



Vocational qualifications and VET provision are important for circular economy in metalworking and welding!



Welding is an expanding occupation

for metalworking and engineering industry, promising career opportunities for young people and adults.



Welding qualifications are regulated nationally and internationally, what requires:

- **solid and responsible initial VET provision,**
- **well balanced theoretical and practical training.**



Initial VET plays a crucial role in providing **the basic knowledge and skills** necessary for the **autonomous and responsible performance** in the work processes related to welding.



In transitioning the skilled workers from the declining occupations in the metalworking (often with high negative environmental effect) to the emerging (sustainable) occupations and workplaces,

continuing VET plays significant role.

Benefits of circular economy competencies in the VET

Competent welders facilitate transition of the industry towards **sustainable, circular and carbon neutral economy**



Metalworking industry and welding sector in particular becomes **more attractive to the young people (including women)**, what helps to solve the problems of skills shortage.

It fosters **openness and interdisciplinarity** of VET qualifications in the field of welding,

creating **wider space for the educational innovations** and opening new permeability pathways between the VET and HE curricula.

VET qualifications and curricula changes: implement circular economy principles in welding processes

- Implementation of the **new qualifications and curricula** in the metalworking and welding field by following the emergence of new green jobs and occupations in the metalworking and welding field.
- **Integration of the competence requirements** caused by the **digitization and sustainability of work processes**. Digitization helps to optimize the performance, reducing the waste and emissions, etc. *For example, usage of virtual reality technologies in the training of welders can significantly reduce the consumption of materials and emissions created by the vocational training in this area.*
- **Introduction in the qualifications and curricula the sector and work-process specific competencies** related to:
 - vusage of renewable materials and energies,
 - vefficient management of resources and consumables,
 - veliminating/reducing of waste in the work processes,
- **Updating of existing occupational standards, qualifications, and curricula** with sustainability-oriented professional competencies.
- **Implementing the holistic taxonomies of the sustainability competencies and green skills** in the metalworking qualifications and training curricula (bibb, 2020):
 - Knowledge on sustainable and circular work processes
 - Ability to identify sustainable work practices in the real work processes
 - Ability to execute the sustainable work practices at the workplace
 - Ability to communicate and disseminate know-how about sustainable work practices
 - Ability to participate in the design of sustainable work processes and workplaces
- **Fostering the practicing of sustainability competencies and skills** in the real work processes of metalworking and welding through work-based learning and apprenticeships (Cedefop, 2021; <https://www.cedefop.europa.eu/en/events/2021-joint-edefopoecd-symposium-apprenticeships-greener-economies-and-societies#group-downloads>).
- **Providing necessary financial and methodical support** (at the national level) for the introduction and maintenance of sustainability and green skills in the VET curricula and training practices.
- **Ensuring coverage of sustainability issues** in the **continuing professional development of VET teachers and trainers**.

BIBB, 2020

Cedefop, 2021: <https://www.cedefop.europa.eu/en/events/2021-joint-edefopoecd-symposium-apprenticeships-greener-economies-and-societies#group-downloads>.

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