WOODCIRCLE

D2.4

New curriculum profile

The Circular and Sustainable Woodworker

Short Version

Co-funded by the Erasmus+ Programme of the European Union

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Content

Introduction

This report's aim is to define the Skills, Knowledges and Competences (SKC) required for the new professional profile of the **Circular and Sustainable Woodworker**.
This figure combines the traditional complex of SKC of the **Woodworker in the furniture industry,** with the new ones required by the twin transition of the furniture sector towards new **Circular Economy business models** and their needed **Green Skills**.
WOODCircle considers the Circular and Sustainability Woodworker as the evolution of the traditional professional profiles correspondent basically to the ESCO profiles **Carpenters and Joiners** (7115), **Furniture Assembler** (8219.4), **Wood Treaters** (7521), **Cabinet Maker and related workers** (7522) and **Woodworking machine tool setters and operators** (7523)- that includes some sub-profile such as Furniture Finisher (7522.5), Furniture Restorer (7522.6).

This curriculum must be consistent with the EU instruments for mobility and transparency ECVET, EQF and EQAVET and will include:

- Information and descriptions related to learning objectives and outcomes (LOs),
- A list of the Learning Units (training path)
- The description of the Learning Units content in relation to knowledge, skills, and competencies (KSCs).

ECVET points will be assigned for each unit (with the support of the ECVET toolkit); the EQF level of this Curriculum is consistent with the complex of skills, knowledge and competences relevant for the EQF 4.

1. Circular and Sustainable Woodworker - Content of the Curriculum

Taking into consideration the official definitions by the **EQF - European Qualification Framework**[1], we consider that **this new joint curriculum will refer to level 4**, considering that it will require at least:
● Knowledge: **factual and theoretical knowledge** in broad contexts within a field of work or study;
● Skill: a range of **cognitive and practical skills** required to generate **solutions to specific problems** in a field of work or study;
● Competence: **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.

[1] https://europa.eu/europass/en/description-eight-eqf-levels

2. Learning Units: main contents

Learning outcomes are designed to allow the acquisition of specific knowledge, skills, and competences, to ensure that the new curriculum properly matches the evolution of the market and of the sectoral Green Transition.
The identified general, technical, and transversal skills are divided into four learning units, according to a sensible training path starting from a general introduction about Circular Economy and Sustainability in the European furniture sector, until the last learning Unit devoted to an in-depth analysis of how to manage resources from the extraction to the production of waste and energy.

Description of the Units

Unit 1 – Overview on Circular Economy for furniture companies

- *1.1 Main topics*
  - Introduction to Circular Economy in furniture sector
  - Challenges and opportunities, risks and solutions
  - CSR as a framework for environmental actions

- *1.2 Detailed Unit's structure*
  - General framework and overview on Circular Economy; focus on CE applied to furniture sector
  - Concrete challenges and opportunities for furniture companies and for companies' personnel (from managers to woodworkers); focus on health and safety
  - CSR (Corporate Social Responsibility) as a framework for the transition to Circular Economy
  - *(Case study)*

Learning outcomes
At the end of the Unit 1 – Overview of the Circular Economy, the learners will be able to:
- Understand the definition of Green Transition, Circular Economy and Sustainability applied to the furniture sector;
- Describe the implication of the transition to Circular Economy for furniture companies;
- Explain how the transition to Circular Economy fits into the framework of Corporate Social Responsibility;

- Provide concrete examples of the application of Circular Economy principles in the furniture sector.

Related Skills, Knowledge and Competences

Skills

- Can manage complex information;
- Can recognize the practical application of a theoretical principle;
- Can recognize the changes in the working process due to the application of Circular Economy principles;
- Can recognize different methodologies and strategies for the application of Circular Economy in the furniture sector

Knowledge

- Knowledge of the Principles of Circular Economy
- Knowledge of the technical vocabulary of CE and eco-design
- Knowledge of health and safety general recommendations and rules

Competences

- Great interest in environmental resources protection, innovation, sustainability
- Sensitivity about environmental issues
- Creativity and proactivity
- Confidence in their possibility to create a positive impact

Unit 2 – Sustainable materials

- *2.1 Main topics*
  - Types of sustainable materials
  - Innovative materials for circularity
  - Wood / wood-based materials

- *2.2 Detailed Unit's structure*
  - General overview about bio-based materials and bioeconomy applied to the furniture sector
  - Examples about other innovative and sustainable materials:
    - Waste as a raw material
    - Presentation of the results of the Mimwood project – database of innovative materials for the furniture sector
    - Sustainable components (glues, resins; etc.)
  - Overview about sustainable timber (PEFC, FSC, EU regulations) and forest management
  - *(Case study)*

Learning outcomes

At the end of the Unit 2 – Sustainable design and materials, the learners will be able to:

- Define which requirements should a material and component meet to be defined as sustainable;
- Distinguish a sustainable material from a non-sustainable material;
- Make examples of different bio-based and sustainable materials and their use in the furniture sector;
- Use waste as a raw material for products development;
- Recall the official certifications for sustainable timber;
- Understand what a sustainable management of the forest means and where it is applied
- Understand the benefits of sustainable forest management from a wider perspective (human wellbeing, tourism, etc.)

Related Skills, Knowledge and Competences

Skills

- Can recognize bio-based materials;
- Can put in practice bioeconomy principles;
- Can use different sustainable materials for the different purposes;
- Can recognize (and avoid using) hazardous substances;
- Can identify sustainable timber.

Knowledge

- Knowledge of the principles of materials and components sustainability
- Knowledge of the material life cycle

Competences

- Ability to choose the right solutions
- Holistic thinking and aptitude
- Autonomous in his/her work, under supervision and proper training
- Sensitivity about environmental issues (human-nature connection)

Unit 3 – Circular design

- *3.1 Main topics*
  - Circular design principles
  - Circular business models
  - Legal and voluntary instruments

- *3.2 Detailed Unit's structure*
  - Circular design principles:
    - Product life cycle
    - LCA and carbon footprint
    - Circular/eco-design process
    - Circular/eco-design strategies and priorities for furniture
  - Circular business models:
    - Concept and types of CBM
    - Circular value networks
    - Entrepreneurship
  - Legal and voluntary instruments
    - Legislation for furniture
    - Voluntary instruments for furniture
    - Environmental communication
  - *(Case study)*

Learning outcomes

At the end of the Unit 3 – Circular design, the learners will be able to:

- Understand the concept of product life cycle and how to measure impacts.
- Know the main circular/eco-design strategies and environmental priorities for furniture.
- Understand the basic principles of entrepreneurship.
- Recognise circular business models applied to furniture.
- Know legislation applicable to furniture and possible applicable voluntary instruments.
- Communicate the main environmental attributes of furniture.

Related Skills, Knowledge and Competences

<u>Skills</u>

- Can understand and interpret significant environmental aspects of products;
- Can understand and propose suitable circular/eco-design strategies for products;
- Can understand and define basic circular business models for products;
- Can recognize and understand the different types of voluntary certificates;
- Can understand the legal requirements applicable to products;
- Can communicate the main environmental characteristics of furniture products;

<u>Knowledge</u>

- Life cycle concept, life cycle phases and impacts.
- Knowledge of circular/eco-design strategies.

- Knowledge of entrepreneurship and circular business models applicable to furniture.
- Knowledge of legislation and certificates.
- Knowledge about communication of environmental attributes.

Competences

- Sensitivity about the impacts caused by products throughout their life cycle and interpretation of their environmental priorities (significant environmental aspects).
- Ability to propose circular/eco-design strategies to design/re-design products.
- Ability to propose basic circular business models for products.
- Ability to select appropriate voluntary instruments (certificates) for products.
- Ability to identify legal requirements that apply to products.
- Ability to create an environmental story of a product.

Unit 4 – Resources, manufacturing and waste

(0,25 ECVET Points)

- *4.1 Main topics*
  - Waste and energy management
  - Smart manufacturing
  - Product development

- *4.2 Detailed Unit's structure*
  - Enterprise resource management
    - Big data and resource efficiency
  - Waste and energy management
    - Zero waste
    - Energy systems and energy efficiency
  - Quality and longevity
  - Product development
  - *(Case study)*

Learning outcomes

At the end of the Unit 4 – Resources, Manufacturing and waste, the learners will be able to:

- Resonate about different type of resources management;
- Understand the importance of the adoption of eco-design for the use of resources;
- Design and implement a targeted waste and energy management strategy;

Related Skills, Knowledge and Competences

Skills

- Can implement basic strategies of waste management;
- Can implement basic strategies for saving energies and resources;
- Have a basic knowledge of resources management strategies

Knowledge

- Knowledge of the principles of energy and resources saving
- Knowledge of the principles of different intercultural approaches to sustainability

Competences

- Ability to take decisions
- Responsibility in his/her work
- Sensitivity about environmental and social issues
- Open-mindedness and curiosity
- Intercultural approach

3. Teaching methodologies: recommendations

The training methodology must be intuitive and user friendly, designed to accommodate a wide range of learners, with different levels of digital competences. Innovative and effective training methods will be used, such as online video materials, and each learning pill will be developed using the most suited training method for that specific item and the learning outcomes based on specific learning pill.

It would be recommended to integrate in the training platform a multilingual Virtual room / Forum to enable the direct exchange between the participants and a direct support to all the learners by the Project Tutors and Teachers.

Furthermore, it would be recommended to integrate at the end of each Learning Unit a glossary with the main topic keywords.

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