

Microcredentials: potential in the green transition

6.1. Understanding the basics

Green transition, digital revolution and other megatrends speed up the pace of change in economies and workplaces, drive skills upgrading and obsolescence, and transform skills profiles in jobs. Microcredentials (MCs) can be a valuable lifelong learning tool to respond to emerging and changing skills needs. They offer up- and reskilling via short learning formats, ease modular learning, and can be shaped to directly respond to labour market needs (Box 23). MCs can also be stackable, so that people can flexibly use them to attain a qualification or certification.

The term ‘microcredential’ is not new, and their characterising features can be part of long-standing practices. As the name implies, the amount of learning is what distinguishes microcredentials from traditional vocational or academic degrees and diplomas (see also UNESCO, 2022a). MCs give learners the opportunity to complete a small learning module relatively quickly. Microcredentials do not and cannot replace traditional qualifications (Cedefop, 2022c). Instead, they complement existing qualifications by opening up opportunities to meet new skill needs in a targeted, and flexible way. Issuing microcredentials in a digital format following standardised requirements, makes it easier to add them to credential repositories and include them in national qualifications frameworks (Cedefop, 2023e). Microcredentials are blooming in different parts of education and training systems, quite often in the non-formal or private sector. They can challenge traditional national-level approaches governing qualifications and credentials systems.

Box 23. What are microcredentials and how can they be designed and used?

A microcredential is the record of the learning outcomes that a learner has acquired following a small volume of learning. These learning outcomes have been assessed against transparent and clearly defined standards. Courses leading to microcredentials are designed to provide the learner with specific knowledge, skills and competences that respond to societal, personal, cultural or labour market needs. Microcredentials are owned by the learner, can be shared and are portable. They may stand alone or combined into larger credentials. They are underpinned by quality assurance following agreed standards in the relevant sector or area of activity.

According to the Council Recommendation, the following principles need to guide the development of microcredentials. They should be:

- subject to quality assurance (quality);
- measurable, comparable and understandable (transparency);
- designed as distinct and targeted learning achievements (relevance).
- designed to support flexible learning pathways;
- recognised, where possible;
- owned by the learner and stored and shared easily (portability);
- learner-centred;
- clear about the identity of the learner and other information (authentic).

The learning outcomes in microcredentials must be assessed against transparent criteria. Information and advice on microcredentials should be incorporated in lifelong learning guidance services. The Council recommendation advises EU Member States to integrate microcredentials into their employment policies and Active Labour Market Policies. Via employment services, training support measures and employment incentives, microcredentials are to be used to:

- address skills mismatches and bottlenecks in economic sectors and regions;
- upskill and reskill workers for skills and jobs in demand in the context of digital and green transition.

Source: [Council Recommendation on a European Approach to Micro-credentials for Lifelong Learning and Employability \(2022\)](#).

The greatest advantage of MCs is their flexibility and the short time frames they require to be earned. They are a faster pathway to gaining in-demand knowledge and expertise and are alternative or complementary to learning via traditional VET ⁽¹⁷⁾. They foster lifelong learning and the employability of people with different skill levels by quickly skilling them.

In response to the 2022 Council recommendation on microcredentials, EU Member States are adapting their VET systems by creating new formats of training provision and credentialing. More than half of them have started to incorporate microcredentials, including digital ones, in their national qualification frameworks (NQFs) or are planning to do so. NQF integration ascribes value to microcredentials and facilitates comparison (Cedefop, 2024d).

6.2. Why and how microcredentials can contribute to greening

Labour market relevance, which is one of the principles of microcredential design and delivery, stands out as a major advantage compared to traditional qualifications and degrees. Microcredentials could therefore play a role in making progress towards delivering EU green transition policy. They make it possible for VET to take up its ‘sprint’ role (Cedefop, 2022a) to quickly alleviate labour market pressures, facilitate worker transitions to greener occupations and sectors, or to respond to new tasks and skills required in the transition.

The learning outcomes approach shaping microcredentials aligns well with typical skills and workplace dynamics in the green transition. Instead of focusing on the inputs to learning – when, where and how it took place – this approach focuses on what an individual knows, can do and understand following a sequence of learning. While learning outcomes alone might not be enough to fully understand and compare credentials, or capture the qualities of a learning process, they provide essential insights into their content and scope. Learning outcome statements can, for example, describe competences in a manner relevant for the workplace (Pouliou, 2024).

Learning outcomes are often categorised as either transversal or occupation- or job-specific ⁽¹⁸⁾. Given that skills for the green transition encompass technical and transversal skills, this distinction can be useful when designing a ‘green’ micro-credential.

(a) Transversal learning outcomes can be understood as green transition supporting learning outcomes relevant to and useable in a broad range of occupations and sectors, which can also be transferred to new educational environments. They are ‘learned and proven abilities which are commonly seen as necessary or valuable for effective action in virtually any kind of work, learning or life activity’ ⁽¹⁹⁾. In the context of green transition, being aware of the consequences of not acting green, avoiding waste and recycling, taking a proactive stance in contributing to green priorities, complying with

⁽¹⁷⁾ ILO, UNESCO and the World Bank (2023) Building better formal TVET systems: Principles and practices in low-and middle-income countries

⁽¹⁸⁾ [ESCOpedia: cross-sector skills and competences](#)

⁽¹⁹⁾ [Towards a structured and consistent terminology on transversal skills and competences: 3rd report to ESCO Member States Working Group on a terminology for transversal skills and competences \(TSCs\)](#)

environmental regulation and working in ways that minimise carbon footprints are examples of transversal learning outcomes.

- (b) Occupation/job-specific learning outcomes supporting green transition are usually specialised and relevant for jobs within a specific economic sector, context or occupation. These are typically central to frontline green jobs. Examples include being able to install solar technology safely, servicing electrical vehicles, or designing circular production processes.

Microcredentials are emerging in many different contexts, but they are not yet systematically integrated in many skills ecosystems. To understand possible trends in microcredentials, Cedefop built four scenarios around their possible use cases (Table 5) (Pouliou, 2024). The scenarios show how MCs can serve different skill needs and groups of learners. From the possible scenarios, demand-driven Microcredentials’ appear to be most directly linked to green transition skilling needs.

Table 5. **Four scenarios for microcredentials use**

Scenario 1: Supply-driven microcredentials (as part of formal education) for further learning.	Scenario 3: Demand-driven microcredentials (examples of enterprises/ sectors)
Scenario 2: Supply-driven microcredentials for labour market entry and job setting (professional credentials)	Scenario 4: Microcredentials for vulnerable groups /groups at risk (upskilling/reskilling)

Source: Pouliou, A. (2024).

Demand-driven MCs can evolve outside of and independent from formal education and training systems. They can be offered by companies, sectoral players, or professional organisations. Employers could use such microcredentials to address skills gaps and mismatches in their companies, to respond to technological, digital, social, environmental trends (Pouliou, 2024). In the context of the green transition, the aim of such microcredentials would typically be to reskill the workforce for a particular skill set or to meet regulatory requirements. The latter takes shape as mandatory skilling in specific types of work (e.g. to extend or renew licences and permits).

The potential of microcredentials in the green transition can be particularly strong in sectors. Research into the manufacturing and retail sectors revealed a wide variety of options for individuals in different occupational areas to acquire additional knowledge, skills and competences (Cedefop, 2023f). These are particularly common for workers in sectors undergoing rapid change (e.g. ICT) or in jobs where continuous improvement is important and qualifications need regular updating (e.g. education, medicine, public service).

Thanks to their flexibility and inclusivity, particularly in strengthening professional skills, MCs can play a crucial role in key sectors for the green transition. Cedefop sectoral skill foresights on [smart and green cities](#), [waste management](#), [agri-food](#) and [circular economy](#) clearly show the value of microcredentials and the potential of expanding them. Microcredentials can play a role in meeting European Green Deal targets ⁽²⁰⁾ by offering flexible, targeted and skills development opportunities. They are not a magic bullet or quick fix solution to all skills matching problems: microcredentials complement but cannot replace traditional education and training systems.

6.3. How microcredentials drive greening

With greening goals and targets becoming more ambitious in the past few years, the need to address

⁽²⁰⁾ [Microcredentials moving to centre stage](#).

skill needs linked to the green transition has grown. Some EU countries have worked on microcredentials to expand skilling options, often supported by often EU-funded projects. The following examples illustrate the approaches taken and demonstrate progress made in this area. They can be inspirational for policy makers, and other skills system stakeholders active at national, regional and sectoral level.

6.3.1. Ireland

A model for Further Education and Training (FET) micro-qualifications (the national term used for micro-credentials) was developed in 2021 ⁽²¹⁾ by the state agency responsible for Further Education and Training (SOLAS). It aimed at providing an agile response to upskilling needs of employees and enterprises via new micro learning programmes at Levels 4-6 which would be recognised as national qualifications on the Irish NQF. Green/sustainability skills were identified as a priority for the new FET Micro-Qualifications model ⁽²²⁾ and rolled out nationally under the Skills to Advance ⁽²³⁾ policy initiative. A review of green occupations and skills and research on green skills and sustainability helped inform provision. With no specific certified programmes promoting awareness of green skills in place, cross-occupational and cross-sectoral training opportunities were much needed. The collaborative structure and approach adopted was modelled on previous initiatives and involved an overarching working group of strategic partners and a programme development subgroup which developed the documentation for Quality and Qualifications Ireland (QQI), the validating body. In 2024, SOLAS officially launched the model and an initial suite of 24 FET micro-qualifications following a 2-year pilot with Education and Training Boards, enterprise agencies and companies. These micro-qualifications target individuals and communities and described in terms of learning outcomes (Example in Figure 10).

⁽²¹⁾ For more information, see [Microqualifications](#).

⁽²²⁾ A distinctive feature is that each micro-qualification is mapped to the National Framework of Qualifications and accredited by Quality and Qualifications Ireland. [See the video](#) which is outlining the key features of FET Micro-Qualifications and the other providing testimonials from SME employees.

⁽²³⁾ [Skills to advance](#). and [Find a Course Course finder](#) for the list of courses.

Figure 10. Example of a micro-qualification offered by SOLAS

463900 - THE CIRCULAR ECONOMY - SKILLS TO ADVANCE

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The circular economy aims to keep resources in use for as long as possible, and then recover or recycle the materials at end of life. While the concept of a circular economy is not new, it is gaining a lot of attention as a result of climate change and the increasing scarcity of resource. Developing a circular economy in your business involves cutting down on waste and managing resources consumption in order to save money while reducing the impact of your business's activities on the environment.

This micro-qualification will develop the skills of your employees in order to make circular economy improvements within your business.

This course will run on Thursdays from 09.00 to 13.00 for 8 weeks.

The first class will be in person in Cork College of FET- Bishopstown Campus, and the rest completed online in live online classes.

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ENTRY REQUIREMENTS

- Education:** The programme is positioned at Level 6 on the NFQ. Applicants seeking entry must have achieved a minimum of a NFQ Level 5 Major Award or its equivalent prior to entry to the programme, or have achieved the relevant skills, knowledge, and competence through work experience. Learners within this category are assessed prior to enrolment to ensure they meet the required skills to undertake the programme.
- Aptitude:** The target learner group includes employees, in all workplaces across all functions and roles, including management, team-leads, general operatives, administration, finance, etc. Learners will not be expected to have prior knowledge of the circular economy on entry to the programme, but they will be expected to demonstrate an interest in the field.
- Previous Experience:** Applicants who have either successfully completed a programme leading to a Level 5 QQI qualification or can demonstrate the levels of knowledge, skills and competence associated with NFQ Level 5 will be eligible to apply for entry to this programme. Learners will not be expected to have prior knowledge of the circular economy on entry to the programme, but they will be expected to demonstrate an interest in the field.

COURSE CONTENT

Title	Award	Awarding Body
The Circular Economy in the Workplace	The Circular Economy in the Workplace (6N22104)	QQI

LEARNING OUTCOMES

On successful completion of the award in The Circular Economy in the Workplace you will be able to:

1. Explain the context and main concepts of the circular economy
2. Apply circular thinking concepts to identify circular economy improvement actions in the workplace
3. Analyse the potential impacts of circular economy improvement actions within (a) business
4. Develop a business case for circular economy improvement actions

FURTHER DETAILS

This course will run on Thursdays from 09.00 to 13.00 8 weeks.

The first class will be in person in Cork College of FET- Bishopstown Campus, and the rest completed online in live online classes.

Learners should have access to a PC / Mac, so as to be able to fully participate in the course and in order to complete the assessments

Applicants who come from outside the European Economic Area (EEA) must have a Stamp 4 or a Labour Market Permissions Letter to undertake a course with Cork College of FET-Bishopstown Campus.

A good standard of written and spoken English is essential to attend this course as Learners must complete a written assessment as part of the course.

Links open in new window

Qualifications

The Circular Economy in the Workplace

Location

Bishopstown Campus, Cork College of FET

Cork College of FET Bishopstown Campus
Cork College of FET Bishopstown Campus
Rossa Avenue

Bishopstown

Cork City

Start Date: 27/02/2025
End Date: 24/04/2025
Duration: 8 Weeks

TimeTable

day	Morning	Afternoon	Evening
Mon			
Tue			
Wed			
Thur		✓	
Fri			
Sat			
Sun			

Facilities

- Free Parking

Contact

Skills to Advance Office

021 4856 200
skillstoadvance@corketb.ie
<https://www.fetchcourses...>

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SEARCH RESULTS

Source: 438235 – The Circular Economy in the Workplace – Skills to Advance.

6.3.2. Estonia

Estonia's Education Strategy 2021-35 views the introduction of 'microqualifications and learning bites' as one of the most fundamental changes in education. The Strategy called for creating 'the conditions for learners to benefit from a learning pathway consisting of smaller modules (e.g. microcredentials, learning bites) and meeting their needs and abilities' and for 'greater recognition of non-formal and informal learning in formal

education' ⁽²⁴⁾. Estonia followed New Zealand's approach to set up the quality assurance system and that of Ireland to integrate the micro-qualifications system in the national qualifications framework ⁽²⁵⁾.

As part of an initiative to support the economy in the green transition, new microcredential programmes focused on green skills are being developed. They cover areas such as transport, energy, agriculture, food processing, construction, chemical technology, materials processing, environmental sciences and waste management (ReferNet Estonia; Cedefop, 2023).

6.3.3. Res4city project

The [Res4city project](#) aims to accelerate and mainstream the development of sustainable renewables and fuel technologies in cities via education. The project develops an innovative education programme in collaboration with stakeholders and promotes sustainability and circularity by filling the knowledge and skills gaps. A range of innovative educational micro-programmes and microcredentials for students and employees are being developed for cities, which are hubs for the green transition (Cedefop, 2022d). Micro-programmes developed as part of the project target urban communities. They include Advanced Design of Sustainable Cities, Decarbonization Strategies and Social Innovation for Cities and Communities, and the sector-specific programme Innovation in the Urban Energy Sector.

6.3.4. GREENLAB project

The Erasmus+ [GREENLAB project – Greening Labour market through VET – employers' partnerships](#) ⁽²⁶⁾ promotes systemic reform of education and professional training via innovative approaches to enhance the skills of managers and consultants engaged in strategic areas of the green transition. It was started by a consortium of eleven partners from six EU countries. The MCs developed target learners' professional development and build environmentally conscious mindsets. Linking VET with the business world also facilitates the recognition and transferability of skills and qualifications across sectors.

6.3.5. Green at You project

The EU-funded [Green at You project](#) links to microcredential scenario 4 (Table 4). It aims to empower groups at risk of social exclusion and to expand female participation in 'green' sectors by equipping learners with the essential skills for green and digital jobs in five frontline green transition sectors: agriculture and food production, renewable energies, sustainable construction and building rehabilitation, circular economy and forestry. Building on expert input, the project identifies the skills key for jobs in these sectors and uses EU Competence Frameworks (EntreComp, GreenComp and DigComp) to identify transversal competences. The project will develop, and pilot 58 training modules supported by microcredentials and will train and improve the employability or entrepreneurship skills of 480 people at risk of exclusion in Europe: 240 face-to-face with trainers trained by the project and 240 via the Green at you MOOC ⁽²⁷⁾.

6.3.6. MASTERY project

Aiming at making the green transition a development driver for business and communities, the [MASTERY project](#) aspires to set the standard for the integration of microcredentials to meet the growing demand for upgrading and reskilling in strategic sectors. It focuses on frontline transition sectors such as agri-food, construction, wood/furniture and manufacturing. One of the highlights of the project is the MASTERY Collection of 12 Green Skills Microcredentials, which cover a wide range of skills needed to

⁽²⁴⁾ [Estonian Education strategy 2021-2035](#), p.2.

⁽²⁵⁾ Study on Possibilities for the Introduction of Micro-Qualifications in the Estonian Education System and Qualifications System Based on International Practice. In Estonian: https://www.hm.ee/sites/default/files/aruanne_mikrovalifikatsioonid_2021.pdf

⁽²⁶⁾ The project is funded by Erasmus+ Programme – Partnerships for Innovation – Forward-Looking Projects – Vocational Education and Training (VET).

⁽²⁷⁾ The project builds on the results already generated by the Green Jobs Platform in Spain, providing more specific content to expand its training offer in specific subsectors and facilitating the transfer of the successful elements of this initiative to other European countries. Source: [Green at you](#)

promote sustainable practices in these sectors. Designed to be flexible and adaptable to sectoral needs, these microcredentials provide a clear pathway to professional upgrading in key areas of sustainability.

6.3.7. Green Circle: Microcredentials in the Construction Sector

The aim of [the Green Circle](#) is to identify, develop, test and assess the use of microcredentials in the context of the green transition in the construction sector. The project also demonstrates the potential for mainstreaming microcredentials in other sectors. It involves mapping job profiles, learning needs and opportunities to facilitate the development of a microcredential-based skills ecosystem. The project includes:

- (a) a systematic review of existing short courses and microcredentials;
- (b) a framework for the implementation of microcredentials;
- (c) a catalogue of skills for the green transition;
- (d) microcredential principles and open design methodology;
- (e) guidelines for new forms of assessment.

Eight microcredentials have been developed and piloted in Germany, Greece, Spain and Portugal.

6.3.8. Microcredentials in Denmark

Danish employer organisation TEKNIQ cooperated with the Trade Union for Electricians, the Trade Union of Plumbers and Allied Workers and the public employment services to develop two microcredentials. They target long-term unemployed and low-qualified workers and give them opportunities to become cable and pipe fitters. The Microcredentials help meet the increased demand for these occupations the green transition is creating. The courses are offered via the Danish AMU labour market training system. Experience so far suggests the majority who are trained as cable and pipe fitters find a job with good prospects (Cedefop, 2023e).