learners in the CarboNostrum blended-learning course. The guide's recommendations</p>

2. IMPLEMENTATION	Descriptors in CarboNostrum	How it is Achieved in CarboNostrum
		<p>are rooted in the principles of andragogy and the CarboNostrum team's experience in implementing blended courses. This guide facilitates a positive teaching and learning experience, leading to effective and rewarding tutoring.</p> <p>The Participant Guide contains essential information to help participants navigate and benefit from the program. It covers the tutor's role in the learning process, the organization of the CarboNostrum Course and Platform, as well as the applied course evaluation.</p> <p>The Framework for Pilot Action document outlines the strategic approach for the CarboNostrum Pilot Action, enabling the monitoring and evaluation of the course's effectiveness in achieving set targets. The pilot action aims to conduct the training course with seven participants per country (PT, ES, IT, EL, and TR) to assess its effectiveness, efficiency, and applicability to the target group's needs. The participating farmers developed a final project applicable to their land. Evaluation of the pilot application of the CarboNostrum B-Learning Course involved participants and trainers/tutors, with data gathered through questionnaires designed by the AidLearn team. The synthesis of the pilot action evaluation results informed the adjustments and the finalization of the CarboNostrum Blended Course and Learning Platform.</p>
• Relevant and inclusive partnerships, including those between teachers and trainers, are explicitly supported to implement the actions planned	✓	<p>The project partnership comprises a transnational team consisting of organizations that encompass significant expertise and capacity building at various levels. This includes universities and research centers (AUTH and CSIC), private companies engaged in territorial management at the municipal level (The USE) with experience in international-level training tools (AidLearn and MAYLOG), and a local action group (GAL Molise) possessing the capability to establish a connection between these institutions and local farmers and producers.</p> <p>All these actors were involved in the development of content, employing diverse materials and learning approaches to optimize the learning progress of participants. The content includes exercises, examples, and good practices.</p>

2. IMPLEMENTATION	Descriptors in CarboNostrum	How it is Achieved in CarboNostrum
		The implementation of the pilot action was successfully carried out through the explicit support of the entire partnership and all involved actors. All shared the responsibility of ensuring the selection of participants, monitoring of various course modules, and evaluation of the participants learning progress.
• The strategic plan for staff competence development specifies the need for training for teachers and trainers		N/A
• Staff undertake regular training and develop cooperation with relevant external stakeholders to support capacity building and quality improvement, and to enhance performance		N/A
• VET providers' programmes enable learners to meet the expected learning outcomes and become involved in the learning process	✓	In the CarboNostrum blended-learning course framework, learning takes place through various channels, including face-to-face interaction, distance learning, and autonomous work facilitated by a Learning Platform. Participants are encouraged to actively share, question, reflect on, and challenge ideas to enhance and advance their knowledge. The purpose of learning activities is to promote the practical application of previously studied material in comprehension and learning exercises. This involves the following techniques, tools, and exercises:
• VET providers respond to the learning needs of individuals by using a learner – centred approach which enable learners to achieve the expected learning outcomes	✓	<ul style="list-style-type: none"> • Exposition and reflection on good practices: Learners are guided to reflect on how to incorporate the examples presented in their farms, outlined through the exposition and reflection on good practices. • Case studies: Real-life cases are presented in specific contexts and situations, enabling learners to apply their acquired knowledge to analyze and approach each case. <p>The goal of knowledge-strengthening activities is to reinforce acquired knowledge and ensure a solid understanding of the main concepts. This includes the use of the following techniques, tools, and exercises:</p> <ul style="list-style-type: none"> • Summaries and diagrams: Key concepts are summarized and interconnected, allowing learners to review and fortify their understanding of the most important information.

2. IMPLEMENTATION	Descriptors in CarboNostrum	How it is Achieved in CarboNostrum
• VET providers promote innovation in teaching and learning methods, in school and in the workplace, supported by the use of digital technologies and online-learning tools	✓	The purpose of activities for the interconnection of knowledge is to assist learners in connecting various subjects covered in the course. This involves employing the following techniques, tools, and exercises: <ul style="list-style-type: none"> • Practical cases resolution: Learners tackle more complex problems, applying everything they've learned throughout the course. • Concept maps: Visual representation of the main concepts covered in the modules. • Final Project: The culmination of the course involves a practical project elaboration, with the aim that the outcome proves beneficial on the trainees own farms. <p>The certification of learners in the CarboNostrum course, or individual modules, necessitates the following:</p> <ul style="list-style-type: none"> • Attainment of the learning outcomes stated in each module. • Active participation in all evaluation activities (assessment questions + Final Project) that are mandatory for the evaluation process. • Achievement of a grade for each module equal to or above "Satisfactory". If a learner is completing the entire CarboNostrum course and does not achieve a "Satisfactory" level in one of the modules, they will only receive a certificate for the modules with a positive evaluation.
• VET providers use valid, accurate and reliable methods to assess individuals' learning outcomes	✓	

3. EVALUATION	Descriptors in CarboNostrum	How it is Achieved in CarboNostrum
<ul style="list-style-type: none"> Self-assessment/self-evaluation is periodically carried out under national and regional regulations/frameworks or at the initiative of VET providers, covering also the digital readiness and environmental sustainability of VET institutions 		N/A
<ul style="list-style-type: none"> Evaluation and review cover processes and results/outcomes of education and training, including the assessment of learner satisfaction as well as staff performance and satisfaction 	✓	<p>The CarboNostrum course incorporates various tools to assess the outcomes of learning and the associated processes across different stages. To facilitate formative learning, participants engage in exercises and activities throughout the module. For evaluating learning, most modules conclude with a quiz or test to verify the achievement of learning outcomes. Additionally, a final project elaboration is envisaged to be implemented on participants' own land, showcasing acquired knowledge, skills, and attitudes.</p> <p>The course employs instruments to evaluate processes, specifically gauging satisfaction and resource adequacy. These instruments, administered to trainees, trainers, and managers, address the performance of various stakeholders, including trainers, trainees, and other staff, as well as the effectiveness of the learning platform and overall course organization. These assessment tools are accessible through a dedicated online questionnaire app, ensuring anonymity in responses. The collected feedback is robust, encompassing both quantitative and qualitative data, and serves as a valuable resource for enhancing module and course content, refining organizational aspects, and improving the performance of trainers.</p>
<ul style="list-style-type: none"> Evaluation and review include the collection and use of data and adequate and effective mechanisms to involve internal and external stakeholders 		N/A

3. EVALUATION	Descriptors in CarboNostrum	How it is Achieved in CarboNostrum
<ul style="list-style-type: none"> Early warning systems are implemented 	✓	<p>In the CarboNostrum course, several systems are in place to establish early warning mechanisms. Predominantly comprising self-learning modules accessible through a dedicated Learning Platform, this platform delivers real-time updates on the engagement and learning outcomes of each participant. This immediate feedback allows the course manager to intervene promptly in case of decreased activity by a trainee. Additionally, each module incorporates synchronous sessions, offering a valuable opportunity for tutors/trainers to identify and address individual needs and/or learning challenges in the short term.</p> <p>The 5th module stands out as a face-to-face experience, emphasizing practical application and serving as a pivotal moment to confirm the expected progress of learning. Importantly, the elaboration of a Final Project is facilitated with online tutor support. This collaborative process enables the adjustment of learnings as necessary, ensuring the timely development and presentation of a high-quality, relevant, and applicable project.</p>

4. REVIEW	Descriptors in CarboNostrum	How it is Achieved in CarboNostrum
<ul style="list-style-type: none"> Learners' feedback is gathered on their individual learning experience and on the learning and teaching environment. Together with teachers', trainers' and all other relevant stakeholders' feedback this is used to inform further actions 	✓	<p>The evaluation of the CarboNostrum Pilot Action engaged learners and tutors in providing feedback through a questionnaire that assessed different dimensions, such as platform usability, content evaluation, face-to-face training, and tutor performance. AidLearn collected and analysed the results, with partnership agreement, forming the basis for improving the final CarboNostrum blended-learning course.</p>
<ul style="list-style-type: none"> Procedures on feedback and review are part of a strategic learning process in the organisation, support the development of high-quality provision, and improve opportunities for learners. 	✓	<p>The modules of the CarboNostrum blended course underwent internal assessment through a peer review and external assessment conducted by an expert in climate-smart agriculture.</p>
<ul style="list-style-type: none"> Information on the outcomes of the review is widely and publicly available 		N/A
<ul style="list-style-type: none"> Results/outcomes of the evaluation process are discussed with relevant stakeholders and appropriate action plans are put in place 		N/A

These indicators supported the development of the CarboNostrum Course pedagogical approach, training methodology, modules and e-Learning platform development, and the Pilot Action implementation according to the descriptors phase of the cycle. Figure 3, below, presents a diagram of the CarboNostrum development cycle according with EQAVET Descriptors and Indicators:

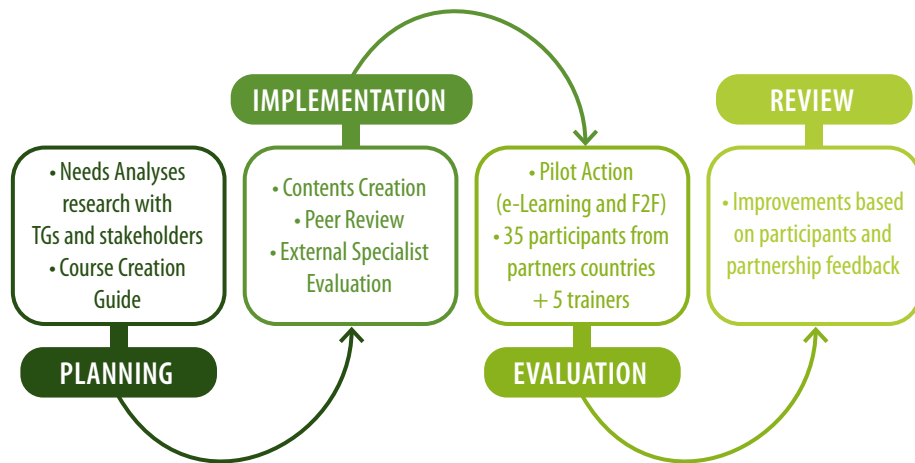


FIGURE 3. CarboNostrum development cycle according with EQAVET Descriptors and Indicators.



4

Training Methodology

The training model provides the pedagogical framework of the CarboNostrum Course design, which is focused on a blended learning approach (self-paced e-learning and face-to-face training) and considers the specific needs of farmers in poor and/or degraded lands of Mediterranean Ecosystems.

On the one hand, the exposed methodology considers adult education principles, bearing in mind the promotion of problem-solving, auto-reflection, and the analysis of professional practice. On the other hand, since a significant part of the course is online, it is also important to talk about applying the e-learning principles as a means to impart the training.

4.1. THEORY OF CONSTRUCTIVISM

The virtual environment of training is based on the theory of constructivism. This theory promotes active learning and not just a reception-memorization of information. The constructivism theory suggests that previous knowledge acquired would make it easier to acquire further, new, and more complex knowledge. This model was entrenched in learning theories by Dewey, Piaget, Vygotsky, Gagne, and Bruner (Kurt S., 2021⁴).



⁴Visited in October 2022 on <https://educationaltechnology.net/constructivist-learning-theory/>

The virtual learning environment works as a guide, facilitating information and promoting the learner's curiosity and motivation for continuing to discover and identify what may be useful for their professional practice.

The virtual environment facilitates the required information and motivate the learner to seek new knowledge. But, at the same time, it also benefits the **knowledge sharing** between the learners, thanks to the synchronised sessions and face-to-face week.



4.2. ADULT EDUCATION'S PRINCIPLES

- a) **Previous experience as a learning resource:** The adults have carried out numerous learnings during their lifetime. The experience has helped them to understand new concepts and to find the utility of the information they have received from different sources. The adult needs to create knowledge through previous experiences, which makes the new information coherent with their already existing knowledge.
- b) **Autonomy and auto-directed learning:** The adult knows what they need/want to know. It is important to provide information and give the learner some liberty to select the most significant knowledge for each case.
- c) **Interests and Motivation:** Motivation is a fundamental aspect of the learning process. To be able to learn, the learners must be motivated to discover what they are going to study. The adults know their interests, and they will get motivated by what will help in their professional practice, or that is relevant for their professional development.

d) **Facilitating learning environment:** The atmosphere/environment is crucial to the learning process. It is vital to create an environment that would facilitate the adult's comfort and promotes clear and rapid access to information, as well as interaction and participation. Mistakes should be born in mind and used as an improvement tool, not a failure. All this would later prompt interest, motivation, autonomous and proactive learning, and knowledge-building.

e) **Different learning styles:** Each person learns differently. Different aspects, previous influences, characteristics of personality, cognitive characteristics, etc., determine the learning styles. Adults have strong personal learning styles, and all of the issues above would determine how new concepts are acquired.

Bearing in mind the described principles, the methodology of the course is based on:

- **The learner's previous experience**, which can be used as a tool for the learning process, giving the learner the liberty of choosing the most relevant information and stressing the needs and characteristics previously analysed.
- **The Platform working as a guide and facilitating information**, so the learners may self-direct their learning process, focusing on the most relevant aspects for their farm development.
- **The learners' characteristics and needs** that have been determined in previous phases of the project.
- **The accessibility of the learning platform** whose design is attractive and user friendly.
- **Learners' different learning styles** were taken into account in the learning platform and the content designed, which presents different approaches (visual information, readings, films, exercises, etc.) to make all the learners feel comfortable in their learning process.

4.3. E-LEARNING PRINCIPLES⁵



- **Multimedia principle:** Combining multimedia resources with theoretical learning materials can enhance the learning experience.
- **Contiguity principle:** It is important to connect the different types of content available on learning platforms, such as text, images, and diagrams, to allow for simultaneous viewing.
- **Temporality principle:** Presenting text and images at the same time helps learners understand better and make connections between what they have learned before and what they will learn next.
- **Redundancy principle:** There is a focus on relevant information. Online platforms enhance this by giving importance to visuals and creating differentiated sections. This organization of information makes it easier to digest as it is divided and presented in a consecutive manner.

⁵Visited in October 2022 on <https://elearningindustry.com/principles-of-elearning-demystified-applied>

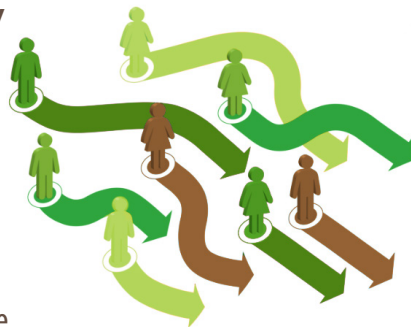
- **Coherence principle:** It is eliminated anything that is not essential from the screen and focus on what we want to convey at that moment. This principle is especially important when it comes to explaining complex concepts. E-learning platforms often use a high level of segmentation to make it easier to understand challenging information in a clear and coherent way.

The e-learning approach involves **customizing the format and content** to fit the unique learning process characteristics. This allows learners to **easily access information** and use digital tools that are tailored to their learning styles for effective learning.



4.4. INDIVIDUAL LEARNING PATHWAY

The learning modules involve self-directed learning through online content, synchronise sessions, distance tutoring, a face-to-face week, and optional peer support. The learner has several options to acquire knowledge. The ultimate goal is to utilize this knowledge to complete the exercises/activities, and final test in each module. The learner needs to attend mandatory synchronous online sessions and the face-to-face week. During these meetings, the learner can ask questions to the tutor and invited experts, who may join via video conferencing. Additionally, the learner can gain knowledge by further reading, watching documentaries, attending relevant events and fairs, or interviewing individuals in their surroundings.



4.5. TUTORING

The learners receive support from their tutor while working on the module's content, which includes exercises/activities and a final test. The tutor also supports the development of the course's final project.

Tutoring involves monitoring the progress of individual learners in a supportive way, using various communication methods such as email, chats, and video conferencing. Tutors offer general support to learners by providing regular feedback on their performance. They also guide learners on using module materials and adapting the content to meet individual needs. In some cases, tutors may provide additional materials and/or help learners with more challenging tasks. Additionally, they may assist learners in navigating through the material or adapting the package to local circumstances.

4.6. FINAL PROJECT

Project Based Learning is a teaching method in which learners gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge.

The learning pathway is completed with a final project for which the learners will present ideas for their farm. In order to investigate and respond to an authentic, engaging, and complex question/problem and/or challenge, the learner must apply the knowledge and skills learnt during the course to project climate-smart agriculture techniques, strategies, and outcomes that should be helpful for their agriculture business.

4.7. PEER-TO-PEER LEARNING

In Collaborative learning, a group of people exchanges ideas that benefit everyone involved. To start this process, the peer group should have an initial synchronous meeting to break the ice, get acquainted with the CarboNostrum learning model, and build a strong team spirit and supportive relationships. Then, the peer group can continue to work together through formal and/or informal communication channels, such as e-mail and video-conferencing, to develop the learning process further.



5

Training Content and Learning Outcomes

The CarboNostrum training modules were designed to increase and maximise the development and transferring of know-how and skills between partners and users. The general contents of the modules were outlined as follows:

ACTIVITY	REQUIRED TIME	ECTS
INTRODUCTORY SESSION: Meeting with tutor, signing learning contract / Presenting Modules	Synchronous: 3 hours	0.1
MODULE 1: Climate change and desertification in the Mediterranean region (expected effects in susceptible areas and vulnerable communities).	Autonomous: 17 hours Synchronous: 7 hours	1
MODULE 2: Understanding the carbon cycle of land-climate and plant-soil feedbacks	Autonomous: 14 hours Synchronous: 5 hours	0.8
MODULE 3: Applying and Analysing Mitigation and Adaptation Tools.	Autonomous: 11 hours Synchronous: 7 hours	0.7
MODULE 4: Back to basics: the role of traditional knowledge in climate-smart agriculture in a changing world.	Autonomous: 9 hours Synchronous: 6 hours	0.6
MODULE 5: Assessment of soil parameters and designing a baseline scenario with readily available tools	Face-to-face: 36 hours	1.4
MODULE 6: Creating value from ecosystem services, carbon cycling and land restoration.	Autonomous: 10 hours Synchronous: 5 hours	0.6
FINAL PROJECT DEVELOPMENT / PRESENTATION / CLOSING SESSION	Autonomous: 12 hours Synchronous: 8 hours	0.8
TOTAL	150 hours	6

The CarboNostrum training course and **e-Learning Platform** were designed and developed as a continuing vocational education and training course for smallholders and new farmers. To complete the full course, trainees must complete all 6 modules, and the final project, and attend the face-to-face event. While learners can work at their own pace, the order of the modules is set as stated above.

5.1. LEARNING OUTCOMES

The learning outcomes have been developed taking into account the nature of training to be provided (asynchronous and synchronous e-learning with a face-to-face training week) as well as its desired length (short-term and concise).

For all learning outcomes described below, the descriptors of EQF level 5 apply, namely:

Knowledge: *“Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge.”*

Skills: *“A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems.”*

Responsibility and autonomy: *“Exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others.”*

Each module has specific learning outcomes which complement those of the subsequent modules:

MODULE	LEARNING OUTCOMES:
M1	Climate change and desertification in the Mediterranean region (expected effects in susceptible areas and vulnerable communities).
<p>This module aims to introduce learners to the effects of climate change and desertification in the Mediterranean region, especially focusing on susceptible areas and vulnerable communities.</p> <p>The learning outcomes include an understanding of land degradation, the impact of climate variability, biodiversity loss, soil erosion, and desertification.</p> <p>At the end of the module, the learner should be able to:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> • Define the specific characteristics of the Mediterranean climate and its vulnerability to desertification. • Identify the natural susceptibilities, such as soil properties and terrain morphology, that influence land degradation in various regions; and • Identify types of land degradation, its causes, and effects. <p>Skills:</p> <ul style="list-style-type: none"> • Describe how human activities contribute to land degradation. • Distinguish the intertwined factors of soil properties, terrain morphology, and resource availability to mitigate land degradation. • Analyse the relationship between vegetation quality and desertification and how human activities can negatively affect the health and diversity of plant life. • Evaluate the complex relationship between climate change, land degradation, and food production, specifically in the Mediterranean region. • Differentiate and describe the principles and practices of Climate Smart Agriculture and its role in mitigating climate change impacts; and • Evaluate the balance between sustainable food production and climate change mitigation. <p>Responsibility and autonomy</p> <ul style="list-style-type: none"> • Assess the significance of integrating local knowledge with scientific findings in addressing desertification. • Assess the mitigation strategies used to address these impacts, focusing on sustainable farming practices, technological innovations, and policy incentives; and • Assess the impact of agriculture on landscapes and ecosystems, paying particular attention to provisioning, regulating, and cultural services. 	

MODULE	LEARNING OUTCOMES:
M2	Carbon cycle of land-climate and plant-soil feedbacks: soil carbon sequestration in a smallholder environment.

This module focuses on measures of climate smart agriculture will be given, divided in two groups, soil and land management. It provides farmers with a theoretical framework on the carbon cycle of land-climate and plant-soil feedbacks. The goal is to analyse each of these measures theoretically and geographically so farmers are able to choose the measure that best suit their land.

At the end of the module, the learner should be able to:

Knowledge:

- Define the concept of the carbon cycle and its importance in the Earth's ecosystems.
- Describe the role of the slow and fast carbon domain in the overall carbon cycle.
- Identify the systems and processes through which oceans interact with the carbon cycle.
- Identify the processes of atmospheric-terrestrial exchanges in the absorption and release of carbon dioxide (CO₂) by vegetation and soils; and
- Describe the basic principles of plant-soil feedback.

Skills:

- Identify the difference between the two carbon cycles (the geological cycle and the biological cycle) and the main processes involved in the biological cycle, including photosynthesis, respiration, and decomposition.
- Describe how earth systems and the global carbon cycle are linked in different rotation domains, from primary productivity to human-induced soil degradation.
- Recognize the human impact on the slow turnover domain in the carbon cycle and its impacts on the concentration in the atmosphere.
- Describe the role of human activities in changing the carbon cycle and the implications for the environment and the global climate.
- Describe the relation between CO₂ fertilization and climate change, and understand how the carbon cycle is impacted by increased plant growth and productivity.
- Identify the ecological consequences of HANPP, including its impact on biodiversity, carbon cycling and other ecosystem services; and
- Interpret the impact of land use practices, such as urbanization, deforestation, and intensive agriculture, on soil-atmosphere exchange and their implications for human health and the environment.

Responsibility and autonomy

- Relate the potential of nature-based solutions, such as reforestation and soil carbon sequestration, in mitigating climate change by increasing carbon storage;
- Specify the carbon sequestration's potential in the fast turnover domain to identify carbon storage opportunities and inform land management practices;
- Devise opportunities for sustainable resource management that can balance human needs with ecological concerns; and
- Relate the impact of land use and land management practices on soil-atmosphere exchanges and the carbon cycle.

MODULE	LEARNING OUTCOMES:
M3	Applying and analysing mitigation and adaptation tools in poor and degraded lands (land use/occupation, management, and valuation) under climate change.

This module aims to bridge the gap between the farmer and climate-smart measures.

After this module, the trainee will recognize the best practices and constraints of soil carbon sequestration in Mediterranean farming.

The trainee will be able to evaluate the differences between the various measures and know their potential costs, benefits, and expected outcomes.

At the end of the module, the learner should be able to:

Knowledge:

- Define the concept of carbon sequestration and its importance.
- Identify various carbon sequestration tools and methods.
- Define Climate Change Mitigation; and
- Define circular economy and its principles.

Skills:

- Comprehend the perspective on carbon sequestration in forestry, agriculture, and technology-driven solutions.
- Describe the potential environmental impacts and risks associated with carbon sequestration.
- Identify economic and political constraints impacting carbon sequestration.
- Recognize the balance between benefits and limitations in using sequestration tools.
- Recognize the benefits and challenges of applying a circular economy in soil and land management; and
- Recognize the importance of monitoring tools for evaluating agroecosystem health.
- Interpret basic image analysis and its application in earth observation.

Responsibility and autonomy

- Evaluate the scalability and capacity limitations of natural and man-made carbon sequestration methods.
- Evaluate the viability of different sequestration methods based on the limitations presented.
- Analyse the employed practices for soil management in the best practice Del Bancal a Casa, and expand on potential practices that can be applied.
- Analyse the employed practices for land management in the best practice Herdade de São Luís, and expand on potential practices that can be applied.
- Analyse the importance of circular economies in the best practice Çaglayanlar Farm and in agriculture in general; and expand on potential practices that can be applied.
- Evaluate the cost-benefit analysis of various carbon sequestration practices.
- Analyse carbon sequestration in the context of Mediterranean agricultural systems through case studies; and
- Discuss the future of carbon sequestration and sustainable land management in the Mediterranean region.

MODULE	LEARNING OUTCOMES:
M4	Back to basics: the role of traditional knowledge in climate-smart agriculture in a changing world.

The “Role of Traditional Knowledge in Climate-Smart Agriculture in a Changing World” module delves into the invaluable contributions of traditional knowledge systems in the context of modern, climate-smart agriculture. In a rapidly changing world where climate variability poses unprecedented challenges to food security and sustainability, harnessing the wisdom of traditional practices is essential.

This module explores how traditional knowledge can be integrated into innovative climate-smart agricultural approaches to address the pressing issues of our time.

At the end of the module, the learner should be able to:

Knowledge:

- Determine the main relationship between basic agriculture knowledge and soil management.
- Identify the best water-saving techniques in agriculture.
- Analyse optimal land and water management; and
- Describe what agronomic techniques are.

Skills:

- Analyse the advantages of mixed and multifunctional agriculture; and
- Describe the importance of optimizing the water resource.

Responsibility and autonomy

- Evaluate the use of agroecological practices, which are farming methods that mimic natural systems; and
- Recognize the importance of different techniques, and identify the benefits they bring to soil fertility.

MODULE	LEARNING OUTCOMES:
M5	Assessment of soil parameters and designing a baseline scenario with readily available tools.

This module provides an innovative step towards smallholder and new farmers empowerment through knowledge in DIY (Do It Yourself) soil sampling and testing; end-users will be taught to collect soil samples and assess water content, bulk density, structure, organic matter (and to derive organic carbon) with readily available/home-made tools without sacrificing sample quality. In this module, farmers will also learn to access, interpret, and use geographical data on their lands by accessing openly and freely available datasets.

Additionally, they will learn by using available tools to produce data for monitoring their lands. This will allow them to monitor the results of changes in practices, as well as estimate soil carbon content (in tonnes of carbon per hectare) to allow them to create value for their carbon gains in voluntary markets. Finally, field trips will take place, where learners will visit organic farms of a variety of crops and one conventional farm of leafy vegetables in different environments (open fields, net houses, greenhouses) to discuss their cultivation practices and soil management.

At the end of the module, the learner should be able to:

Knowledge:

- Enumerate the basic physicochemical soil properties
- Define fertilization requirements of the crops
- Identify the correlation among pH values and water and nutrient availability
- Identify the suitable steps for a reliable and representative soil analysis.

Skills:

- Assure high-quality standards protocols as well as data interpretation; and
- Proceed to soil sampling planning analytical testing, quality assurance and data interpretation in the areas of environmental media and soil characterization for construction purposes.

Responsibility and autonomy

- Run basic soil parameters analysis, including estimation of Carbon content.
- Recognize the role of a healthy soil

MODULE	LEARNING OUTCOMES:
M6	Creating value from ecosystem services, carbon cycling and land restoration.
<p>The module “ Creating Value from Ecosystem Services, Carbon Cycling, and Land Restoration” focuses on recognizing and enhancing ecosystem service value.</p> <p>It includes defining value, valuation methods, stakeholder engagement, market-based approaches, carbon markets, funding mechanisms, and policies like the Common Agricultural Policy, EU carbon removal certification, and Carbon Farming Project guidelines</p> <p>At the end of the module, the learner should be able to:</p> <p>Knowledge:</p> <ul style="list-style-type: none"> • Define the concept and significance of valuing ecosystem services in both ecological and economic contexts. • Describe the fundamental concepts of carbon offsetting and trading, including their definitions, principles, and key mechanisms. • Recognize, the importance of regulatory services for ecosystem protection, human safety, and the provision of other. • Recognise the effects of CAP reforms on Mediterranean farmers and the process for accessing CAP funds. • Recognize the challenges associated with this a transparent regulatory framework and the relevance of designing a climate-smart and wider strategy. • Identify the value of a carbon farming initiative and steps towards its creation. <p>Skills:</p> <ul style="list-style-type: none"> • Apply practical knowledge on strategies to overcome communication barriers in stakeholder engagement. • Recognize the challenges associated with sustainably managing ecosystem services, including trade-offs between different services, conflicts among stakeholders, and the need for policy and governance frameworks that support their conservation and restoration. • Assess the Environmental Impact of carbon emissions, recognize the effects of climate change, and appraise the importance of reducing carbon footprints. • Apply practical knowledge about carbon offset projects, carbon markets, and the roles of various stakeholders. • Analyse the effects of CAP reforms on Mediterranean farmers and the process for accessing CAP funds. <p>Responsibility and autonomy</p> <ul style="list-style-type: none"> • Assess the Environmental Impact of carbon emissions, recognize the effects of climate change, and appraise the importance of reducing carbon footprints. • Identify opportunities for applying the concepts of carbon offsetting and trading in real-world scenarios to reduce carbon emissions effectively 	

5.2. LEARNING ACTIVITIES

To fully understand the material, trainees are encouraged to use the exercises and self-test questions provided. Each module either contains a case study, helpful tips, and/or practical exercises that allow learners to apply theoretical concepts to real-life problems. Finally, learners showcase their newly acquired skills by completing a final project for their land, which their tutor will evaluate.

Every learner follows their own learning path individually. If they encounter any difficulties or require assistance with the course material, they can seek support through email, online chats, or peer learning, and the tutor will provide solutions to their concerns.

6

Evaluation

Various evaluation activities are conducted so that learners can self-assess their knowledge, skills, and responsibility and autonomy. The assessment methods and criteria are made clear from the very beginning and linked to the course's objectives and goals; the Tutor Guide and Participant Guide also disclosure information regarding the evaluation process. The certification of the learners in the CarboNostrum course, or individual modules, requires the following:

- Achieving the learning objectives stated in each module;
- Engaging in all the evaluation activities (Self-test questions + Final Project) that are mandatory for the evaluation process;
- Obtaining a grade for each module equal to or above **Satisfactory**.

The final grade of the CarboNostrum b-Learning Course is the sum of all the grades obtained per module (except module 5), plus the grade obtained in the Final Project, divided by 6, according to the following calculation formula:

$$\frac{\text{Sum of the grades obtained Self-Test Question of Module 1 to 6 (except 5) + Grade of the Final Project}}{6}$$

The grade that will appear in the CarboNostrum Course Certificate will follow the qualitative and quantitative scale presented below:

1	UNSATISFACTORY	<i>below 6</i>
2	NEEDS IMPROVEMENT	<i>6 until 9</i>
3	SATISFACTORY	<i>10 until 13</i>
4	GOOD	<i>between 14 and 17</i>
5	EXCELLENT	<i>18 and above</i>

6.1. MODULES

The exercises/activities and best practices provided in each module are designed to aid the learner in comprehending the material and checking their understanding. Feedback for improvement can be provided, by the tutor, in the synchronised sessions.

After completing each module (except module 5 – F2F training), there is a Test/Multiple Choice with **10 questions** about the topics covered in the module with four different answer options to choose from. Upon answering the Test/Multiple Choice and achieving a positive result, the module will be considered complete.

The learners will have 2 opportunities to do the Test/Multiple Choice provided at the end of each module; if the grade obtained is not satisfactory on the first attempt, the learner may go through the content once more and repeat the test again. The highest score achieved will be the final grade of the module.

6.2. FINAL PROJECT

The Final Project is a hands-on assignment that should provide practical benefits for the learners' farm. It will serve as the basis for their final assessment, wherein they will showcase their knowledge, skills, and responsibility and autonomy. The project's objective is to enhance comprehension of the topics discussed in the modules and to ensure that the project's outcomes are of value to the learners' business.

The Final Project includes a written part and an oral presentation, and detailed information regarding the Final Project is provided to the trainees in the **e-Learning Platform**. This Final Project can be done individually or in groups of up to three persons.

The Final Project should include the following information:

1. Project Outline/Description:

- Start with a brief summary of what your project encompasses. This will give the reader a roadmap of your proposal and what to expect in the upcoming sections.

2. Farm Profile:

- Share a snapshot of the farm.
- Size: How big is the farm?
- Location: Where is it situated?
- Crops/Livestock: What is grown or reared?

3. Relevance:

- Why did you choose the particular practices you're proposing?
- Detail why these practices address the specific challenges and needs of the farm.

4. Feasibility:

- How practical are your proposed practices?
- Consider factors like:
 - Cost: Can it be afforded?
 - Resources: Are there the necessary tools, equipment, or manpower?
 - Local Constraints: Are there any local factors or regulations that might hinder the proposed practices?

5. Environmental Impact:

- How will the environment benefit?
- Highlight environmental improvements you anticipate, such as:
 - Reduced water consumption.
 - Improved soil vitality.
 - Lowered greenhouse gas contributions.

6. Detail:

- Provide a blueprint.
- Lay out the steps or strategies that can be taken to apply each of the practices on the farm. Think of it as a how-to guide.

7. Risk Assessment:

- Prepare for the unexpected.
- Consider potential challenges or threats, like extreme weather events or pest invasions.
- Detail proactive strategies to manage or reduce these risks, ensuring the durability of your proposed practices.

The learner is required to submit 2 pieces of assessment with the following weightings:

ASSIGNMENT NUMBER AND TOPIC		WEIGHTING
1	WRITTEN PROJECT	60%
2	ORAL PRESENTATION	40%

You can see the detailed **Final Project Assessment** attached.

7

Conclusion

The CarboNostrum Blended Course is designed to support the development of eco-friendly jobs, sustainable farming methods, and food production that minimises carbon emissions. It also aims to preserve traditional knowledge and production methods while seeking new ways to evaluate the environment within the current political and economic context.

The course modules aim to help smallholder and new farmers in Mediterranean Europe improve their land management practices to fight climate change and desertification. By doing so, they can boost their economic sustainability and contribute to a sustainable and equitable future where everyone benefits.

Implementing climate-smart agriculture practices can benefit smallholder and new farmers by increasing yield, improving soil properties (like water retention capacity and organic matter), and reducing atmospheric carbon dioxide by storing it underground. The soil and climate types in Mediterranean Europe provide an ideal opportunity for implementing such changes, and smallholder and new farmers are the ideal starting point due to their important but delicate role in agriculture.

8

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Nunes. C. (2018). *ECVET Methodological Guide for Professionals: Methodology developed within EURspace Project*. Arcos de Valdevez: Escola Profissional do Alto Lima, C.I.P.R.L.

Attachments

TITLE	FINAL PROJECT WRITTEN ASSESSMENT				
	0-5	6-9	10-13	14-17	18-20
PROJECT DESCRIPTION	The learner offers a basic summary of the project, touching on the practices they intend to apply. However, this summary is vague and lacks clear direction, providing only a minimal roadmap for the proposal. Key elements of the project are either not mentioned or not elaborated on.	The learner presents a more detailed project outline, including some of the intended practices. The summary gives a general idea of the project's scope but lacks depth in certain areas, and the roadmap for the proposal is not fully clear or comprehensive.	The learner provides a clear and well-structured project description, outlining the main practices and goals of the project. This summary gives a good overview and serves as an effective roadmap, though it may lack some specifics or fail to highlight all critical aspects of the proposal.	The learner offers a detailed and informative project outline, thoroughly describing the intended practices and the project's objectives. The summary serves as a comprehensive roadmap, guiding the reader through the proposal, though minor details or nuances might be overlooked.	The learner provides a comprehensive and clear summary of the project, effectively encompassing all intended practices and key goals. This outline serves as an excellent roadmap, offering a complete and detailed preview of what to expect in the upcoming sections of the proposal.
FARM PROFILE	The learner mentions the farm, including only one or two basic elements such as its size or location, but lacks details about crops, livestock, or other specific aspects.	The learner describes the farm with a moderate level of detail, including some aspects such as size, location, and a general idea of crops/livestock, but the overview lacks depth or specific information.	The learner gives a good description of the farm, covering most aspects like size, location, type of crops/livestock, but the overview may lack thoroughness or specific details in one or two areas.	The learner provides a very detailed and thorough description of the farm, including size, location, type of crops/livestock, and additional relevant information, leaving only minor areas less explored.	The learner provides a comprehensive overview of their farm, including detailed information about its size, location, type of crops/livestock, and other relevant aspects, leaving no significant details out.
RELEVANCE	The learner has chosen practices with limited relevance to the farm's specific challenges and needs. The choices show a basic understanding of climate-smart practices, but they do not align well with the farm's unique context or address its main issues.	The learner has selected some practices that are somewhat relevant to the farm's specific challenges and needs. There is an evident effort to match practices to the farm's situation, but the alignment is not fully effective or comprehensive.	The learner has chosen practices that are generally relevant to the farm's specific challenges and needs. Most of the selected practices demonstrate an understanding of the farm's conditions and aim to address its key issues, though some aspects might be better addressed.	The learner has chosen practices that are highly relevant to the farm's specific challenges and needs. The choices show a strong understanding of the farm's unique context, with nearly all practices being well-suited to address its main challenges and needs.	The learner has chosen practices that are directly relevant to their farm's specific challenges and needs. Each practice is carefully selected to address the unique conditions and issues of the farm, demonstrating a deep understanding of both the challenges and the most effective climate-smart practices.

TITLE	FINAL PROJECT WRITTEN ASSESSMENT				
	0-5	6-9	10-13	14-17	18-20
FEASIBILITY	The learner provides a basic assessment of feasibility, addressing only one or two factors such as cost or resources. The evaluation lacks depth, overlooking significant aspects like local constraints or the potential economic benefits.	The learner considers several factors affecting feasibility, such as cost and resources, but the assessment is not comprehensive. Key elements like local constraints or a more detailed economic analysis may be partially addressed or missing.	The learner provides a good assessment of feasibility, covering most factors including cost, resources, and local constraints. The evaluation demonstrates an understanding of the practical challenges, but it may lack detailed analysis of economic benefits or a thorough consideration of all local factors.	The learner conducts a thorough assessment of feasibility, addressing factors like cost, resources, local constraints, and potential economic benefits. The evaluation is comprehensive, but minor details or specific considerations might be overlooked or not fully explored.	The learner assesses the feasibility of implementing proposed practices in a comprehensive manner, considering all relevant factors including cost, resources, local constraints, and potential economic benefits. The assessment is detailed, showing a deep understanding of the practicalities and economic implications of the proposed practices.
ENVIRONMENTAL IMPACT	The learner acknowledges general environmental benefits but does not specify how the practices will lead to outcomes like reduced water usage, improved soil health, or decreased greenhouse gas emissions. The understanding is surface-level and lacks detail.	The learner identifies some specific environmental benefits, such as reduced water consumption or improved soil vitality. However, the assessment is not comprehensive, missing some key aspects or failing to detail how the practices will achieve these benefits.	The learner provides a good assessment of the environmental impact, covering major aspects like reduced water usage, improved soil health, and lowered greenhouse gas contributions. The evaluation is informed and reasonably detailed but may lack depth in explaining the mechanisms or extent of these benefits.	The learner conducts a thorough evaluation of the environmental impact, detailing how the practices will lead to significant benefits such as reduced water usage, enhanced soil vitality, and decreased greenhouse gas emissions. The assessment is comprehensive, but there may be minor gaps in the analysis or projections.	The learner offers a comprehensive analysis of the environmental impact, clearly and effectively outlining the expected benefits across key areas, like water conservation, soil health improvement, and reduction in greenhouse gas emissions. The analysis demonstrates a deep understanding of the environmental implications and the effectiveness of the proposed practices.

TITLE	FINAL PROJECT WRITTEN ASSESSMENT				
	0-5	6-9	10-13	14-17	18-20
DETAIL	The learner provides a very basic outline for implementing the practices. This includes a few steps or strategies, but they are vague and lack specificity. The outline does not cover all practices or omits key stages in the implementation process.	The learner offers a moderate level of detail in their implementation plan. Key steps or strategies for some practices are described, but the plan lacks comprehensiveness. Some practices may have well-outlined steps, while others are only briefly mentioned or overlooked.	The learner presents a good guide for implementation, covering most of the chosen practices with clear steps or strategies. The guide is structured and informative, though it may lack depth in certain areas or fail to address potential challenges in the implementation process.	The learner provides a detailed strategy for implementing each practice. The steps are well-explained and cover most aspects of the implementation process. However, there might be room for more nuanced details or consideration of contingencies and varying conditions on the farm.	The learner provides a comprehensive and specific blueprint for implementation. Every practice is accompanied by a detailed step-by-step strategy, addressing all aspects of implementation, including contingencies and adaptation to specific conditions on the farm. The blueprint serves as a thorough how-to guide, leaving little to no ambiguity.
RISK ASSESSMENT	The learner acknowledges the existence of general risks such as extreme weather or pests but provides minimal or no specific strategies for managing or mitigating these risks. The approach to risk assessment is rudimentary and lacks detail.	The learner identifies some specific risks, like certain weather events or pest issues, and suggests a few strategies for managing them. However, the assessment and proposed strategies are not comprehensive and may lack depth or fail to cover all critical risks.	The learner provides a good evaluation of potential risks, including a range of scenarios like extreme weather and pest invasions. They outline relevant strategies for managing these risks, but the plan might lack full comprehensiveness or detail in how to implement these strategies effectively.	The learner conducts a detailed risk assessment, identifying a wide range of potential challenges. They propose robust and well-thought-out strategies to mitigate these risks. The assessment is thorough, though minor aspects or less likely risks might not be fully covered.	The learner offers a comprehensive analysis of potential risks, including a wide spectrum of scenarios like extreme weather events, pests, and other challenges. They detail extensive and well-planned strategies to manage or mitigate each identified risk, showing a deep understanding of the potential challenges and effective ways to address them.

TITLE	FINAL PROJECT PRESENTATION ASSESSMENT				
	0-5	6-9	10-13	14-17	18-20
DEPTH	The learner shows a basic understanding of the topic but struggles to discuss nuances or complexities. The presentation may cover only surface-level information and lacks depth in exploring the subject matter.	The learner displays a moderate understanding of the topic and provides some insight into its nuances or complexities. However, the discussion of these aspects is limited and not fully developed, lacking detailed exploration.	The learner demonstrates a good understanding of the topic and discusses several key nuances or complexities. The presentation includes a clear explanation of important aspects, though it may not delve deeply into all the complexities or offer comprehensive insight.	The learner exhibits a strong understanding of the topic, with a detailed discussion of its nuances and complexities. The presentation effectively explores various aspects of the topic, though there may be room for even deeper analysis or exploration of subtler nuances.	The learner demonstrates a deep understanding of the topic and comprehensively discusses its nuances and complexities. The presentation is thorough and insightful, showcasing a high level of mastery and ability to engage with complex aspects of the subject matter in depth.
TIME MANAGEMENT	The learner struggles significantly with time management. The presentation may far exceed or fall short of the allocated time, resulting in key topics being rushed or not covered at all.	The learner shows some control over the timing of their presentation, but there are noticeable issues. Either some sections are too lengthy, leading to an overrun, or certain aspects are not given enough time, affecting the presentation's comprehensiveness.	The learner manages their time reasonably well. The presentation is close to the allocated time frame, with most essential aspects covered. However, some minor sections may be too brief or too extended, affecting the overall balance and flow.	The learner is effective in managing their presentation time. They stay very close to the allocated time, covering all key aspects sufficiently. Minor discrepancies in timing may occur, but they do not significantly impact the presentation's effectiveness.	The learner keeps the presentation within the allocated time, covering all essential aspects efficiently. The timing is well-balanced, ensuring each section receives appropriate attention without rushing or overextending any part of the presentation.
ACCURACY	The learner often presents information that is not accurate, making several unfounded statements. There is a noticeable lack of fact-checking or reliance on unverified sources, which significantly affects the credibility of the presentation.	The learner's presentation is moderately accurate but includes some errors or unverified statements. While a portion of the information is correct, the lack of thorough verification in certain areas diminishes the overall reliability of the presentation.	The learner generally provides accurate information, with only minor inaccuracies or a few unsubstantiated statements. These errors are not central to the presentation's main points and do not significantly detract from its overall accuracy.	The learner's presentation is highly accurate, with information well-supported by reliable sources. There may be a rare unfounded statement, but these are minimal and do not meaningfully impact the credibility of the overall presentation.	The learner provides accurate information throughout the presentation and refrains from making any unfounded statements. All claims are well-supported by credible sources, demonstrating thorough research and fact-checking.

TITLE	FINAL PROJECT PRESENTATION ASSESSMENT				
	0-5	6-9	10-13	14-17	18-20
RELEVANCE	The learner frequently strays off-topic, discussing many points that are not directly related to the project's primary goals. The content often diverges into tangents, resulting in a presentation that lacks focus and relevance to the main objective of planning a climate-smart intervention for a farm.	The learner's presentation is moderately relevant to the project's goals, but it includes several off-topic sections or unnecessary tangents. While some key points are addressed, the irrelevant content detracts from the overall focus and coherence of the presentation.	The learner mostly focuses on content relevant to the project's primary goals, but there are occasional digressions or tangents. These are not extensive and do not significantly detract from the presentation's relevance, but they are noticeable.	The learner's presentation is highly relevant to the project's goals, with minimal off-topic content. Any tangents are brief and infrequent, not significantly impacting the focus and coherence of the overall presentation.	The learner consistently focuses on key points that are directly relevant to the project's primary goals of planning a climate-smart intervention for a farm. The presentation is free of unnecessary tangents, maintaining a clear and focused approach throughout.
RESPONSE TO QUESTIONS	The learner struggles to provide coherent answers to audience questions. Responses are often unclear, off-topic, or demonstrate a lack of understanding of the question. There is a significant difficulty in effectively addressing the audience's inquiries.	The learner provides answers that are somewhat relevant and clear, but they lack depth or full understanding. Responses may partially address the questions, but they often miss key points or fail to fully engage with the question's intent.	The learner answers audience questions in a generally clear and relevant manner. Responses are mostly on point and demonstrate an understanding of the questions, though there may be minor issues with clarity or depth in some answers.	The learner provides high-quality responses that are both clear and insightful. Answers are well-thought-out and relevant to the questions, showing a good grasp of the topic. There may be occasional minor lapses in clarity or completeness.	The learner consistently provides clear and thoughtful answers to audience questions. Responses are not only relevant and accurate but also demonstrate a deep understanding of the topic, offering insights that add value to the presentation.