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Work Package 3

Skills for the Green Transition

(Development of Competence Units/Curriculum)

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EXECUTIVE SUMMARY

The "European Training Guidelines for Green Skills" document aims to integrate green skills and sustainability concepts into European training programs. This preliminary version is part of the ongoing work under the GREEN project. The guideline was developed using insights from desk research, sectorial and cross-sectoral focus groups, and outcomes from the Sectoral Blueprint Project.

The focus is on integrating transversal green skills into training programs across sectors crucial for sustainable development, such as maritime, energy, additive manufacturing, batteries, automotive, and defence. Essential skills include system thinking, critical thinking, problem framing, and green thinking, which are vital for the green transition.

Trainers are positioned as key drivers of change, tasked with embedding principles of sustainability and green thinking into their training practices. This integration aims to influence the attitudes and actions of the industrial workforce, contributing to the Sustainable Development Goals (SDGs).

To support this, the guidelines recommend developing a transversal unit of competence titled "Pedagogical Practices for a Greener Tomorrow: Trainer's Edition." This unit aligns with the GreenComp framework and caters to different proficiency levels within the European Qualifications Framework (EQF). It aims to make training program designers and trainers aware of the need to address green themes comprehensively, ensuring that students gain the necessary skills to contribute to a sustainable future.

TABLE OF CONTENTS

| | |
|--|----|
| 1.INTRODUCTION..... | 4 |
| 2.METHODOLOGICAL APPROACH..... | 5 |
| 2.1. Integration of sustainability principles into curriculum design | 6 |
| 2.2 Methodological Frameworks | 8 |
| 2.3 GREEN Skills Needs | 12 |
| 3. GREEN PROJECT APPROACH TO PROMOTE GREEN SKILLS AND ORGANIZATIONAL SUSTAINABILITY CULTURE (THE EU GREEN VET NETWORK) | 13 |
| 4.TEACHERS AND TRAINERS’ CURRICULUM | 17 |
| 5.GREEN CURRICULUM FOR THE WORKFORCE | 19 |
| 6.CONCLUSION..... | 21 |
| REFERENCES..... | 21 |

1. INTRODUCTION

In the global pursuit of a sustainable future, the integration of green skills and sustainability concepts into training programs has become an imperative. The European Training Guideline for Green Skills is being developed aiming green skills and sustainability concepts integration into European training programs. It follows a comprehensive approach, incorporating insights gathered from various sources, including desk research, sectorial and cross-sectoral focus groups, and the outcomes of the Sectoral Blueprint Project.

With a focus on specific sectors crucial for sustainable development, including maritime, energy, additive manufacturing, batteries, automotive, and defence, this document underscores the importance of sector-specific green skills to drive innovation and meet evolving environmental challenges. However, alongside sectorial skills, transversal green skills are deemed essential, encompassing abilities such as system thinking, critical thinking, problem framing, and green thinking. These skills are considered to have high relevancy for the green transition and need to be integrated into training programs to cultivate a holistic approach to sustainability across industries.

Central to this transformation trainers are positioned as drivers of change in greening the mindset of the workforce. As promoters of professional, personal and social skills, trainers have the means to include the principles of sustainability and green thinking in their training, contributing to a change of attitude in the industrial workforce as well. Furthermore, the impact of education on the Sustainable Development Goals (SDGs) cannot be undervalued, with educators having a crucial role in influencing the attitudes and actions of future generations towards environmental responsibility. Integrating Green thinking on pedagogical approaches in a proactive learning environment will lead learners to include it on their problem-solving and decision-making process when facing a learning challenge.

To effectively integrate sustainability principles into education and training, the Green project's European Training Guideline tackle one competence unit development "Pedagogical Practices for a Greener Tomorrow: Trainer's Edition." This competence Unit will help educators from the different sectors to be aware, discuss and test different pedagogical approach where Green skills integration can be done.

The recommended transversal unit of competence is aligned with the GreenComp framework and adapted to different levels of proficiency, ranging from levels 4 to 7 of the European Qualifications Framework (EQF). The specific units of competence which were developed for the professional profiles that were identified as relevant in the green skills report (3.1) and were developed within the framework of the sector blueprints projects will also be summarised in this document. Our aim is to make training programme designers aware of the need to include green topics into their curricula, but also to make trainers properly skilled and aware of the need to address green themes in a transversal way, ensuring that students acquire the skills needed to make a significant contribution to a sustainable future, while meeting the demands of evolving industries.

2.METHODOLOGICAL APPROACH

GREEN project follows a holistic approach towards the promotion of green skills development, considering the interconnectedness of three main principles the sustainable development goals settled in the 2030 Agenda for Sustainable Development, European methodological frameworks and tools and green skills need as showed in the image bellow.



If we look at the definition of sustainable development “**development that meets the needs of the present** without compromising the ability of future generations to meet their own needs”, you realise how crucial it is to include the concept of sustainability in the development of green properties.

The fundamental principles of sustainability include sustainable leadership, environmental commitment and responsibility, research and innovation in the field of sustainability, education for sustainability, equity and social inclusion, systems thinking and the circular economy - integrating these principles into education ensures awareness of the interconnection between different systems. Therefore, the development of training materials that promote the development of skills such as strategic thinking, systems thinking and planning, as well as collaborative and

interdisciplinary problem-solving, should be considered a sustainable and GREEN practice.

The GREEN project, as already mentioned in previous documents follows three main methodological approaches: The European Qualifications Framework (EQF)¹ – a common reference framework that helps education and training entities, employers and individuals across Europe to compare qualifications in the different education and training systems, facilitating mobility of trainees and workers in the EU in the process. The GreenComp – the European sustainability competence framework² – which fosters a sustainability mindset by helping users develop the knowledge, skills and attitudes to think, plan and act with empathy, responsibility, and care for our planet; and EWF methodology used as the basis for curriculum development on a modular basis where a set of Competence Units are organized in Learning Outcomes.

With regard to the principle of green skills needs, the GREEN project is mainly based on the conclusions of the D3.1 [Report on skills needs for the green transition](#), which maps the professional profiles and the relevant skills associated with them for the green transition in the six industrial sectors targeted by the Green project. In this report, one of the priorities identified was the need to develop a curriculum for teachers and trainers to enable them to integrate so-called green competences into their teaching practices. Existing sectoral training offers for the development of green competences were also analysed in this report and will be presented below given their sectoral nature.

2.1. Integration of sustainability principles into curriculum design

Green skills should be approached holistically and as an integral part of a broader objective such as ensuring global sustainability. Following cedefop's definition of Green skills as the “knowledge, abilities, values and attitudes needed to live, work and act in economies and societies seeking to reduce the impact of human activity on the environment”, one realises the impact of introducing a green approach in all human dimensions and especially in work processes and the importance of this introduction in the education and training of the workforce. The need for greener education is grounded in the need of the transition to a low-carbon, resource-efficient economy which requires systemic changes that will result not only in new products and services but also in changes in production processes and business models. This greening of the economy will inevitably change the skills required and the tasks involved in many of the existing occupations.³

17 main sustainable development goals were defined by the 2030 Agenda adopted by all United Nations Members States in 2015 as a recognition that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and

¹ <https://www.cedefop.europa.eu/en/projects/european-qualifications-framework-eqf>

² https://joint-research-centre.ec.europa.eu/greencomp-european-sustainability-competence-framework_en

³ This greening of the economy will inevitably change the skills required and the tasks involved in many of the existing occupations.

forests.⁴ Addressing SDG 4 Quality in Education in GREEN project, and targeting 4.C and 4.7 is a way to be part of a common movement to promote the development, even in a smooth way in all sustainable goals.



Educators play an important role in achieving all the goals of SDG 4 - Quality Education. With this as a premise in Project GREEN, from this perspective we advocate that there is an urgent need to empower trainers for the use of educational approaches whose issues related to sustainability are present, even if in a cross-cutting and implicit way. The use of collaborative methodologies, the establishment of partnerships, both with other educational entities and with the industrial context, the creation of community projects, are examples of this. The digitization with the already known innovative digital methodologies such as the use of virtual reality, artificial intelligence, simulators among others that on the one hand facilitate the acquisition of skills by proximity to real contexts or by the least use of physical resources reducing waste. The introduction of green skills in educator’s curricula can and should also be done through the way in which pedagogical exercises/activities are designed. The promotion of a multifactorial, critical and systemic reasoning in which sustainability is one of the factors, ensures that green thinking, such as environmental impact analysis in decision-making, is done spontaneously and naturally.



Target 4.7 Ensuring relevant learning for citizenship in a global world, By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship

⁴ <https://sdgs.un.org/goals>

and appreciation of cultural diversity and of culture's contribution to sustainable development.

The content of such education must be relevant, with a focus on both cognitive and non-cognitive aspects of learning. The knowledge, skills, values and attitudes required by citizens to lead productive lives, make informed decisions and assume active roles locally and globally in facing and resolving global challenges can be acquired through education for sustainable development (ESD) and global citizenship education (GCED), which includes peace and human rights education, as well as intercultural education and education for international understanding.

Recognising educators as fundamental condition for guaranteeing quality education, it is essential to empower them by ensuring they have the adequate resources and tools and are knowledgeable and motivated to this role as drivers of change. By prioritizing the empowerment of teachers and educators, we not only enhance the quality of education but also foster inclusivity and equity, thus contributing significantly to the overarching goal of SDG 4: ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all.



Target 4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States.

2.2 Methodological Frameworks

The European Qualifications Framework is a common reference framework that helps education and training entities, employers and individuals across Europe to compare qualifications in the different education and training systems, facilitating mobility of trainees and workers in the EU in the process. Thus, the adoption of EQF increases mobility of workers and trainees and contributes to the recognition of their qualifications outside their own countries.

The EQF tool is based on Learning Outcomes (LOs) whose main reference level descriptors are:

- Knowledge,
- Skills,
- Autonomy and Responsibility (Attitudes).

| QUALIFICATIONS | LEVEL | LEARNING OUTCOMES | | |
|--|-------|---|---|---|
| | | KNOWLEDGE | SKILLS | RESPONSABILITY AND AUTONOMY |
| | | Theoretical and/or factual. | Cognitive (involving the use of logical, intuitive and creative thinking) and practical (involving manual dexterity and the use of methods, materials, tools and instruments) | The ability of the learner to apply knowledge and skills autonomously and with responsibility |
| MASTER DEGREE | 7 | Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research Critical awareness of knowledge issues in a field and at the interface between different fields | Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields | Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams |
| BACHELOR DEGREE | 6 | Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles | Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study | Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups |
| POST-SECONDARY NON-HIGHER EDUCATION QUALIFICATION | 5 | Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge | A comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems | Exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others |
| UPPER SECONDARY EDUCATION THROUGH VOCATIONAL AND EDUCATIONAL TRAINING (DOUBLE QUALIFICATION) | 4 | Factual and theoretical knowledge in broad contexts within a field of work or study | A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study | Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities |

Figure 01 Learning Outcomes Descriptors align with EQF levels

Challenges in into labour market due to the constantly digital transformation, needs for new skills towards work methods and procedure always in innovation, leads to a labour market in constant changing and looking for a skilled, trained and adaptable workforce. People need to face lifelong learning as part of their life. Continuous upskilling and reskilling are essential for keep employability. Even for economic concerns, the employment market is increasingly in need of short- and extremely short-term courses. Responding to the immediate demands of the labour market requires training that is applied to and focused on solving problems quickly. An industry can encourage short-term training for the development of specialised skills for the fulfilment of a specific task or obligation, but it cannot stop teaching its people prolonged qualifications. Promoting learner access for those with fewer possibilities due to economic or social settings through short-term courses also contributes to social inclusion. This reality leads to micro-credentials which can help to substantially widen learning and skills development opportunities, and further shape the lifelong learning dimension.

The GreenComp European Reference Framework is designed to promote sustainability and green skills across Europe. It provides a comprehensive framework for understanding and integrating sustainability competences into various educational and professional contexts. GreenComp aims to equip individuals with the knowledge, skills and attitudes needed to contribute to a sustainable future. It emphasizes the importance of ecological literacy, systems thinking and the ability to act responsibly towards the environment. By promoting these competences, the framework aims to support the transition to a green economy and ensure that citizens are prepared to face the challenges of environmental sustainability. The framework is intended to be adaptable, allowing it to be applied to different sectors and levels of education, thus promoting a cohesive and unified approach to sustainability education in Europe.

In addition, the adaptability of the GreenComp framework allows Project GREEN to adapt its training guidelines to various sectors and levels of education, promoting a unified approach to education for sustainability. This flexibility ensures that the training is relevant and applicable to a wide range of contexts, increasing its impact and effectiveness. By using the GreenComp European Reference Framework, Project GREEN demonstrates its commitment to promoting a sustainable future and empowering individuals and organisations to take sustainable action. By adopting this framework, GREEN Project is ensuring that its training guidelines and recommendations meet the standards of a greener education. This approach not only enhances the relevance and applicability of the training across various sectors and educational levels but also fosters a unified and cohesive strategy for sustainability education in Europe. This commitment to education for sustainability is a fundamental part of GREEN Project - to develop environmental literacy, systems thinking and environmentally responsible behaviour - ultimately empowering participants to make meaningful and impactful contributions to a sustainable future.

EFW's methodological approach to the design of Qualifications which implies the use of a common terminology applicable to all its Qualifications, developed on a modular basis where each Qualification comprehends a set of Competence Units, organized in Learning Outcomes.

EFW considers CEDEFOP “education and training glossary” (2023) to facilitate the understanding of Vocational Education and Training (VET) main concepts, such as:

Qualification: A formal outcome (certificate, diploma or title) of an assessment process which is obtained when an individual has achieved the required learning outcomes. It includes the job requirements: knowledge, skills, autonomy and responsibility required to perform specific tasks attached to a particular work position. In terms of structure, a Qualification is composed by a definition of a certain professional profile and a respective Curricula, containing all the activities related to the design, organisation and planning of its education or training actions.

Competence Unit: Components of qualifications, consisting of a coherent set of knowledge and skills, organized in learning outcomes and minimum or recommended workload, that can be individually assessed and validated.

Learning Outcomes: A set of knowledge, skills and/or competences an individual has acquired and/or is able to demonstrate after completion of a learning process, either formal, non-formal or informal or Statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills, and responsibility/autonomy.

Workload: The estimation of the time learners typically needs to complete all learning activities such as lectures, seminars, projects, practical work, work placements, individual study required to achieve the defined learning outcomes in formal learning environments.

A key component of how we teach, train, and participate in formal learning experiences is curriculum design. A mental model of learning and a design representation of knowledge and skill transfer from theory to practice are the core of the process of planning formal learning experiences. Curriculum design is operationally defined as the intentional planning, organization, and design of learning strategies, processes, materials, and experiences towards defined learning outcomes. Curriculum design is creating an integrative plan for the environments where learning happens

considering the physical, digital, social, and psychological factors that define the spaces and places where people learn.

Historically the design of curriculum used to begin by defining content or topics focused on the big picture of professional profile. The process which is now broadly used is the one which starts by the end, with the mind in the **learning outcomes**. Curriculum is more likely to be results focused and efficient. Centred in what the learned will be capable of doing is a start to address levels of qualification and standards, the content, topics, pedagogical strategies, learning environments and assessment specifications.⁵

Defining learning outcomes as the statements of what a **what a learner is expected to know and is able to do on completion of a learning process**, defined in terms of **Knowledge, skills and autonomy and responsibility** (Council of the European Union, 2017).

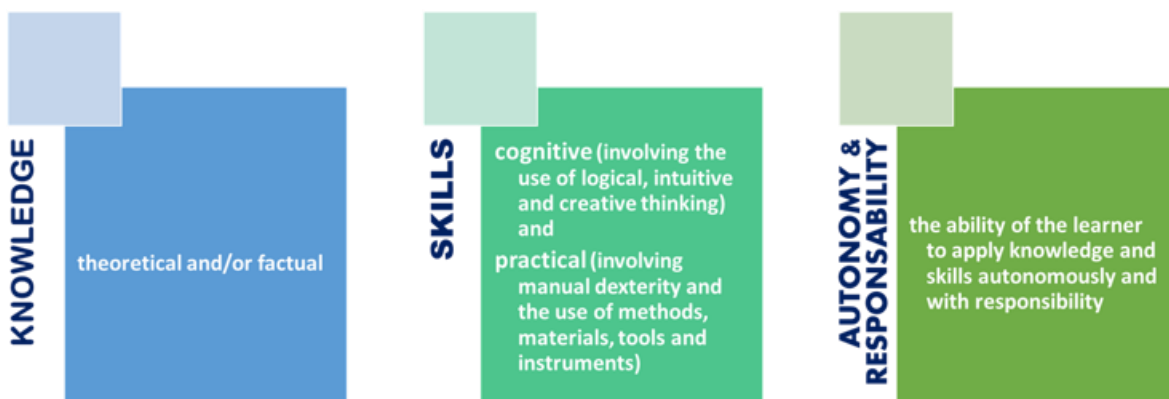


Figure 03 Learning Outcomes Components

Learning outcomes describe how the learning experience impact on the learner. It's about what the learner gain from the experience of learning and how it is relevant and meaningful for him or her. A clear and well formulated learning outcome will help guide your design process towards a good result.

One of the important tools is **Bloom's Taxonomy**, a framework that classifies educational objectives and learning outcomes. The taxonomy provides a hierarchical structure for categorizing cognitive skills and knowledge acquisition. It helps educators design instructional activities and assessments that align with different levels of thinking.

In 2001, Bloom's Taxonomy was revised to reflect a more active and learner-centred approach. The revised taxonomy uses action verbs to describe the cognitive processes associated with each level: Remembering, Understanding, Applying, Analysing, Evaluating, and Creating.

Educators often use Bloom's Taxonomy as a guide to develop curriculum, lesson plans, and assessments that progressively challenge students to engage in higher-order thinking skills and deeper understanding of the subject matter.

⁵ McDonald, J. K. & West, R. E. (2021). *Design for Learning: Principles, Processes, and Praxis (1st ed.)*. EdTech Books. <https://dx.doi.org/10.59668/id>

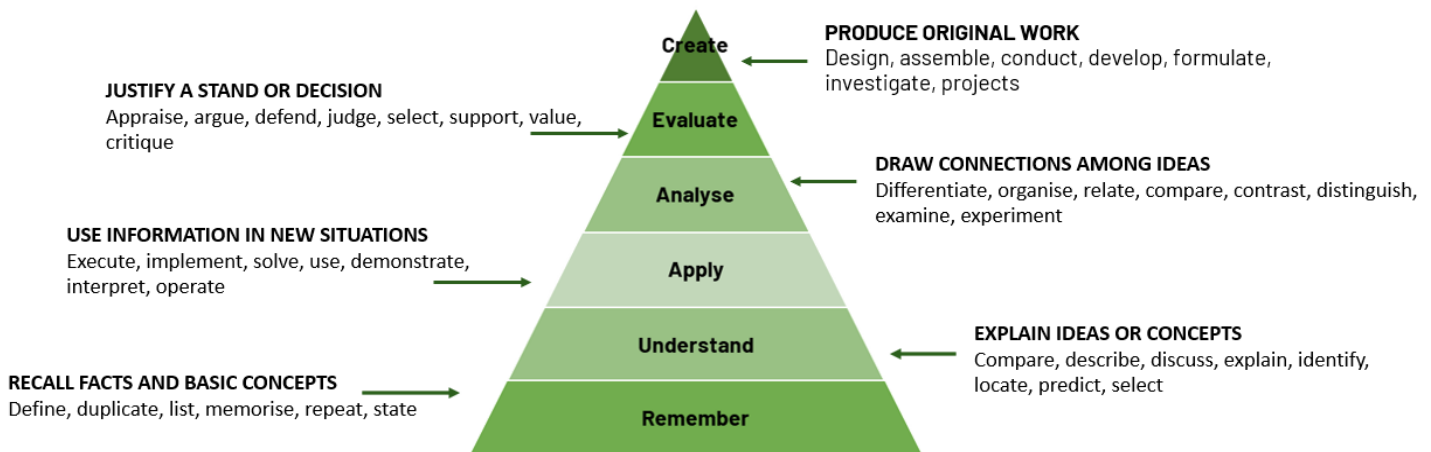


Figure 04 Bloom's Taxonomy

When building a curriculum, the aspects of what a learner is expected to know and be able to accomplish (learning outcomes) are organised into Competence Units. This training Guideline curriculum is structured into Competence Units that are autonomously evaluated and validated.

Actions/achievements – observable actions through which the individual demonstrate mastery of the Competence Unit. They reflect the professional application of the combined learning outcomes foreseen for each submodule.

Performance criteria – the quality requirements associated with performance, reflecting the level of complexity that the actions must have.

The combination of the actions/achievements with the performance criteria provides the complexity depth for the establishment of the **European Qualifications Framework (EQF) level**. In this way, the Learning Outcomes break down into knowledge application, practical application and competences as statements of what a learner knows, understands and is able to do as foreseen in the EQF descriptors, that are mobilized in actions/achievements through which the individual shows/demonstrates the required field of competence, according to a certain performance criteria and context conditions.

This methodological approach gives performance requirements that contribute for the increase of transparency in terms of assessment elements, enabling a clarification for learners and trainers in regard to the expected outcomes, ensuring a learner centred approach and a more effective comparability and mutual recognition among the different VET Providers/Systems.

2.3 GREEN Skills Needs

Throughout the project, we have identified specific competencies for the sectors under study, such as waste management, measuring and assessing environmental impact, rapid adaptation to technological changes, identification of energy needs, renewable energies, resource management, and assessment of the ecological footprint. However, the integration of sustainability across

disciplines has emerged as a crucial area for improvement in regular training programmes, with an emphasis on practical experiences that promote cross-cutting competencies.

As previously mentioned, this training guideline focuses on the capacity-building of educational agents, whether they are in an educational context (teachers or trainers) or a professional context (tutors, coaches, or mentors) who provide on-the-job training.

Based on the GreenComp framework, our understanding is that in designing training paths and defining pedagogical methodologies and practices aimed at educational agents, the integration of the concept of sustainability is essential. This includes promoting a green way of thinking and acting within the training content. Stimulating critical, systemic, and multifactorial thinking aimed at solving problems in the training context is transferable to the workplace, thereby supporting a model that aims to change the mindset and behaviours of the workforce.

3. GREEN PROJECT APPROACH TO PROMOTE GREEN SKILLS AND ORGANIZATIONAL SUSTAINABILITY CULTURE (THE EU GREEN VET NETWORK)

A culture of organizational sustainability is grounded on several pillars aimed at promoting practices and behaviours that respect the environment, society and future generations. These pillars were the base for the development of the European Green VET network in scope of GREEN project.

- Governance and leadership
- Education
- Resource management
- Global Collaboration
- Monitoring and evaluation
- Building adaptability and resilience

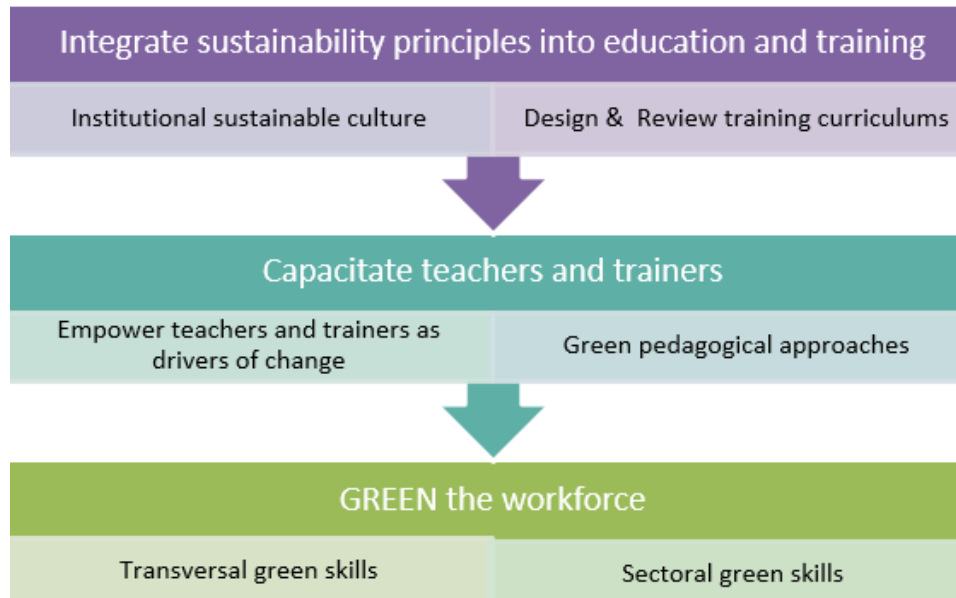
Specifically related to education and the development of green skills among workers in order to guarantee organisational sustainability and a lower environmental impact on industry. The GREEN project defines a set of strategic objectives for training centres which it considers to be fundamental to ensuring that the principles underlying the pillars of sustainability are safeguarded in their operation:

1. **GREEN CURRICULUM** – Identify green topics in existing curriculum from core green occupations on each sector. Develop new and standardized green curriculum transversal and common to all sectors. Develop specific curricula addressing relevant identified professional profiles. Curriculum design based on a modular structure.
2. **STAKEHOLDER COOPERATION** – Build and strengthen partnerships between educational centres, industry stakeholders, and regulatory bodies.

3. INNOVATIVE TRAINING – Foster innovative training methodologies that emphasize sustainable practices and learners centered approach.
4. GREEN MANAGEMENT – Enhance sustainability of educational infrastructure making them eco-conscious and energy efficient. Ensure compliance with environmental regulations, industry standards and human resources policies.
5. OUTREACH and ENGAGEMENT - Plan and design strategies to connect with and engage specific target groups or the community. Create awareness, build relationships, and promote events or communication plans that will have an impact on the community.
6. SUSTAINABLE FUNDING – Secure sustainable funding sources to support the development and maintenance of the network.

By underlying these strategic objectives for training providers, we promote into all organizations that join the European GREEN VET NETWORK to be complied with the integration of sustainability principles into education and training. Meaning that a sustainable culture is the base for all the activities undertaken by these organisations. In a top-down approach, by addressing organization and through trainers and teachers' green capacitation, we want to reach the workforce enable than to think, and act in a more sustainable and green way.

Central to this approach is the empowerment of trainers and teachers with green skills. By equipping educators with the necessary knowledge, skills, and resources, the network intends to empower professionals to include sustainability education effectively. This empowerment extends beyond mere instruction; it encompasses fostering a mindset shift towards sustainability, enabling trainers and teachers to serve as role models and catalysts for change within their educational communities.



To effectively promote green skills development in learners, teachers and trainers need comprehensive training to integrate the principles and practices of sustainability into their current and future practices, acting as drivers of change in regard to knowledge and skills sharing/development, role modelling, curriculum integration and pedagogical innovation.

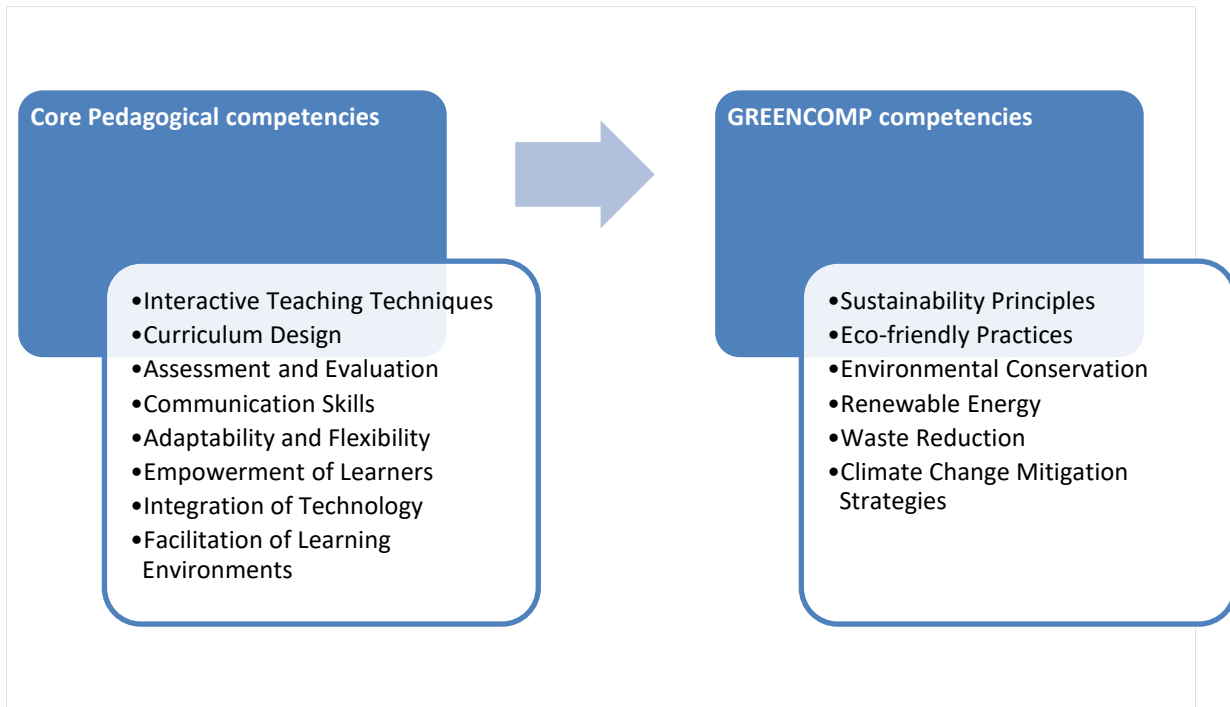
“National policy-makers and VET practitioners still have a long way to go in implementing the EU agenda on the green transition through greener CPD activities for VET teachers and trainers. Although many new CPD activities aim at improving teachers’ and trainers’ digital skills – accelerated by the digitalization of VET schools and companies due to COVID-19 – the same ‘push’ towards greening and green skills has not occurred so far. The momentum achieved by the existing and planned projects and initiatives (also in the form of policies, strategies, specific centres) should be expanded to boost green skills provision in the future. Little has been done so far on integrating ‘green skills’ into teachers’ and trainers’ professional development, so that countries often highlight related initiatives on sustainable development more broadly (e.g. on creating green skills for students), while actions to provide more CPD opportunities for teachers and trainers are often not yet taken in the European countries”⁶.

The development of core Green skills for trainers is a key enabler for the implementation of effective strategies towards sustainable development

The core pedagogical competencies serve as the framework through which trainers effectively convey and apply green skills, ensuring that green education is delivered comprehensively and engagingly. These skills, such as communication, adaptability, and curriculum design, are essential for integrating sustainability principles, eco-friendly practices, and climate change strategies into training programs, thus fostering a holistic approach to environmental education.

⁶ https://www.cedefop.europa.eu/files/5586_en.pdf

In this conceptual approach, the synergy between the GREENCOMP framework and core pedagogical skills enables trainers to design and deliver impactful environmental education programs, empowering learners to become agents of change in building a sustainable future.



Promoting a sustainable mindset inspired by the GreenComp (European sustainability competence framework) combined with core pedagogical skills allows trainers to:

- **Create interactive learning environments:** Trainers can design sessions where learners actively engage with concepts like eco-friendly practices and waste reduction through collaborative activities. This hands-on approach helps participants understand and apply sustainability principles in a practical context.
- **Structure comprehensive training programs:** By incorporating key environmental topics into the curriculum, trainers ensure that learners receive a well-rounded education on sustainability. This includes integrating subjects such as renewable energy, resource management, and environmental impact assessment into the training materials.
- **Integrate green principles in assessment and evaluation:** Trainers can develop assessment methods that not only measure learners' knowledge and skills but also evaluate their understanding and application of sustainability principles. This might include project-based assessments, reflective journals, and practical demonstrations of eco-friendly practices.
- **Respond to evolving environmental challenges:** The GreenComp framework equips trainers with the ability to stay updated with the latest environmental information and

trends. This adaptability allows them to continually incorporate new insights into their training programs, ensuring that the content remains relevant and effective.

- **Leverage technology for enhanced learning:** Trainers can use innovative technological tools to enhance the learning experience. This might include virtual simulations of environmental conservation scenarios, online platforms for collaborative learning, and digital resources that provide up-to-date information on sustainability issues.
- **Encourage the application of green skills:** Trainers can motivate learners to apply the sustainability skills they acquire in their personal and professional lives. This can lead to positive environmental changes as learners implement eco-friendly practices in their workplaces and communities, thereby spreading the impact of the training program.

By combining the principles of the GreenComp framework with core pedagogical skills, trainers can effectively foster a sustainable mindset among learners. This approach not only enhances the learning experience but also ensures that sustainability becomes a key component of the learners' everyday practices.

4. Teachers and trainers' curriculum

This training program is targeted at experienced trainers and should be developed in a collaborative and sharing context using a peer learning methodology. We recommend being delivered in person to enhance interaction and engagement, network opportunities to build professional partnerships and better relationships and allowing an immersive environment to foster a collective commitment to sustainability. The program will promote brainstorming activities, constructive discussions, and the showcasing of best practices. There is also the possibility of integrating beginner trainers into the program to ensure a comprehensive learning experience.

The training should employ a variety of interactive methods to ensure a rich learning experience. Participants will engage in:

- **Brainstorming Sessions:** To generate innovative ideas and solutions related to green education.
- **Constructive Discussions:** Facilitating critical thinking and the exchange of diverse perspectives on sustainability.
- **Showcase Practices:** Sharing and analysing successful sustainability initiatives and teaching practices.
- **Collaborative Projects:** Working in groups to design and implement green teaching strategies.
- **Practical Workshops:** Hands-on activities to apply sustainable practices in real-world scenarios.
- **Reflection Sessions:** Encouraging self-assessment and goal setting for continuous improvement in promoting sustainability.

This methodology ensures that trainers not only gain theoretical knowledge but also develop practical skills and strategies to effectively incorporate sustainability into their teaching practices.

| Competence Unit PEDAGOGICAL PRACTICES FOR A GREENER TOMORROW: TRAINER’S EDITION | CONTACT HOURS | WORKLOAD |
|---|----------------------|-----------------|
| SUBJECT TITLE | | |
| Sustainability and Education | 2 | 4 |
| Role of educators in the GREEN Transition | 2 | 4 |
| Sustainability principles and GREEN thinking training practices integration | 2 | 4 |
| Competence oriented approach – Experimental session | 6 | 13 |
| Total | 12 | 25 |
| CREDITS | 1 | |

| PEDAGOGICAL PRACTICES FOR A GREENER TOMORROW: TRAINER’S EDITION | |
|--|--|
| COMPETENCE UNIT | LEARNING OUTCOMES |
| KNOWLEDGE | <p>Factual and theoretical knowledge of the principles and applicability of:</p> <ul style="list-style-type: none"> • Education Impact on sustainability • Sustainability and Green practices implementation on education • Competence-oriented approach for teaching and learning about environmental sustainability. • Definition of an environmentally conscious educator • Active methods of engaging learners to promote green thinking and innovation. • Cooperation and partnerships with colleagues, businesses, and other stakeholders to advance environmental sustainability. • Practical experiences in green initiatives and sustainable development |

| PEDAGOGICAL PRACTICES FOR A GREENER TOMORROW: TRAINER’S EDITION | |
|---|---|
| COMPETENCE UNIT | LEARNING OUTCOMES |
| SKILLS | <ul style="list-style-type: none"> • Define the role of an eco-conscious educator detailing the impact of education on a GREENER mindset. • Establish an ecological approach to problem-solving and decision-making as a criterion for evaluating student learning. • Develop pedagogical strategies aligned with sustainable approaches to teaching STEM topics, considering their environmental impact and benefits, as well as their limitations. • integrate sustainability and Green thinking into curricula, inspiring relevant stakeholders to support the adoption of sustainable teaching practices. • Use active methods to involve students in promoting ecological creativity and innovation. • Foster co-operation and partnerships with colleagues, companies/industry, and other stakeholders to promote the principles of sustainability. • Engage in practical experiences that promote green initiatives and sustainable development. • Set long-, medium- and short-term objectives for integrating sustainability and green thinking into their own training and teaching activities, prioritising actions that contribute to environmental conservation and sustainable development. |

5.Green curriculum for the workforce

Although is not foreseen to the GREEN project to develop a dedicated competence unit to tackle sustainability, mainly because of the previous results which clearly showed the need to embed green skills in the existing training programs through trainers practices.

Although the GREEN project does not initially foresee developing a dedicated competence unit specifically for sustainability, primarily due to previous findings that highlighted the necessity of embedding green skills within existing training programs through trainers' practices, we recognize that there may be merit in having an independent and autonomous competence unit focused on this theme. Such a unit would aim to raise awareness among trainees and workers about sustainability issues. This dedicated unit could be applied across various sectors, ensuring its relevance and adaptability while being tailored to fit an EQF level of 4 to 6. By addressing sustainability in a focused manner, this unit would provide a concentrated effort to sensitize participants to the importance of green practices and the integration of ecological thinking in their professional activities. This approach would complement the transversal integration of green competencies, reinforcing the overall goal of fostering a sustainable mindset and practices within

the workforce.

| Cross sectorial Competence Unit FOR A GREENER TOMORROW: TRAINEE'S EDITION | CONTACT HOURS | WORKLOAD |
|---|----------------------|-----------------|
| SUBJECT TITLE | | |
| Introduction to Sustainability | 1 | 2 |
| Circular economy principles | 1 | 2 |
| Waste management | 1 | 2 |
| Measuring and assessing environmental impact | 1 | 2 |
| Total | 4 | 8 |
| CREDITS | 0 | |

| FOR A GREENER TOMORROW: TRAINEE'S EDITION | |
|--|--|
| COMPETENCE UNIT | LEARNING OUTCOMES |
| KNOWLEDGE | Factual and theoretical knowledge of the principles and applicability of: <ul style="list-style-type: none"> • Understand the core principles and importance of sustainability • Recognize the role of green thinking in the industry. • Comprehend the impact of industrial activities on sustainable development • Knows waste reduction techniques and comprehend the importance of recycling and reuse • Understands the need to incorporate environmental impact assessment in the workplace |
| SKILLS | <ul style="list-style-type: none"> • Promote sustainable practices within the organization • Identify opportunities for implementing circular economy models within the organization • Promote and apply a zero-waste attitude in the workplace • Apply methods and tools to reduce carbon footprint. |

6. Conclusion

The "European Training Guidelines for Green Skills" represents a significant step towards embedding sustainability into European training programs. As a preliminary document, it outlines the foundational concepts and methodologies required to integrate green skills effectively. This document will be subject to testing and validation through various project activities, including pilots, round tables, and collaborative events.

The ongoing refinement of these guidelines will ensure that they meet the evolving needs of industries and contribute to the broader goal of sustainable development. By empowering trainers and integrating green competencies across sectors, the GREEN project aims to foster a workforce equipped to address environmental challenges and drive the green transition forward.

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