



CEU

*Universidad
Cardenal Herrera*

CEU MICROCREDENTIAL ECOSYSTEM



CEU
PEER-ISSUED BADGE

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KEY CONCEPTS

Introduction

CEU microcredentials enhance student employability by highlighting the competencies our students gain during their time at university. From the original Certificate of Competencies which was launched in 2015 to the contemporary Microcredential Ecosystem, CEU Universities have strived to ensure that our students possess a unique portfolio of skills and competencies which make them stand out when they leave university. Microcredentials, certified by means of digital badges, represent a ground-breaking innovation in Higher Education which we are pioneering. We know that this is a brave new world full of new concepts and specialised terminology, so we present this glossary as a guide. At the same time this document enables us to show the decisions we have taken in order to develop and implement the key concepts and practices of the CEU Microcredential Ecosystem.

Office for the Vice-Rector for Students and University Life (May 2023)



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BASIC TERMINOLOGY

1. MICROCREDENTIAL

It is not easy to find a clear consensus on what a microcredential is or how it can be defined, but, in general, a microcredential is commonly understood as a specific, small-scale qualification which certifies either:

- a student's effective completion of a short course or training programme, or
- a student's ability to perform a particular skill or activity in a pre-defined context (commonly known as the "skills-based" model).

One definition is provided by UNESCO in their 2022 report "Towards a Common Definition of Micro-credentials". Here, a microcredential is understood as a type of credential "typically focused on a specific set of learning outcomes in a narrow field of learning and achieved over a shorter period of time".¹

For its part, the European Commission has put forward this definition: "Micro-credentials certify the learning outcomes of short-term learning experiences, for example a short course or training. They offer a flexible, targeted way to help people develop the knowledge, skills and competences they need for their personal and professional development".²

Microcredentials can be issued to students in the form of a certificate or, using the latest technology, in the form of a digital certification. In the contemporary Spanish and European context, following policy guidelines published by the European Commission and the National Agency for Quality Assessment and Accreditation in Spain (ANECA), microcredentials should possess the following characteristics:

- *Stackability*, understood as "the possibility, where relevant, to combine different microcredentials and build logically upon each other".³ Microcredentials can be standalone units or modular elements that can be combined into larger credentials. Learning Pathways are an example of how microcredentials can be combined or "stacked".
- *Portability*. This enables the user to store, display, and share microcredentials across a range of different digital contexts (wallets, social media, platforms, websites, apps, cloud systems, etc.).
- *Interoperability*. The relevant systems should be able to exchange information in a mutually compatible way to make sure that the microcredential can be displayed, read, and verified correctly.

¹ Oliver, B. (2022). Towards a common definition of micro-credentials. UNESCO, Paris. <https://unesdoc.unesco.org/ark:/48223/pf0000381668>

² European Commission. *A European approach to micro-credentials*. European Education Area (europa.eu). <https://education.ec.europa.eu/education-levels/higher-education/micro-credentials>

³ General Secretariat of the Council of the European Union. (2022). Proposal for a Council Recommendation on a European approach to micro-credentials for lifelong learning and employability. *Council of the European Union*. <https://data.consilium.europa.eu/doc/document/ST-9237-2022-INIT/en/pdf>

- *Inter-institutional recognition.* A microcredential should contain certain standard characteristics which guarantee validity between different institutions, enabling a microcredential issued by one institution to be accepted by another.

A more in-depth look at definitions of microcredentials can be found [here](#).



Microcredentials at CEU Universities

At CEU Universities we understand a microcredential to be the certification of a particular skill or learning outcome, or set of skills or learning outcomes. This means that they provide a more detailed and “granular” view of a person’s abilities than traditional qualifications.

For undergraduate students to earn a microcredential, they must complete a learning pathway. This consists of a sequence of learning outcomes certified by means of a set of digital badges.

We issue microcredentials in the form of a digital badge via the platform [Canvas Credentials](#).

2. BADGE

A badge is the most advanced technological format in which microcredentials are issued (in contrast with those which are issued as simple digital certificates in PDFs). It consists of a digitally transferable image containing metadata. These metadata provide information about the *when*, *how* and *where* of the related learning outcome, achievement, skill, etc.⁴ as well as the name of the issuer, the date of issue and the earning criteria.

Badges have undergone significant technological development since the [Open Badges](#) standard was first created by the Mozilla foundation in 2010.⁵ Badges that comply with the new [Open Badges 3.0](#) standard are secure, verifiable, machine-readable and easily shareable.



Badges at CEU Universities

CEU Universities issue badges using the Open Badges 3.0 standard via the [Canvas Credentials](#) platform.

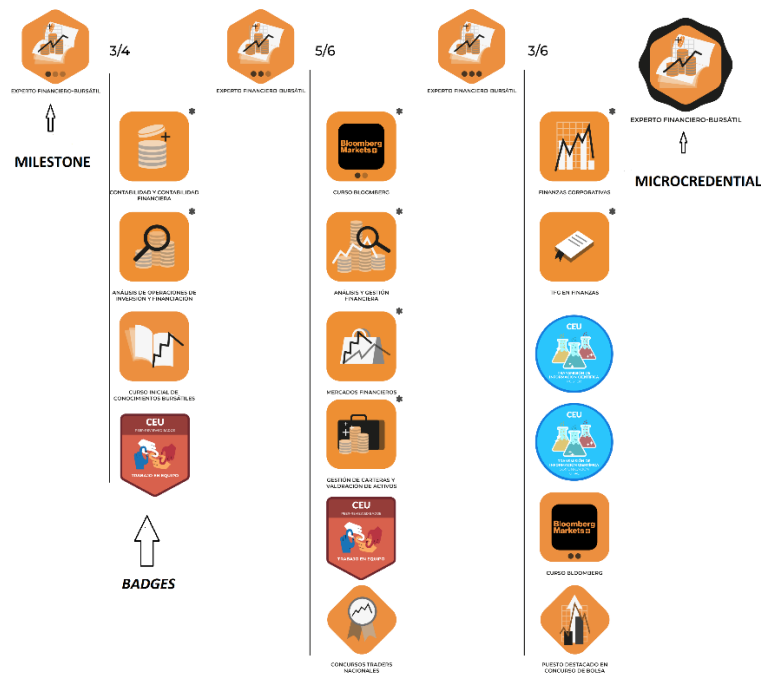
Our badges can be characterised in two different ways: in terms of their *stackability*, and in terms

⁴ “A digital badge can be defined as a representation of an accomplishment, interest or affiliation that is visual, available online, and contains metadata, including links that help explain the context, meaning, process and result of an activity.” - Gibson et al. (2015). p.404.

⁵ Support Mozilla. *What is Mozilla's Open Badges project?* Mozilla. <https://support.mozilla.org/en-US/kb/mozillas-open-badges-project>

of the *achievement* type.

- *Stackability*: badges can be combined or “stacked” into larger units, forming part of a learning pathway. So, we have:
 - Basic units or *badges*
 - Intermediate units or *milestones*
 - *Microcredential*, marking the completion of a learning pathway



- *Achievement Type* (this information appears in the metadata of each badge):

Type (at CEU)	Description (adapted from 1EDTECH)
<i>Badge</i>	the acquisition of a specific skill or fulfilment of a learning outcome
<i>Course</i>	completion of a course, such as the end-of-degree project (TFG), with a required minimum grade
<i>Assignment</i>	awarded for the completion of a specific learning activity within a course or degree-specific assessment, occasionally with a required minimum grade
<i>Fieldwork</i>	learning experiences with external partners, including voluntary placements
<i>Community Service</i>	completion of volunteering activities
<i>Award</i>	the recognition of a unique achievement
<i>Achievement</i>	the acquisition of a milestone within a learning pathway
<i>Competency</i>	the completion of a learning pathway, for which a microcredential is issued

3. LEARNING PATHWAY

A learning pathway consists of a series of pre-defined, interrelated and sequenced learning goals, which serves as a roadmap, guiding students towards the acquisition of a specific competency or set of skills.⁶ In this way a learning pathway may be seen as a new approach to the design of academic programmes, which is associated with competency-based education.



Learning Pathways at CEU Universities

At CEU universities each learning pathway is designed to help students acquire a particular competency. Students who complete a learning pathway are awarded a *microcredential*. This certification is additional and complementary to the formal component of the students' degree programme.

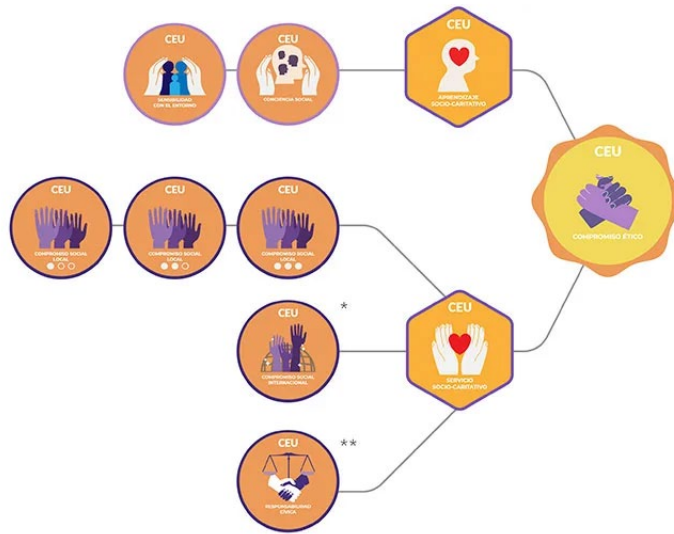
In these learning pathways, students follow a sequenced series of learning goals:

- When they attain a basic learning outcome or skill, students receive a *badge*.
- After a set of interrelated badges have been attained, students achieve a *milestone*. A learning pathway may be structured around several milestones, each indicating an increasing level of mastery of the competency in question.
- By completing, in turn, a set of milestones, they reach the end of the learning pathway: they have attained the competency and are awarded the final badge – the *microcredential*.

There are two types of learning pathways:

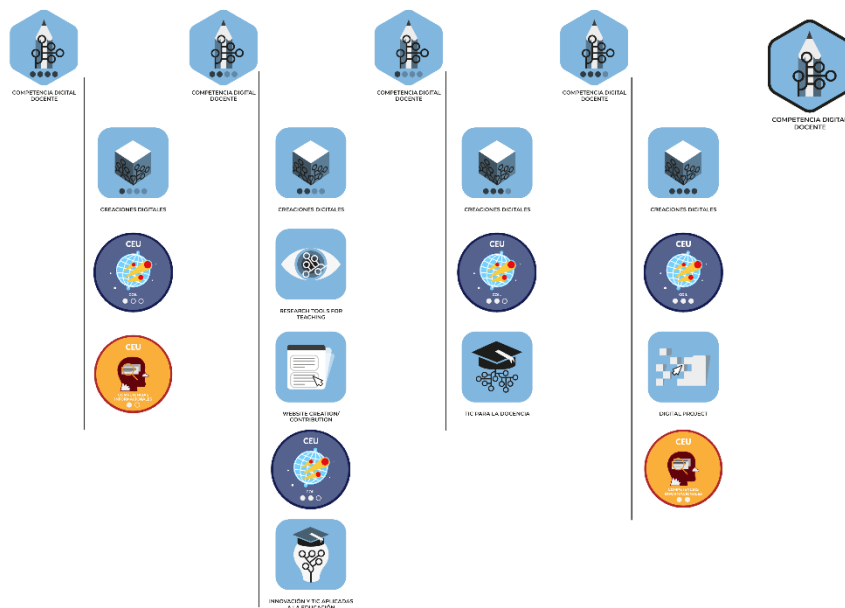
- *21st Century Skills Learning Pathways*: these are focused on developing in-demand skills in distinct contexts and are available to all students, regardless of their degree programme. For more information on 21st Century Skills see the entry below.

⁶ “Learning pathway: The collection of specific courses, programs, and credentials that individuals complete as they progress in their education toward their credential goal. A learning pathway may encompass a wide variety of settings in which credentials are pursued. Learning pathways arise from the route that learners pursue and not the pathways that institutions design for individuals.” - Maxwell, N. et al. (2020). p.105.



21st Century Skills Learning Pathway for *Ethical Commitment*

- Discipline-Specific Learning Pathways* are available to students within their degree programmes; they have been designed by each faculty to highlight how students can harness the basic skills they acquire during their studies to develop higher-level professional competencies in their chosen industry.



Discipline-Specific Learning Pathway for Education: *Digital Literacy Skills for Educators*

4. MICROCREDENTIAL ECOSYSTEM

This is the full range of microcredentials available from an educational institution or issuer, which are typically distinguished by category and level of expertise. The ecosystem should be a responsive credentialing framework, continually adapting to the requirements of the labour market, society, and the needs of the students themselves. In this way, microcredentials enable educators to certify that students have the skills which employers are looking for in the 21st century context of work.



The CEU Microcredential Ecosystem

Undergraduate programmes

CEU Universities have pioneered the certification of undergraduate skills, drawing on the philosophy of competency-based education. We differentiate between two types of skills and competencies: *discipline-specific skills* and *21st century skills*. The former are relevant to the learning outcomes of the degree programmes, while the latter are more outward-looking and transferable. At CEU students can gain microcredentials through participation in activities directly related to their degree and in others which are not, such as student clubs, charitable activities, or skills training.

Postgraduate programmes

At CEU Universities badges have been awarded in postgraduate programmes since 2021-2022. Our postgraduate students can develop their soft skills and have these certified in the form of the badge: *Transformative Competencies*. To be awarded this badge, students must successfully complete a specific course prior to beginning their postgraduate programme.

5. 21st CENTURY SKILLS

This is the name given to a range of transferable skills and competencies, such as communication, teamwork, critical thinking, and ICT literacy, which are especially important in today's labour market. What constitutes a 21st century skill is open and responsive to the shifting needs of the labour market and continues to develop with the advance of technology in various industries. You can read more about 21st century skills [here](#).



21st Century Skills at CEU Universities

At CEU, we have been certifying undergraduate competencies since 2015, and in this process our own 21st century skills model has emerged.

Our model comprises of six areas of specialisation:

- *Soft Skills*
 - self-knowledge
 - personal growth
 - communication
 - teamwork
 - leadership
 - innovation
 - entrepreneurship
 - critical thinking
 - creativity
- *Research Skills*
- *Instrumental Skills*
 - languages
 - information management
 - digital literacy
- *Internationalization*
- *Social Skills for the Workplace*
- *Ethical Commitment*



This model was suggested by our International Advisory Board, has been validated by our Internal Quality Assurance System, and it forms an integral part of the CEU Microcredencial Ecosystem.⁷ It is subject to a process of continuous review and improvement, so that it can respond and adapt to labour market changes and society's shifting needs in the 21st century.

6. LEARNING OUTCOME

A learning outcome is a predefined statement of “what students should know, be able to do, or

⁷ The CEU Microcredencial Ecosystem evolved out of the earlier Certificate of Competencies project. For more information on the evolution of this project see [here](#).

value”,⁸ on completion of a learning process.⁹ Learning outcomes are at the heart of a new approach to education and training and constitute the elements that define the levels of the European Qualifications Framework.

7. QUALITY ASSURANCE SYSTEM

Quality assurance (QA) is a concept which is used across all kinds of activities, being defined as “the maintenance of a desired level of quality in a service or a manufactured product, especially by means of attention to every stage of the process of delivery or manufacture.”¹⁰ In education, the aim of a QA system is to “ensure a learning environment in which the content of programmes, learning opportunities and facilities are fit for purpose”.¹¹

Regarding microcredentials, in May 2022 the European Commission stated that “external quality assurance is based primarily on the assessment of providers (rather than individual courses) and the effectiveness of their internal quality assurance procedures”.¹² This idea is reaffirmed by ANECA (Spanish Quality Assurance Agency for Higher Education) in their 2022 recommendations, in which they stated that microcredentials, in the Spanish context, would not themselves be subject to scrutiny, but rather that it is the institutional provider or issuer who is expected to have a robust internal QA system.¹³



The Quality Assurance System at CEU Universities

In accordance with recommendations made by the European Commission and ANECA, microcredentials issued at the CEU Cardenal Herrera University have been validated by the university’s internal QA system since 2021. Those elements of the QA system which specifically

⁸ Center for Teaching Innovation. *Setting Learning Outcomes*. Cornell University. <https://teaching.cornell.edu/teaching-resources/designing-your-course/setting-learning-outcomes>

⁹ The Council of the European Union defines learning outcomes as “statements regarding what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and responsibility and autonomy.” European Commission. (2020). *Council Recommendation on the validation of non-formal and informal learning*. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52020SC0121&rid=5>

¹⁰ *Oxford English Dictionary*. <https://www.oed.com/>

¹¹ Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium. https://www.enqa.eu/wp-content/uploads/2015/11/ESG_2015.pdf

¹² Dakovic, G., Gover, A. (2021). Diversification of external quality assurance in the EHEA - Reflection following the analysis of ENQA Agency Reviews conducted in 2020- 2021. *European Association for Quality Assurance in Higher Education*. https://www.enqa.eu/wp-content/uploads/Diversification-of-EQA_final.pdf

¹³ ANECA. (2022). *Microcredenciales. Formación inclusiva en todos los formatos y para todas las edades*. Madrid. [db424827-b464-d41d-ae09-717eb95e5742 \(aneca.es\)](https://www.aneca.es/db424827-b464-d41d-ae09-717eb95e5742)

concern microcredentials were approved by the Governing Council in 2022.¹⁴

8. PEER-ISSUED BADGES (STUDENT-TO-STUDENT)

These badges are issued by students to other fellow students, in the context of “peer assessment”, an important innovation in 21st century educational practices. In peer assessment students are encouraged to respond to and comment on each others’ work, equipping them with lifelong skills in assessing and providing feedback to others.¹⁵ Badges are a further enhancement, in that they provide a means for students to recognize the achievements of their fellow students.



Peer-Issued Badges at CEU Universities

At CEU Universities, students can receive peer-issued badges through participating in the Student Clubs. Club members certify the soft skills that their fellows demonstrate during certain club activities. Our peer-issued badges have their own specific issuer: CEU Student Fellowship.

In general, CEU student clubs may award microcredentials for leadership, teamwork, communication, and innovation skills. The earning criteria may vary: these are established by each club, in accordance with the internal quality assurance system.

TECHNOLOGY

9. OPEN BADGES

According to the [Open Badges website](#): “Open Badges is the world's leading *format* for digital badges. Open Badges is not a specific product or platform, but a type of digital badge that is verifiable, portable, and packed with information about skills and achievements.” This technology was originally developed by the [Mozilla Foundation in 2011](#), using a group of open technical standards, and has since undergone continuous development, the latest version being Open Badges 3.0.

¹⁴ CEU UCH. *Procedure for the design, creation and evaluation of the CEU Credential Ecosystem using badges and learning pathways*. <https://www.uchceu.com/docs/en/about-us/microcredentials-procedure-design-evaluation.pdf>

¹⁵ “Peer assessment or peer review provides a structured learning process for students to critique and provide feedback to each other on their work. It helps students develop lifelong skills in assessing and providing feedback to others, and also equips them with skills to [self-assess](#) and improve their own work.” - Center for Teaching Innovation. *Peer Assessment*. Cornell University. <https://teaching.cornell.edu/teaching-resources/assessment-evaluation/peer-assessment#:~:text=Peer%20assessment%20or%20peer%20review,and%20improve%20their%20own%20work>

Key terms for Open Badges:

9.1 METADATA: This is the unique information associated with each badge, which is verifiable and secure. The information provided by the metadata may include: the issuer, date, description of the achievement, earning criteria or the evidence, among other details.

9.2 EARNER: This refers to the person who has been awarded a badge, after fulfilling the necessary requirements. Earners can display their badges online and share information about them across a range of media, including social networks.

9.3 ISSUER: This is an organization, institution, or person who designs, creates, and awards badges to earners. At CEU Universities, each university is the issuer of the badges in its ecosystem.

9.4 EARNING CRITERIA: These are the requirements, set by the issuer, that an earner must meet to be awarded a badge.

9.5 JSON (JavaScript Object Notation): This is a lightweight data-interchange format. It is easy for humans to read and write, and for machines to analyse and generate. It is the standard format in which badges are shared.

9.6 ASSERTION: This is a technical term which refers to the representation of a badge. Assertions are packaged for transmission as JSON objects and consist of a set of properties, some mandatory and others optional.

9.7 EVIDENCE: This is the description of the activity realised by the earner in order to receive the badge.



Open Badges at CEU Universities

Since 2019, using Open Badges technology, CEU Universities have been able to issue students with badges that they can securely share with others and publish on social media profiles, enabling them to display the skills and competencies they have acquired at university.

Initially, badges were issued via the Badgr platform, run by Concentric Sky. The platform has since been acquired by Canvas Credentials.

10. OPEN BADGES 3.0

Open Badges 3.0, launched in 2022, is the latest version of the Open Badges standard, developed by 1EDTECH (formerly the IMS Global Learning Consortium) and includes important new features and functions for issuers and earners alike.



Open Badges 3.0 at CEU Universities

CEU Universities have been using Open Badges 3.0 since their release in 2022. This means that we can digitally certify student competencies using the highest standards in cybersecurity and enhanced metadata. We use the platform [Canvas Credentials](#) to issue our badges.

Key concepts – Open Badges 3.0 at CEU Universities:

10.1 Security. By applying the latest cryptography and encryption technology to authenticate the achievements of badge earners, the 3.0 standard helps to build trust between stakeholders – earners, issuers, and employers.

10.2 Open Skills Library. This refers to an online database of skills, qualifications, and employee attributes, which can be used in HR departments and employment agencies to profile the skills required by an organisation and source the appropriate candidate for each role. Some of these skills libraries are “open-source”, meaning that they are freely available for anyone to use. They are machine-readable and enhance the visibility of users to employers.

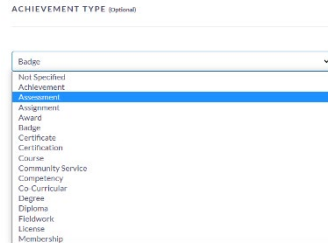


Skills Libraries at CEU Universities

The skills accredited by badges at CEU Universities are defined and listed by [EMSI](#), an open-source US-based skills library of more than 32,000 professional skills gathered from hundreds of millions of online job postings, profiles, and CVs, which is updated every two weeks.

Work is also currently being done to include [ESCO](#) in the metadata of the badges we issue.

10.3 Achievement Types. Open Badges 3.0 technology allows different types of badges to be issued in recognition of different categories of achievement. This ability to classify learner success makes it possible to create a diverse badging ecosystem and to design more sophisticated learning pathways. Possible achievement types include *Assignment, Award, Fieldwork, Membership*, or even *Degree*, as can be seen below.



Achievement types at CEU Universities

The achievement types for badges issued by CEU Universities via the platform [Canvas Credentials](#) (formerly *Badgr*) are:

- *Badge*: the acquisition of a specific skill or fulfilment of a learning outcome
- *Course*: completion of a course, such as the end-of-degree project (TFG), with a required minimum grade
- *Assignment*: awarded for the completion of a specific learning activity within a course or degree-specific assessment, occasionally with a required minimum grade
- *Fieldwork*: learning experiences with external partners, including voluntary placements
- *Community Service*: completion of volunteering activities
- *Award*: the recognition of a unique achievement
- *Achievement*: the acquisition of a milestone within a learning pathway
- *Competency*: the completion of a learning pathway, for which a microcredential is issued

10.4 Tags: Tags can be included in the metadata, providing extra information about the badge.

10.5 Digital Wallet: This refers to an app designed for mobile devices, especially smartphones, which can be used to store and share financial, professional, or personal information securely, including badges and related competencies. This technology is constantly developing and has now created a powerful synergy with the Open Badges 3.0 standard. Badge earners can now take control of their own information and benefit from the full range of advantages of digital wallets, providing true portability and interoperability.

11. LEARNING MANAGEMENT SYSTEM (LMS)

This refers to an interactive technological platform used in an educational context for the management of a specific course. From the teacher's perspective, its purpose is to facilitate course design, class delivery, and student assessment. LMS platforms also provide educators with new insights and perspectives on the learning and assessment process through data analytics. From the students' perspective, it provides a tool for them to visualize the course structure, to access course content, to communicate with the teachers and peers, to submit assignments and to be assessed and receive feedback.

The LMS concept emerged from the context of e-learning in the 1990s and the industry has grown exponentially since the COVID-19 pandemic and the sudden need for remote educational solutions with sophisticated functions for both educators and learners.



Learning Management System at CEU Universities

At CEU Universities, Blackboard is the LMS platform in use. Complementary to this is the range of academic tools and communication apps provided by Microsoft 365.

The integrated technology of LMS platforms like Blackboard makes it possible to issue badges and display learning pathways to students within the context of their degree programmes.

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