

# ECOTRAIN

## Learning Modules

on sustainable VET



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## INTRODUCTION

In today's modern world, where sustainability and responsible resource management have become increasingly vital, the imperative for individuals and organisations to embrace environmentally conscious practices has reached an unprecedented level of urgency. As we confront the challenges posed by climate change and ecological deterioration, this handbook takes centre stage as an indispensable resource. Crafted to empower professionals from diverse sectors, this handbook provides knowledge and methods necessary to effectively tackle these pressing environmental concerns in the field of vocational education and training.

This handbook was developed within the **Erasmus+ project ECOTRAIN**, whose overall goal is to provide VET trainers in technical occupations with continuing education in the area of environment, resource-saving practices and sustainability in their work environment.

Within this project, three learning modules were developed that focus on the following topics:

- A. Existing green best practice examples in technical fields in the VET centres
- B. Patterns for acting more environmentally conscious in certain technical fields
- C. What can be done in terms of acting more environmentally conscious in the workplace in general?

These modules are outlined in this handbook and are accompanied by a detailed workflow that allows the trainers/facilitators of the workshop to engage the participants in a simple and constructive way, ensuring the workshops are interactive and interesting.

## Module A - Existing green best practice examples in technical fields in the VET centres

The first module outlines the **importance of green vocational education and training (VET)**, but also focuses on the **existing practices in VET centres and companies** that were identified during workshops conducted in Austria, Bulgaria and Greece with VET trainers and trainees.

A recommendation for an interactive training content is also provided at the end of this module. This approach has been shown successful and easy to apply.

### Learning Objectives:

- Understand the importance of Green VET
- Learn about existing green practices in VET centres in Austria, Bulgaria and Greece
- Get an overview of the Catalogue of Best Practice Examples

### Benefits of promoting energy efficiency, energy conservation, and waste reduction in VET centres

Promoting energy efficiency, energy conservation, and waste reduction in VET centres can bring several benefits, including:

1. **Increased employability:** VET centres that promote green practices can provide students with the skills and knowledge needed to work in industries that are becoming more environmentally conscious.
2. **Cleaner environment:** By reducing energy consumption and waste, VET centres can help create a cleaner and healthier environment for students, staff, and the community.
3. **Promoting energy efficiency, energy conservation, and waste reduction:** By promoting these practices, VET centres can help reduce greenhouse gas emissions and contribute to global efforts to combat climate change.
4. **Reducing the use of materials and resources:** By identifying the most environmentally friendly, energy-efficient, and cost-effective solutions, VET centres can help reduce the use of materials and resources, which can lead to cost savings and a more sustainable future.

The identified existing practices in the above-mentioned countries were comprised in the **Catalogue of Best practice Examples** which outlines the most important information, process and impact of each practice. This handbook is an elaborate guideline that can be used by organisations beyond the partner organisations and countries, and can serve as catalyst to make their environment and trainings more sustainable.

The practices outlined in the **catalogue** are categorised by sector and the number of practices vary:

- **Glass Production:**
  - Glass Disposal
  - Glass Reuse

- **Electrical Engineering:**
  - Battery disposal
  - Copper wire stripping
  - Electronic devices recycling
  - Metal Reuse
  - Cable reuse
  - Metal Separation – Shavings and Chips
  - General Waste Separation
  
- **Meat Processing:**
  - Water use optimisation
  - Decreasing Energy consumption
  - Livestock Utilisation
  - Use of support Materials
  
- **Road Transport:**
  - Driving skills
  - Organising trips
  - Planning the route
  - Managing Cabin Comfort
  - Maintaining the Vehicle
  
- **Waste Management**
  - A Collective System for the Alternative Management of WEEE
  - Recycling Aggregates
  - Alternative Waste Management
  - Glass Recycling

## Choosing and presenting the relevant sector

When implementing the Module, it is advised to choose the sector relevant to the target group and avoid working on every sector. This is considered unnecessary as the participants might not be able to relate to content and practices they have no knowledge about, and not relevant to their professional/educational background.

Categorising the best practice examples into sectors can help improve collaboration and quality assurance in technical fields in several ways:

- **Focus:** By grouping best practice examples into sectors, VET centres can focus on specific industries and identify the most relevant and effective green practices for those industries.
- **Efficiency:** By sharing best practice examples within a sector, VET centres can avoid duplicating efforts and resources, which can lead to cost savings and more efficient implementation of green practices.
- **Collaboration:** By sharing best practice examples, VET centres can collaborate with each other and with industry partners to identify new opportunities for green practices and to develop new solutions to common challenges.

- **Quality Assurance:** By identifying and promoting best practice examples, VET centres can ensure that they are providing high-quality training and education that meets industry standards and prepares students for the workforce.

Therefore, the best practice examples in the catalogue can help VET centres improve collaboration and quality assurance in technical fields by providing a framework for sharing knowledge and expertise, and by promoting the most effective and relevant green practices for specific industries. This way the content presented meets the needs of the relevant target group.

### Interactive workflow

In order to ensure a training that fosters engagement from the participants, it is necessary to design a detailed training workflow.

For this purpose, the ECOTRAIN project recommends a workflow that follows the steps outlined in the table below. The content of the learning module is available in a form of PPT, which should be used/presented throughout the workshop. Furthermore, the Best Practice Catalogue with the examples relevant to the target group is to be presented.

Method/ What happens	Description	Materials
Arrival, Introduction, and Welcome	<p>.) Introduction of the facilitators &amp; the project, (Introduction round: Name + childhood dream job)</p> <p>.) Presentation of the main topic (briefly)</p> <p>Setting: It would be best to sit in a circle</p>	<ul style="list-style-type: none"> <li>• Name tags,</li> <li>• Pens,</li> <li>• Flipchart with the main topic</li> <li>• Participant list</li> </ul>
Ice Breaker/ Barometer	<p>The goal of this ice breaker is to "warm up" and gradually ease into the topic. After each statement, exchange with participants and ask them (e.g., What does sustainability mean to you?):</p> <ul style="list-style-type: none"> <li>• Line up according to the alphabet (names starting with "A" go first,...)</li> <li>• How tired are you? (0 = wide awake/not tired at all, 10 = I want to go back to bed)</li> <li>• I know what we're going to do today (0 = no idea, 10 = I know)</li> <li>• I know what "sustainability" means (0 = I have no idea, 10 = yes, I know!)</li> <li>• How important is sustainability to you? (honest opinion) (0 = not important at all, 10 = very important)</li> </ul>	<ul style="list-style-type: none"> <li>• 2 pieces of paper marking the scale on the floor; "0" &amp; "10"</li> </ul>

<p>Brainstorm on Sustainability &amp; Relevance</p>	<p>"Today's topic is work and sustainability".</p> <ul style="list-style-type: none"> <li>• What is sustainability?</li> <li>• Why is sustainability important? (for the world and for my life)</li> <li>• Why is it important to think about sustainability in the workplace?</li> </ul> <p>Start with Question 1: brainstorm individually first (2-4 minutes). Then discuss and exchange ideas collectively. Note all answers on the flipchart (all answers are valid!).</p> <p>Follow the same process for Questions 2 and 3.</p>	<ul style="list-style-type: none"> <li>• Flipchart with the written questions</li> <li>• Pens (participants can write on it themselves if they want)</li> <li>• Background music during individual brainstorming</li> </ul>
<p>Ecological Sustainability in the Selected Sector (Module A)</p>	<p>Present the Best Practice Catalogue.</p>	<p>Best Practice Catalogue</p>

## Module B - Patterns for acting more environmentally conscious in certain technical fields

In this module, novel approaches and methods towards implementing green practices in VET are explored, recommendations for specific fields reviewed. Furthermore, the relevance of the **EU Green Deal** to VET is discussed.

By the end of this module, a better understanding of how to apply sustainable approaches at work should be learned, and also how the European Union supports such initiatives.

### Learning Objectives:

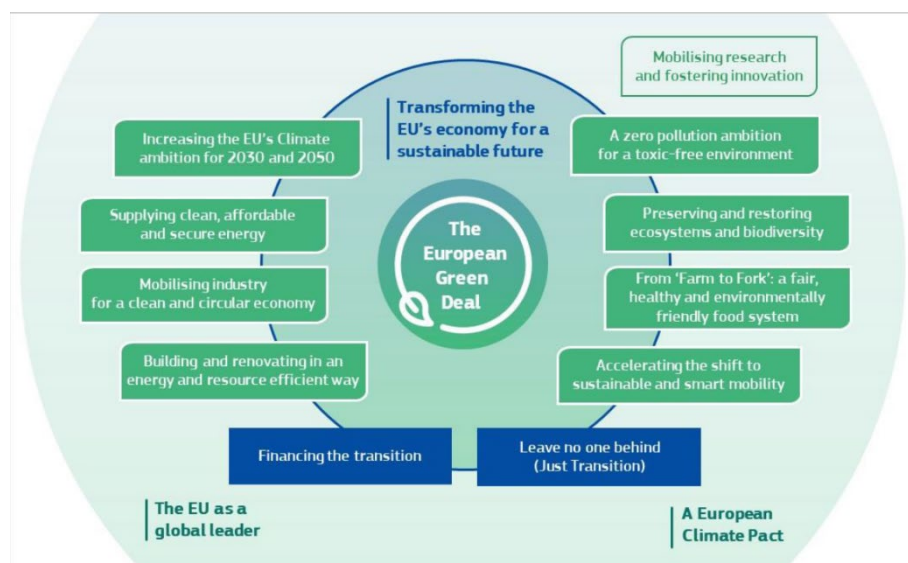
- Know more about the EU Green Deal
- Explore novel approaches and methods towards implementing green practices in VET
- Review recommendations for specific fields

### EU Green Deal and VET

#### What is the EU Green Deal?

The European Commission has adopted a set of proposals to make the EU's climate, energy, transport and taxation policies fit for reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. ([European Commission](#))

The EU Green Deal aims to make the EU climate-neutral by 2050. The goal of the Green Deal is to reduce greenhouse gas emissions and increase the use of renewable energy sources. The European Commission launched the Green Deal in 2020, and it includes a range of initiatives and policies to achieve this goal.



The European Green Deal, European Commission, 2019



## Why is the Green Deal relevant to VET?

**The EU Green Deal predicts to create 1 million additional jobs in the EU by 2030**, which will require a skilled workforce with knowledge of sustainable practices. This means that VET programmes will need to adapt to provide the necessary training and skills for these new jobs. Secondly, the Green Deal will increase employability by creating new job opportunities in sustainable industries. Thirdly, VET programmes can play a role in enhancing the knowledge of future employees by incorporating sustainable practices into their curricula. Finally, the Green Deal promotes the application of sustainable approaches, which is relevant to VET programmes that focus on technical fields where sustainable practices can be implemented.

Therefore, it is necessary to raise awareness within VET centres about the initiatives by the EU and other policy-making bodies, which underscores the importance of applying green, sustainable practices within VET centres, but also at the workplace.

The knowledge about green practices and approaches increases the employability and competitiveness on the labour market.

## Recommendations for more sustainable VET practices in certain technical fields

During workshops with VET trainers and trainees in Austria, Bulgaria and Greece, recommendations on how to make the centres even more sustainable were provided for certain fields, which are outlined below.

### Electrical Engineering

- Optimising energy consumption
- Using renewable energy sources
- Optimising the use of (sustainable) materials for devices

### Glass Production

- Using reusable materials for cleaning glass
- Optimising energy consumption
- Optimising water consumption
- Using leftover glass for decorative items in workshops

### Road Transport

- Using hybrid/electric vehicles
- Using alternative fuels (compressed natural gas (CNG), liquefied natural gas (LNG), and hydrogen)
- Route planning and management

### Meat processing

- Green packaging
- Sustainable sourcing
- Considering animal welfare when producing and buying sources

These recommendations can serve VET centres and companies as a solid base for making workshops even more sustainable.

## General recommendations on green VET

This chapter outlines the possible practices that could be implemented in VET centres in general, which would create a greener and more sustainable trainings and workshops.

- Online Learning
- Renewable Energy
- Sustainable Materials
- Info-sessions and courses on sustainable VET
- Waste separation

## Interactive workflow

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For this purpose, the ECOTRAIN project recommends a workflow that follows the steps outlined in the table below. The content of the learning module is available in a form of PPT, which should be used/presented throughout the workshop.

Method/ What happens	Description	Materials
Energiser	Counting together up to 20, Whiskey Mixer, Ninja, etc. (depending on group dynamics and group size).	-
Connecting the Green Deal & Work Life	Brief input on what the Green Deal has to do with work life (and sustainability in the workplace). Why it's relevant, even for the participants.	<ul style="list-style-type: none"> <li>• PPP or Video</li> </ul>

## Module C - What can be done in terms of acting more environmentally conscious in the workplace in general

This module provides guidance on how to be more environmentally conscious at the workplace. It explores the concept of **green nudges** and best practices for sustainability in VET and working environment. It also provides information on how to assess the specific needs of a workplace and take action towards a more eco-conscious future.

### Learning Objectives:

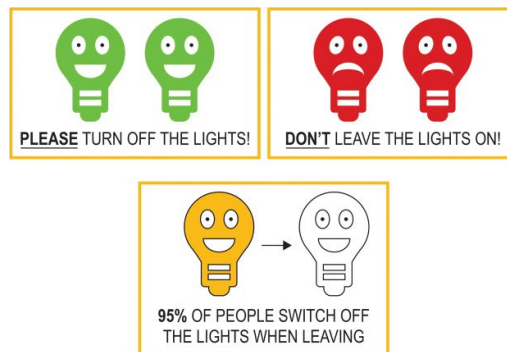
- Understand how nudges can help with sustainability
- Know what some best practices are in order to make the VET and working environment more sustainable
- Assess what specific needs one's environment has

### Green Nudges

A great tool to promote sustainability in the workplace is the **Green Nudge**.

Coming from behavioural science – economics, nudges are subtle suggestions and gentle attempts to persuade individuals to make certain choices. They are called 'green' when the choice concerns environmental matters (Andersen and Halpern, 2020).

An example of a Green Nudge could be a sign above a recycling can saying "Don't forget to recycle today!", reminding the employees that they should recycle, instead of forcing them to.



Example of a green nudge by ScienceDirect

### Practical approaches to follow

This chapter provides an overview of practices to apply at a workplace in general, to make it more environmentally friendly and sustainable.

These can be copied either as they are or they can be observed in one's own environment to identify whether a more customised approach can be implemented. The process is highly creative and can yield exponential results in favour of an organisation's sustainability.

- Use tablets and computers, which allow saving paper by using digital tools. Opt for digital tools that increase efficiency and reduce clutter, by having e-books and educational material on it.
- Teach VET students to use a digital calendar instead of paper agendas for note taking. The positive aspects of this can be highlighted, such as convenience, the ability to sync across devices — something paper cannot do — and the potential for collective organisation. Everyone can choose to share their availability, making it easier to arrange meet-ups.
- Whenever necessary, opt for recycled paper and make sure to stress the fact that it is being done. This will gradually reinforce the desire to use recycled materials for other activities as well.
- It is crucial to remember that digital devices still have an environmental impact through energy usage and electronic waste. Therefore, make sure to study the specifications of all technology used, as well as individual circumstances regarding resource use. It is highly possible that in certain scenarios using recycled paper is the most sustainable choice for an educational environment (European Parliament, 2020).
- It is crucial to remember that digital devices still have an environmental impact through energy usage and electronic waste. Therefore, make sure to study the specifications of all technology used, as well as individual circumstances regarding resource use. It is highly possible that in certain scenarios using recycled paper is the most sustainable choice for an educational environment (European Parliament, 2020).
- According to the IT department of the University of Oxford (2022), The greenhouse gas (GHG) emissions from a standard staff desktop and monitor, if used for eight hours, equate to approximately 70g of CO<sub>2</sub>e due to the electricity consumption.
- The most significant factor affecting the total impact of desktop computing is the quantity of devices and monitors procured for each staff member.
- Waste separation is a crucial part of recycling, a process that can be severely hampered if waste isn't properly divided. Often, people neglect this step either because it adds an extra task or they simply view it as optional, underestimating the significant impact of their choices.
- However, there is a far more creative way to approach the problem. The Tongji University in China has been nudging students to sort garbage and recycling properly by installing a sorting game mechanism (Andersen and Halpern, 2020)
- This process is called gamification and the potential to make a process enjoyable with game like characteristics can generate high engagement.
- In cafeterias, VET institutions can use sustainable packaging and promote sustainable food, such as ones that do not have such a massive carbon footprint. This is a good way to introduce the community of VET to new products they would not normally try out.
- A small discount to students and VET staff could be offered bringing their own cups for beverages. This is a measure easy to adopt, because the profit margin for the cafeteria remains proportional, given that the cost of the paper cup is subtracted (WRAP, 2022).
- Moreover, it is recommended to purchase high quality tools with durability (e.g. glass cutters made of wood or metal instead of plastic). While they are more expensive, they will last for more, which is something to take into account when making a cost - benefit analysis.

- Make sure to make a list of what devices and materials must be recycled and which must be repurposed, if they can. High quality tools require different handling in this regard, which should be examined ad hoc, with the appropriate solutions.
- The fact that we do not all live in a campus results most of the time in the use of transportation means. Cycling is a totally sustainable way to ride to work. It does require physical effort, however, which is a reason why many do not prefer it. Some countries implement tax incentive schemes, to encourage employees to cycle to work (Citizens Information, 2023)
- Another aspect to consider is water usage. Regular inspections should be conducted to detect and address any leakages. Self-closing faucets should be chosen to minimize conventional usage for hand washing.
- One of the niche practices to apply is Carbon Offsetting. Carbon offset initiatives are programs that help take out or reduce the amount of CO<sub>2</sub>, a gas that contributes to climate change, from the air. They do this by supporting activities like planting more trees, creating renewable energy sources like wind and solar power, adopting farming methods that absorb more CO<sub>2</sub>, and managing waste and landfills better. Out of these, planting more trees is a common way to create carbon offsets.
- Those who run these projects can sell carbon offsets to groups, like businesses, who want to balance out the CO<sub>2</sub> they themselves release into the air. By buying carbon offsets, they help fund projects that remove or reduce CO<sub>2</sub> in other places (Gurgel, 2022).
- In terms of purchasing, an organisation can opt for local suppliers to reduce transportation emissions (Fontes, 2016). It is better to choose suppliers with responsible environmental policies and products with sustainable packaging.
- It is also highly beneficial to use measuring methods as well. By measuring the organisation's sustainability, through environmental auditing or impact assessments, tracking sustainability is more realistic (FAO, 1996). Metrics as KPIs (Key Performance Indicators) could be tracked and goals set to further motivate behaviour.

## Interactive workflow

In order to ensure a training that fosters engagement from the participants, it is necessary to design a detailed training workflow.

For this purpose, the ECOTRAIN project recommends a workflow that follows the steps outlined in the table below. The content of the learning module is available in a form of PPT, which should be used/presented throughout the workshop.

Method/ What happens	Description	Materials
Sustainability in the Workplace / Joint Discussion (Module C)	<p>What can be done to act more environmentally conscious in the workplace in general?</p> <p>Participant questions: "If you were the CEO of a large company, what would you do to make the company more sustainable?"</p>	<p>Flipchart/screen with the question</p> <p>Pens/markers</p>

## Closing and Feedback

At the end of a workshop, it is advised to incorporate a feedback round in the closing/farewell part.

Gathering feedback after a workshop focused on sustainability is crucial for ensuring that participants are well-equipped to address environmental and societal challenges in their careers. It allows trainers and organisers to assess whether the workshop effectively instilled sustainable practices and knowledge. Feedback highlights what participants found most valuable in terms of sustainability concepts and practices, and what aspects of the training could be enhanced to better prepare them for sustainability-focused roles in various industries. This input is invaluable for fine-tuning VET programs to align with the growing emphasis on sustainability in the job market, making graduates more competitive in a world that increasingly values environmentally and socially responsible practices.

Moreover, feedback data assists in reporting on the success of sustainability-focused VET programs, aiding in their continuous improvement and ensuring they contribute effectively to a more sustainable future.

Below is a recommendation on how to close off a workshop while introducing a feedback round, along with some examples for the feedback format.

Method/ What happens	Description	Materials
Closing & Feedback	<ul style="list-style-type: none"> <li>• Thank you - words</li> <li>• Information about the EU project "ECOTRAIN"</li> <li>• Invite to the online community</li> <li>• Feedback/Evaluation:               <ul style="list-style-type: none"> <li><b>EITHER</b> 2 questions:                   <ul style="list-style-type: none"> <li>○ "What did you particularly like about today's workshop?"</li> <li>○ "What could we do better next time?"</li> </ul> </li> </ul> </li> </ul> <p><b>OR:</b> <a href="https://blog.refak.at/blog/wp-content/uploads/2014/06/Zielscheibe.jpg">https://blog.refak.at/blog/wp-content/uploads/2014/06/Zielscheibe.jpg</a></p>	<p>.) Information material          .) possibly a "Feedbackzielscheibe" – Feedback target OR          .) Online Survey (Google Forms)</p>

## SUMMARY

This handbook provides an overview of learning modules on sustainable vocational education and training, developed within the Erasmus+ project ECOTRAIN.

It provides a comprehensive guide for educators, trainers, and learners interested in integrating sustainability into vocational education and training, as well as into their work environment. The handbook typically comprises three modules, each focusing on a specific aspect of sustainable practices within various vocational fields:

- A. Existing green best practice examples in technical fields in the VET centres**
- B. Patterns for acting more environmentally conscious in certain technical fields**
- C. What can be done in terms of acting more environmentally conscious in the workplace in general?**

These modules aim to equip learners with the knowledge and skills needed to address environmental, social, and economic challenges in their future careers. The content often includes definitions of sustainability, best practices, case studies, and practical exercises. By engaging with these modules, participants can gain a deeper understanding of sustainability principles, enabling them to make informed, responsible, and eco-conscious decisions within their chosen vocations. This handbook empowers individuals to contribute to a more sustainable and environmentally friendly workforce, aligning vocational education with the pressing global need for sustainability.

The content of the modules as well as the proposed workshop structures can be adjusted according to the specific needs and requirements of the target groups and environment.



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