TREE
Micro- and project-based learning programme for Teaching ciRcular Economy and Ecological awareness in VET

Funded by the European Union

TRAINING LESSON 8 - Part 1

Title	○ **Green skills and employability (jobs of the future)**
Part of the training course referred to in this lesson	X Part 1 General information about sustainability and CE Part 2 Specific Information about: □ Wood sector □ Plastic sector □ Agrifood sector
EQF level	Level 4
Where the lesson was tested	//
General Learning objective(s) according to the Bloom Taxonomy https://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/	□ **Create** Produce new or original work (design, assemble, construct, investigate, formulate) X **Evaluate** Justify a stand or decision (appraise, argue, defend, critique, select, support) X **Analyze** Draw connections among ideas (differentiate, organize, relate, compare, distinguish, test, experiment) □ **Apply** Use information in new situations (execute, implement, solve, use, demonstrate, operate) X **Understand** Explain ideas or concepts (classify, discuss, describe, identify, locate, translate) X **Remember** Recall facts and basic concepts (define, duplicate, list, memorize, repeat)
Specific learning objective(s)	• *Learn what green skills are* • *Understand why they are important for the future of the economy and the planet* • *Understand what are "jobs of the future" and how they will support employability*
Cognitive, socioemotional and behavioural outcomes	**SDG 4 | Quality Education**

based on https://www.unesco.de/sites/default/files/2018-08/unesco_education_for_sustainable_development_goals.pdf	**Cognitive learning objectives:** The learner understands the important role of education and lifelong learning opportunities for all (formal, non-formal and informal learning) as main drivers of sustainable development, for improving people's lives and in achieving the SDGs.; The learner understands that education can help create a more sustainable, equitable and peaceful world. **Socio-emotional learning objectives:** The learner is able to recognize the intrinsic value of education and to analyse and identify their own learning needs in their personal development. **Behavioural learning objectives:** The learner is able to use all opportunities for their own education throughout their life, and to apply the acquired knowledge in everyday situations to promote sustainable development. **SDG 8 | Decent Work and Economic Growth** **Cognitive learning objectives:** The learner understands how innovation, entrepreneurship and new job creation can contribute to decent work and a sustainability-driven economy and to the decoupling of economic growth from the impacts of natural hazards and environmental degradation. **Socio-emotional learning objectives:** The learner is able to develop a vision and plans for their own economic life based on an analysis of their competencies and contexts. **Behavioural learning objectives:** The learner is able to engage with new visions and models of a sustainable, inclusive economy and decent work. **SDG 13 | Climate Action** **Cognitive learning objectives:** The learner knows about prevention, mitigation and adaptation strategies at different levels (global to individual) and for different contexts and their connections with disaster response and disaster risk reduction. **Socio-emotional learning objectives:** The learner is able to collaborate with others and to develop commonly agreed-upon strategies to deal with climate change **Behavioural learning objectives:** The learner is able to support climate-friendly economic activities.
Green skill(s) addressed	X Creative problem-solving X Forward-thinking ☐ Monitoring skills X Analytical skills ☐ Lean production ☐ Maintenance and repair skills ☐ Management skills ☐ Impact quantification ☐ Life-cycle management ☐ Science skills ☐ Waste management ☐ Environmental auditing

	☐ Pollution prevention ☐ Ecosystem management ☐ Eco-design ☐ Other_____
Duration	15 min
Structure and content of the lesson	**Introduction:** What has been observed in recent years is the slow but steady transition to a more sustainable and resource-efficient society and economies. The need for this has been determined by climate change, environmental hazards, overconsumption and the many other adverse negative effects that our way of living has had on the population and the planet. In order to achieve the set out targets, the new workforce will have to develop a "new" set of skills in order to meet the demand of the future job market. **Topic 1: Green skills** It is important to note that in its publications the International Labour Organisation uses the concept of "skills for green jobs" instead of "green skills", referred to as "*those general and technical skills applied to fulfil the requirements of productive and gainful employment in the green economy*" (ILO 2011). The OECD and Cedefop (2014) take a step further and define green skills as "*the skills needed by the workforce, in all sectors and at all levels, in order to help the adaptation of products, services and processes to the transformations due to climate change and to environmental requirements and regulations*". A slightly different view on green skills and their classification is done by the framework proposed by Dr. Pavlova who has published works discussing *generic green skills*. "*Generic green skills include general knowledge, skills, attitudes and values and they are necessary for contributing to sustainable social, economic and environmental development in any job. The development of generic green skills is important for the greening of all industries, as they enable a person to develop a green mindset and adopt generic operational practices that minimize environmental impacts.*" Dr. Margarita Pavlova (2014) has classified generic green skills into the following three categories: ● Cognitive competencies ● Interpersonal competencies ● Intrapersonal competencies This classification is to frame their importance as "soft skills" as well. Dr. Pavlova adds a fourth category, namely "technological competencies" that cover skills such as impact assessment, risk management, eco-design, etc. The green skills that have been identified and will be addressed with this

	training are: Forward-thinking; Analytical skills; Lean production; Pollution prevention; Eco-design; Creative problem-solving; Monitoring skills; Waste management; Environmental auditing; Ecosystem management, and others. **Topic 2: Jobs of the future (green jobs)** There are a number of definitions, published and used by different organisations regarding what green jobs are. The 3 that are most widely used are quoted below: According to **the International Labour Organisation** (2019, 2016), green jobs are "*decent jobs that contribute to preserving or restoring the environment, be they in traditional sectors such as manufacturing and construction, or in new, emerging green sectors such as renewable energy and energy efficiency.*" **Eurostat** (2009) defines them as "*employment in environmental enterprises but also in public administrations that are involved in the creation of environmental technologies, goods and services and the employment linked to ancillary activities in the various productive units.*" The **European Commission** (EC) (2013: 8) states that green jobs are "*covering all jobs that depend on the environment or are created, substituted, or redefined (in terms of skills sets, work methods, profiles generated, etc.) in the transition process towards a greener economy.*" The push that has already begun towards greener economies and general conduct has started to have an impact. Entire industries are looking into more sustainable solutions and ways of conduct pushed by policies, business needs and resources or their consumers. This shift that is expected to accelerate will lead to the opening of more and more new green jobs, that are now considered jobs of the future. Some industries and positions have already or will go through the process of "greening", which refers to the addition of sustainability as consideration, new technical and innovation requirements and tasks related to efficiency in terms of resources. A new Cedefop study confirms that EU countries can attain a sustainable and energy-efficient economy and employment growth at the same time (Cedefop, 2013). Achieving them "*both requires greater integration of climate and energy policies with measures to support employment, and innovative and responsive vocational education and training (VET) policies that encourage the development of skills needed by a low-carbon economy.*" (CEDEFOP, 2012). **Topic 3: Green skills and the jobs of the future** The most recent report published by LinkedIn Economic Graph (2022), focuses on green skills and jobs. As a start it includes some important definitions:

- "Green jobs: are those that cannot be performed without extensive knowledge of green skills
- Greening jobs: can be performed without green skills, but typically require some green skills
- Greening potential jobs: can be performed without green skills, but occasionally require some level of green skills
- Non-green jobs: are those that do not require green skills to be performed"

Green skills have been identified as the "*building blocks of the green transition and the key to unlocking the human capital that will power it*". The need for the development of green skills in the future workforce, introduce training and foster their continuous integration in both curricula and mindset. Through extensive research and evaluation of the current status, the report concludes that there hasn't been enough progress so far in order to meet the demands of the future. "*While job postings requiring green skills grew at 8% annually over the past five years, the share of green talent has grown at roughly 6% annually in the same period*." Further statistics can be found in the report. What is important to take away are the **Five trends shaping the green economy**, namely:

- "*Demand for green talent will soon outpace supply.*
- *Hiring of green talent is accelerating faster than overall hiring.*
- *There's currently a good balance in the green skills that are needed.*
- *The fastest growing green skills are both mainstream and emerging.*
- *The volume of workers moving into green and green jobs is too low*." (LinkedIn Economic Graph, 2022)

In addition to that, as suggested by the United Nations Industrial Development Organisation (UNIDO), there is a direct link between the Sustainable Development Goals and the demand for green skills. A number of the SDGs, including Goal 9 and 12 which push for a low-carbon and resource efficient economy, support the notion that there will be a significant change in the required skills. This, according to the organisation, will lead to the creation of new occupations, increased demand for certain qualifications in order to complete tasks or address problems, and "greening" of existing professions and industries will occur.

All of these trends have also been further analysed by Deloitte (n.d.), and in a recent report the organisation reviews green skills and their relation to employability with the following being the key takeaways:

- "*Sustainability professionals increasingly influence business model decisions.;*
- *Over the next decade we predict a green workforce emerging in which every employee understands how sustainability can create economic value*
- *A one-size-fits-all approach to workforce transformation will not be enough.*
- *Realigned incentives will be needed to persuade many current workers to develop green skills.*

	• *The shift to a green economy will create jobs within new and emerging sectors."* What also needs to be taken into account is the importance that the European Commission places on green skills. As part of the Climate pact which aims to support labour organisations, educational bodies and public authorities in the process of achieving a greener economy through job opportunities, there are direct references to the need for green skills. The European Commission states that there is a need to promote green employment, foresee changes in the needs of the economy and that the skills of the future workforce have to be addressed. In fact, one of the key things that the Pact will do is to urge businesses to get involved in the so-called Pact for Skills to tackle this exact issue. In addition to that, it will support the "*training for five million people in green jobs and the green recovery*" through the European Social Fund. **Conclusion:** It can be concluded that green skills will be imperative if we want to achieve a sustainable future. Industries will require to make the transition and "go green" to different extents, but the need for human resources to complete tasks, bring innovation and make changes will have to have a diverse range of skills that can meet the needs.
References	A blueprint for green workforce transformation, Deloitte, available at: https://www2.deloitte.com/uk/en/pages/consulting/articles/green-skills-for-green-economy.html Arthur, C., (2022), What are Green Skills?, United Nations Industrial Development Organisation (UNIDO) , available at: https://www.unido.org/stories/what-are-green-skills#:~:text=Simply%20put%2C%20green%20skills%20are,sustainable%20and%20resource%2Defficient%20society European Commission, *Green Skills*, available at: https://climate-pact.europa.eu/about/priority-topics/green-skills_en Generic Green Skills for TVET: Teaching and Learning Resources lls, (2019), available at: https://greenskillsresources.com/category/generic-green-skills Global Green skills report, (2022), *Chapter 1: Green skills and jobs*, LinkedIn Economic Graph, pp.5-15. OECD/Cedefop (2014), *Greener Skills and Jobs*, OECD Green Growth Studies, OECD Publishing, Paris, https://doi.org/10.1787/9789264208704-en. Pavlova, M. (2018) Fostering inclusive, sustainable economic growth and 'green' skills development in learning cities through partnerships. International Review of Education: Journal of Lifelong learning 64 (3), 339-354

Interactive questions for R3	1. Which one of these is NOT one of the Five trends shaping the green economy? **a) Hiring of green talent is happening at the same pace as overall hiring** b) There's currently a good balance in the green skills that are needed. c) The fastest growing green skills are both mainstream and emerging 2.How many are the overall categories for generic green skills according to Dr. Pavlova? a) 2 **b) 3** c) 4
Keywords	Green skills, employability, green jobs
Questions for reflection	2. How would you evaluate your current skill set? *Do the evaluation in the context of the "jobs of the future".* 3. Consider your future employment opportunities. If "greening" was to take place in your industry of choice, what would you need to do to ensure your position of choice? ●
Additional resources	Global Green Skills Report 2022, available at: **https://economicgraph.linkedin.com/research/global-green-skills-report** **https://www.academia.edu/12185668/Green_Skills** https://cepr.org/voxeu/columns/green-skills https://lkdfacility.org/resources/background-paper-for-the-lkdf-forum-2020/ https://greenskillsresources.com/ A blueprint for green workforce transformation, Deloitte, available at: **https://www2.deloitte.com/uk/en/pages/consulting/articles/green-skills-for-green-economy.html** Auktor, V. (2020), Green Industrial Skills for a Sustainable Future, United Nations Industrial Development Organisation.
Additional useful information	The **Green General Skill index** identifies four groups of work tasks that are especially important for green occupations:

	Engineering and technical skills: hard skills encompassing competences involved with the design, construction and assessment of technology usually mastered by engineers and technicians. This know-how is needed for eco-buildings, renewable energy design and energy-saving research and development (R&D) projects. Science skills: competences stemming from bodies of knowledge broad in scope and essential to innovation activities, for example physics and biology. These skills are especially in high demand in each stage of value chains and in the utility sector, which provides basic amenities such as water, sewage services and electricity. Operation management skills: know-how related to change in organisational structure required to support green activities and an integrated view of the firm through life-cycle management, lean production and cooperation with external actors, including customers. Such skills are important, for example, for sales engineers, climate change analysts, sustainability specialists, chief sustainability officers and transportation planners. Monitoring skills: technical and legal aspects of business activities that are fundamentally different from the remit of engineering or of science. They refer to skills required to assess the observance of technical criteria and legal standards. Examples are environmental compliance inspectors, nuclear monitoring technicians, emergency management directors and legal assistants. In addition to these skills, a range of soft skills are also considered to be increasingly important, not only for green skills, but generally for “skills of the future”, including those necessary for the Fourth Industrial Revolution. In particular, skills related to design thinking, creativity, adaptability, resilience, and even empathy, are regarded as critical.
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