JUMP Joint University Challenge-based Minor Program for Future Generation of Innovative Entrepreneurs

D2.2.2 Final report on: Extended and shared Overarching Learning Outcomes for the JUMP CBL Minor

Erasmus+ Project	
Project Name:	Joint University challenge-based Minor Program for future generation of innovative entrepreneurs
Project Acronym	JUMP
Project start date:	01 September 2024
Deliverable	
Title:	Extended and shared Overarching Learning Outcomes for the JUMP CBL Minor
Deliverable No.:	D2.2.2
Type of Deliverable	R: Document, report
Authors:	Karin Wigger, Linköping University (LiU) Charlotte Norrman, Linköping University (LiU) Krisjanis Steins, Linköping University (LiU)
Level of completion (0 – 100)	100% = fully achieved
Delivery date (due):	31 March 2026
Due deliverable (actual):	31 March 2026
Dissemination level	PU = Public, fully open access, e.g. web

Partners

Università degli Studi di Trento (UNITN)
Linköping University (LiU)
Łódź University of Technology (TUL)
Institut National des Sciences Appliquées (INSA Toulouse)

Co-funded by the European Union

Erasmus+

Revision History

Grant Agreement Number	2024-1-IT02-KA220-HED-000256021	Acronym: JUMP
Deliverables	Final report on: Extended and shared Overarching Learning Outcomes for the JUMP CBL Minor	
Work Package	WP 2	
Date of Delivery	First Draft: 28/02/2026	Final: 31/03/2026

Nature	Report	Dissemination Level	Public
Lead Beneficiary	Linköping University (LiU)		
Responsible Authors	Karin Wigger, (LiU) Charlotte Norrman,(LiU) Krisjanis Steins, (LiU)	Email:	karin.wigger@liu.se charlotte.norrman@liu.se krisjanis.steins@liu.se
		Phone:	
Contributors	LiU, TUL, INSA Toulouse, UniTrento		
Reviewer	Agnieszka Roganowicz, TUL, Anelia Grigorova, UniTrento, Maurizio Marchese, UniTrento		
Approved By	Maurizio Marchese, UniTrento		
Key Words	Overarching Learning Outcomes (OLOs); CBL Minor; Transversal skills and competences; Evaluation		

REVISION HISTORY

REVISION HISTORY			
Rev.	Date	Description	Status (Draft/Final)
1.0	28/02/2026	First draft	Draft
2.0	13/03/2026	Second draft	Draft
3.0	31/03/2026	Final version	Final

Contents

Glossary

Challenge-based learning module (CBL module)
A course module organized around real-world societal or organizational challenges. Students work collaboratively to analyse the challenge, engage with relevant stakeholders, and develop potential solutions. The learning process typically emphasizes interdisciplinary perspectives, teamwork, and iterative problem-solving.

Entrepreneurship
The ability to identify opportunities and mobilize resources to create new forms of value. In higher education, entrepreneurship education often focuses on developing competencies such as opportunity recognition, initiative, experimentation, and the capacity to translate ideas into practical action.

Innovation
The development and implementation of new or significantly improved products, services, processes, or organizational approaches that create value for users, organizations, or society. In higher education, innovation modules often focus on developing knowledge on product, service, process and organizational innovation and frameworks to support innovation capacity.
Innovation is not limited to new products or processes but can also encompass the development and diffusion of "new to the world materials." This includes the introduction of new materials that are perceived as novel and can be used to create new products or processes. However, this definition is less common.

Minor program
A structured set of courses within a defined thematic or disciplinary area that complements a student's main field of study. A minor program enables students to develop additional knowledge and competencies beyond their major. In the context of JUMP, minor program consists of theoretical online micro-modules, CBL modules, CBL internships and CBL thesis projects.

Overarching learning outcomes (OLOs)
General learning outcomes that describe the key knowledge, skills, and competencies students are expected to develop across a program, such as for a minor program. They provide a common framework guiding program design and its modules, teaching activities, and assessment.

Sustainability
An approach to development and decision-making that seeks to balance environmental, social, and economic considerations over the long term. In higher education, sustainability often involves understanding complex systems, assessing impacts, and contributing to solutions that support long-term societal well-being.

Teamcher
The role of educators to support collaborative and challenge-based learning in higher education. Teamchers have three main roles: the traditional teacher role, the role of the coach - facilitating teamwork, and the role of the organizer - providing safe learning environments and structured interaction between students, other educators and external partners during learning activities.

1. Introduction

This report explores how Overarching Learning Outcomes (OLOs) can be effectively structured to support the design of minor programs based on CBL modules. The present document is the evolution of the previous deliverable "D2.2.1 Preliminary report on existing overarching learning outcomes for the CBL components" due in month 6 and used to provide first input to WP2 devoted to the design of the first pilot of a distributed challenge-based minor in responsible innovation and entrepreneurship. Therefore here, we augmented D2.2.1 with novel data, and we continued to draw on insights from existing learning outcomes within the JUMP partners as well as the ECIU University alliance (hereafter ECIUn+). By analyzing the mapped inventory of learning outcomes, we identify key aspects to build upon when designing the general JUMP OLOs including both micro-modules, CBL modules as well as CBL internships and thesis while also highlighting shortcomings and areas for potential improvements. Given that skill development is a crucial dimension of CBL-related OLOs, we further examine how these learning outcomes are linked to skill acquisition and assessment.

2. List of OLOs from the JUMP partners & the ECIUn+ course portfolio

To establish an inventory of CBL-related OLOs for analysis, we first compiled and discussed the pilot minor designed at Linköping University. Next, we identified examples of CBL modules that could either be included in the JUMP program or adapted for integration. While these initial steps ensure that the OLOs selected for analysis are highly relevant to the JUMP program, we further expanded our mapping to include selected ECIUn+ courses focusing on innovation and entrepreneurships. This broader base provides a solid foundation for analyzing OLOs and discussing key pedagogical considerations in designing CBL-related learning outcomes.

2.1 Pilot at Linköping University: Innovative Solutions for a Sustainable Economy

The pilot minor designed at Linköping University consists of three courses that offer flexibility in how they are selected and combined. Students have the option to take these modules individually or integrate them into a cohesive 10 ECTS minor program. This flexible structure allows students to tailor their learning experience based on their interests and academic goals while engaging with CBL principles.

The design of the package are two theoretical online modules and one, more practically and skills oriented challenge, where the mode is hybrid by means of that the challenge starts online, then students meet during one week (Erasmus blended intensive program) and then the course is finished online. The modules included in the pilot minor are:

MODULE 1: InGenious – Responsible Innovation for a Sustainable World (3 ECTS)

- Learn to design innovations within ethical and sustainable frameworks.
- Apply the principles of responsible innovation through real-life case studies

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MODULE 2: Business Modelling in the Circular Economy (2 ECTS)

- Understand how to create circular business models
- Gain practical experience by developing circular business ideas in collaboration with peers.

CHALLENGE:
The sustainable forest challenge: How to make the forest viable
InGenious – Sustainable Cities and Communities:An Interdisciplinary Future Project (5 ECTS)

- Collaborate with external partners on sustainable forests that promote ecological balance and social well-being.
- Includes a mobility week from March 3 – 7, 2025 at Linköping University, Sweden.

The modules can be taken individually or together for a comprehensive experience.

Table 1

Module	Learning outcome 1	Learning outcome 2	Learning outcome 3	Learning outcome 4	Learning outcome 5
InGenious - Sustainable Cities and Communities – cross disciplinary project, 5 credits	identify current challenges related to sustainable cities and communities, and propose sustainable solutions by applying degrowth economic principles	develop and present sustainable and value-creating concepts for sustainable cities and communities	communicate sustainable concepts, both in writing and orally, to stakeholders from diverse backgrounds	discuss and reflect on group processes and group dynamics in open innovation processes where individuals from different professions collaborate interdisciplinarily	reflect on their own learning process
InGenious - Responsible Innovation for a Sustainable World, 3 credits	understand and apply the concept of responsible innovation from different perspectives and contexts	explain and apply various perspectives to address ethical issues in the innovation process	explain and apply sustainability principles in an innovation context	motivate and reflect on the organization of responsible innovation	

Business modelling in the circular economy, 2 credits	Ability to describe theories in circular economy, sustainability, and innovation	Ability to explain central parts and theoretical models in business modelling	Ability to apply a selection of theoretical models and frameworks for business modelling in circular economy		

The three modules provide complementary perspectives on sustainability and innovation, collectively equipping students with a well-rounded understanding of how to address complex societal challenges. They cover a broad palette related to sustainability - from classical growth-oriented paradigm, but although sustainability oriented, to critical theory in case of degrowth. By refining synergies and ensuring alignment in skill development and assessment, these courses can further enhance their impact within the JUMP minor program.

2.2 Selection of OLOs of relevant CBL modules from JUMP partners

The next step was to identify examples of CBL modules from JUMP partners (listed in the upper part of the table in Appendix 2) that could either be included in the JUMP program or adapted for integration.

The analyzed CBL modules and challenges from the JUMP partners share several overarching themes, including problem-solving, interdisciplinary collaboration, application of knowledge to real-world challenges, and sustainability considerations. However, they differ in focus, spanning technical, entrepreneurial, and urban sustainability domains. Following is the summary of key themes across the modules:

1. Problem-Solving and Innovation
    - All modules emphasize problem-solving, with some integrating design thinking (*Green Innovators and Industry Project Management Masterclass)* and technological applications (*Shared Access for Family Electrically-Assisted Tricycle*).
    - Several modules focus on creative approaches and out-of-the-box thinking to tackle complex sustainability challenges.

2. Collaboration and Teamwork
    - A strong emphasis is placed on teamwork (*Future-ready Young Citizens in the Smart City Era, Industry Project Management Masterclass*), often interdisciplinary and in international or cross-sector contexts.

- Modules such as *Shared Access* and *Green Innovators* explicitly highlight collaboration across sectors or disciplines, while *Developing a Network of Climate Shelters* focuses on spatial and environmental expertise.

3. Application of Knowledge to Real-World Challenges
    - Modules emphasize practical application, whether in technical domains (e.g., mobility technologies, urban climate analysis) or in business contexts (*Sustainable Wine Race, Back to the Future: Circular Economy in Food and Feed*).
    - The majority of the modules require students to engage with stakeholders or experts, particularly in sustainability-driven innovation projects.

4. Sustainability and Societal Impact
    - Many modules focus on sustainable urban development, circular economy, and environmental challenges, reinforcing their alignment with broader sustainability transitions (*Future-ready Young Citizens in the Smart City Era*).
    - Some modules, such as *Developing a Network of Climate Shelters*, incorporate technical evaluations (thermal performance, mapping, climate analysis), while others emphasize business-oriented sustainability (*Back to the Future*).

2.2.3 Potential Gaps and Opportunities

A key area for enhancement is the assessment and tracking of skill development over time. While the modules emphasize problem-solving, teamwork, and applied knowledge, the mechanisms for evaluating these competencies – especially in dynamic and interdisciplinary settings – could be made more explicit. Developing a structured framework that links specific learning outcomes to measurable skill acquisition would provide clearer insights into student progress. Methods such as self-assessment, peer feedback, or portfolio-based evaluation could help track competency growth while offering students a way to reflect on and articulate their learning outcomes. Strengthening this aspect would not only enhance the educational impact of the modules but also support students in recognizing and leveraging their skills in future academic or professional contexts.

Beyond assessment, ensuring progression in skills development is crucial when CBL modules are combined within a broader program, such as the JUMP program. Currently, while individual modules foster key competencies, there is an opportunity to design a more intentional learning pathway where students build on their skills progressively. This could involve structuring modules to move from foundational knowledge and basic problem-solving toward more complex, integrative challenges that require advanced collaboration, strategic thinking, and leadership. A well-mapped competency framework across the program would ensure that students not only gain experience in isolated projects but also develop a coherent and evolving skillset that prepares them for real-world sustainability transitions.

Additionally, explicit ethical and sustainability-related reflections on technological and business decisions could be further integrated into the learning outcomes. As students engage with real-world challenges, they inevitably face dilemmas related to sustainability, societal impact, and responsible innovation. Embedding structured ethical reasoning exercises, stakeholder impact assessments, or value-based decision-making frameworks would help students critically navigate these complexities. By making ethical considerations an integral part of the learning process, students can develop a more holistic understanding of the consequences of their innovations, ensuring they contribute to sustainable and responsible solutions.

2.3 Selection of ECIUn+ modules related to innovation and entrepreneurship

To expand our mapping of CBL modules, we explored the Challenge-Based learning opportunities offered by the ECIUn+ alliance in 2024 and 2025. ECIUn+ provides an extensive portfolio of CBL and micro modules, encompassing over 400 learning opportunities. Given the emphasis on Innovation and Entrepreneurship (I&E) in the design of the JUMP minor program, we focused on ECIUn+ modules self-identified within the entrepreneurship, technology and innovation category - one of eleven key thematic areas offered by ECIUn+.
Below, we present five CBL modules offered in 2025 as detailed exemplars - selected from over 60 (JUMP and ECIUn+) CBL modules in the entrepreneurship, technology, and innovation category listed in Appendix 2 - to provide the reader with a more concrete sense of the underlying data.

Table 2

Examples of ECIUn+ CBL module related to I&E	**Learning outcomes**
Unlocking B2B Opportunities in the Energy Transition	Participants will learn to develop and assess sustainable business models that support the energy transition in the mobility sector, balancing environmental impact with profitability and efficiency. Students will analyze market trends, regulatory frameworks, and policy incentives that shape the adoption of sustainable energy solutions in the transportation and logistics industries. Participants will apply creative thinking and problem-solving techniques to develop scalable, technological, or service-based innovations that facilitate the mobility sector's shift to cleaner energy. Design and evaluate Business-to-Business (B2B) models to boost the energy transition sector

From lab to market Overcoming early-stage challenges in green energy innovation	Apply entrepreneurial tools to identify and analyse challenges in the commercialisation of research-based innovations. Discuss sustainable entrepreneurial solutions through interdisciplinary collaboration and interaction with various stakeholders. Reflect on value creation through innovation and entrepreneurship in a market context
Back to the Future Circular Economy of Functional Ingredients: Technological and Market Perspectives in Novel Food and Feed Sectors.	An integrated approach that takes into consideration environmental concerns along with economic development. Applying basics of futures studies (such as scenarios and back-casting) to the challenge
Empathy, Compassion and Meaning Theory and participatory approaches	Upon course completion, the candidate has advanced theoretical knowledge about the contributions from different traditions in the study of empathy, compassion and meaning; contributes significant to the development and documentation of new research-based knowledge and practices in empathy, compassion, and meaning. Upon course completion, the candidate can challenge established knowledge and practices in the fields of empathy, compassion and meaning; plan and conduct research that addresses issues of empathy, compassion and meaning in their projects in a reflective way; handle complex issues about the impact that our own emotions and values, as well as those of others, have in mental health and well-being. After completing the course, the candidate should be able to identify and critically evaluate relevant ethical dilemmas around empathy, compassion and meaning in research, as well as respond to these with scholarly integrity; assess the need for, as well as initiate and practice transdisciplinary and innovative collaborations in research based on the principles of empathy, compassion and meaning; critically reflect about the epistemological and ontological implications of different understandings of empathy, compassion and meaning.
Track birds, empower informed biodiversity decisions How can we empower communities to make better choices that protect wildlife?	Self-sufficiently pinpoint a unique and impactful research direction, utilizing existing knowledge and acquired competencies. Innovatively tackle complex real-world issues using the core tenets of challenge-based learning methodology. Utilise effective teamwork and leadership principles while collaborating within diverse, interdisciplinary teams. Create and effectively present innovative ideas and developed prototypes tailored to the requirements of unique audience.

The whole set of analyzed ECIUn+ CBL modules related to innovation and entrepreneurship emphasize interdisciplinary problem-solving, sustainability, and business model development. Several modules focus on commercializing research-based innovations, applying entrepreneurial tools, and addressing early-stage challenges in green energy and circular economy sectors. Some modules integrate futures thinking, stakeholder collaboration, and ethical considerations, particularly in areas such as empathy, compassion, and biodiversity

decision-making. A recurring theme across these modules is the application of innovation-driven methodologies, including scenario planning, back casting, and participatory approaches, to real-world challenges. Overall, these modules provide a diverse yet complementary foundation for fostering entrepreneurial mindsets, bridging research and practice, and preparing students to tackle sustainability transitions with a systemic and forward-looking perspective.

3. Analysis of current educational offer in JUMP and ECIUn+ CBL modules related to Innovation and Entrepreneurship

Our mapping of CBL modules and micro-modules related to Innovation and Entrepreneurship highlights a wide availability of learning opportunities. A positive trend is the general recognition of the importance of clearly defined learning outcomes—every module we analyzed included a set of learning outcomes that were publicly accessible. This transparency benefits students, educators, and university administrators alike, providing a clear overview of the expected outcomes of challenge-based and micro-modules offered across Europe.

However, despite this positive development, our analysis reveals some key challenges in structuring CBL modules within a coherent educational program. The learning outcomes are typically written with a module-specific focus, without reference to broader programmatic requirements, such as within the framework of a study program. This means that while the learning outcomes are well-articulated, the learning inputs and instructional methods – such as required prior knowledge, pedagogical approaches, or progression between modules – are rarely specified. This lack of integration poses difficulties when designing a program like JUMP, where individual modules must not only stand alone but also contribute to a structured learning journey.

Furthermore, because the modules are generally designed as standalone learning experiences rather than as components of a broader educational pathway, we observe significant redundancies in learning outcomes across similar courses, particularly regarding the skills to be developed. While micro-modules exhibit slightly greater variation in learning outcomes due to focus on developing domain knowledge and the greater differences thereof, the core skills targeted through CBL remain largely uniform across modules. This highlights the need for a more deliberate approach to skill differentiation and progression when structuring a minor program.

Another key finding from our analysis is the lack of a consistent or strategic approach to skills classification in CBL modules, particularly in the ECIUn+ courses (see Appendix 1 for an overview). For example, the most frequently referenced skill is “transversal skills”, yet how this term is defined and applied varies significantly across modules. If we compare this to structured frameworks such as ESCO (European Skills, Competences, Qualifications and Occupations), we find gaps in how skills are articulated and categorized. The so-called transversal skills can be taken as an example of this problem. Transversal skills are defined by

ESCO as one of the four main groups of skills, including both interpersonal and intrapersonal skills. Hence it becomes problematic if a module claims to cover transversal skills, teamwork and communication, as the latter two by definition are transversal. This inconsistency and lack of understanding makes it difficult to ensure a coherent and progressive skill development pathway for students moving through different challenge-based modules. This problem could also be due to the fact that the ESCO skill framework is rather unclear and therefore complicated to handle, as basically the same skills show up under different headlines. The CDIO (Conceive, Design, Implement, Operate) list of skills for example is more stringent and hence easier to use.

Given these findings, careful evaluation of both domain knowledge and skills progression is necessary when designing a program based on challenge-based and micro-modules. Since the JUMP minor program focuses on entrepreneurship and innovation, it is particularly important to clearly define the expected learning outcomes, educational methods, and skill development processes within these domains. We recommend that the JUMP team consider where it is sufficient to focus solely on learning outcomes and where it is also necessary to specify learning inputs, such as prerequisite knowledge, foundational understanding, and key skill levels required at different stages of the program.

Furthermore, to address the broad and often vague definitions of skills in existing CBL modules, we suggest adopting a more tailored skills framework specifically aligned with entrepreneurship and innovation. A key step would be to develop a matrix outlining the essential skills at the program level, which can then be operationalized at the module level. This would ensure that skill development is structured and progressive, enabling students to build competencies in a systematic way rather than encountering them repeatedly at the same level across different modules. A well-structured approach would also facilitate a coherent and measurable learning pathway, ensuring that students move through increasingly complex challenges and responsibilities.

Finally, we observe that many modules use buzzwords without clearly contextualizing them within the learning experience. Terms such as “innovation,” “collaboration,” and “problem-solving” appear frequently, but their specific meaning in relation to each module’s content, methodology, and expected learning outcomes is often unclear. To ensure consistency and a shared understanding within the JUMP program, we recommend developing a dedicated JUMP terminology guide that defines key concepts. This would help create a common language across modules, reducing ambiguity and strengthening alignment between course content and intended outcomes.

An immediate implication of our analysis is that the fragmentation pointed out may entail consequences when it comes to the creation of longer learning paths that also includes thesis work. A bachelor or a master thesis is supposed to be underpinned by a set of courses and modules. If the offering of courses is fragmented they can only be combined into smaller sets or bundles, i.e. smaller minors consisting of combinations of challenges and modules reaching only 10-15 ECTS. Such packages are commonly too small to file the base of a thesis work.

While the availability and accessibility of CBL modules in European higher education are promising, integrating them into a structured minor program requires additional considerations. The JUMP program must ensure skill progression, minimize redundancy in learning outcomes, and adopt a more deliberate approach to defining competencies in entrepreneurship and innovation. By introducing a structured skills matrix, clarifying prerequisite knowledge, and developing a common terminology guide, JUMP can create a coherent and impactful learning experience that builds on the strengths of existing CBL initiatives while addressing their limitations.

3.1 Preliminary guidelines for OLOs & skills assessment

To guide Teamchers in how to assess and grade OLOs and the knowledge and skills they are associated with, we have started the work to develop guidelines. Below, a preliminary version is developed. As example we use the Challenge "InGenious - Sustainable Cities and Communities – cross disciplinary project, 5 credits" code:799g60 https://studieinfo.liu.se/en/kurs/799G60/vt-2026#syllabus. This challenge is within the ECIUn+ portfolio named "The sustainable forest challenge".

3.1.1 Short overview of the selected challenge exemplar

How can we innovate for the better? This course explores the concept of responsible innovation – innovations that aim to ethically and sustainably leverage technological progress to address societal needs while remaining within planetary boundaries. Through case-based learning, students will apply this concept in various situations and contexts while reflecting on the potential impacts of innovation, considering ethical and sustainable perspectives. Additionally, we will discuss how to organize the innovation process to implement responsible innovations.

3.1.1.1 Step 1: Identify ESCO skills related to course goals – List skills

ECIUn+ has chosen to follow the ESCO framework for knowledge and skills. However, the framework is difficult to navigate and use in this context due to limited logical consistency and conceptual coherence. Rather than presenting a clearly structured taxonomy, it consists of a large collection of skills and sub-skills in which categories partially overlap and are sometimes inconsistently organised or defined. One indication of this complexity is that ESCO reports identifying more than 13,900 distinct skill entries. By design, the same skill label may appear in multiple branches of the taxonomy "tree". In such cases, the distinguishing factor is the contextual placement of the skill rather than the label itself. As a result, identically named skills may represent different substantive content depending on their position in the hierarchy. For example, "creativity" may be classified both as a research-related skill and as an entrepreneurial skill. From the perspective of educators and learners, this level of granularity and contextual

duplication may introduce ambiguity and reduce clarity rather than facilitate understanding. Nevertheless, to get a transparent and legally secure assessment, the learner needs to understand (1) what is assessed and (2) what is required for a certain level.
Because of the conceptual, pedagogical, and structural misalignment between ESCO skills and learning outcomes, identifying proper skills based on the framework is not a straightforward process, hence the below is to regard as an example of how this could be done in practice. To make a more comprehensive plan, other frameworks, such as CDIO Syllabus, most probably give better guidance. Another way of understanding skills is the categorisation made by Geissinger[1] (2016) Cognitive skills: non-routine problem-solving, critical thinking, systems thinking. Intrapersonal skills: metacognitive skills such as self-management, time management, self-development, self-regulation, adaptability, executive function. Interpersonal skills: complex communication, social skills including collaboration, teamwork, cultural sensitivity, and diversity management. Technical skills: primarily focused on research and information fluency
In the below, the ESCO so called "transversal skills" are used. According to the ESCO website[2], this category has 6 main sub-categories, T1-T6, in column one below. These are in turn divided into various subcategories (column two), under which more detailed categories are sorted.

Table 3

Transversal skills and competences – main level and definitions	**Sub-categories for each main level skill**
T1 Core skills and competences "Skills and competences representing the foundation for interacting with others and for developing and learning as an individual. They comprise the ability to understand, speak, read and write language(s), to work with numbers and measures and to use digital devices and applications."	T1.1 Master languages T1.2 Working with numbers and measures T1.3 Working with digital devices and applications
T2 Thinking skills and competences "Skills and competences relating to the ability to apply the mental processes of gathering, conceptualizing, analysing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication. They include the ability to evaluate and use information of different kinds to plan activities, achieve goals, solve problems, deal with issues and perform complex tasks in routine and novel ways."	T2.1 Processing information, ideas and concepts T2.2 Planning and organising T2.3 Dealing with problems T2.4 Thinking creatively and innovative

[1] Geisinger, K. F. (2016). 21st century skills: What are they and how do we assess them?. Applied measurement in education, 29(4), 245-249.
[2] https://esco.ec.europa.eu/en/classification/skills?uri=http://data.europa.eu/esco/skill/c624c6a3-b0ba-4a31-a296-0d433fe47e41#overlayspin 2025-12-15

T3 Self management skills and competences "Skills and competences requiring individuals to understand and control their own capabilities and limitations and use this self-awareness to manage activities in a variety of contexts. They include the ability to act reflectively and responsibly, to accept feedback, adapting to change and to seek opportunities for personal and professional development."	T3.1 Working efficiently T3.2 Taking a proactive approach T3.3 Maintaining a positive attitude T3.4 Demonstrate willingness to learn
T4 Social communication skills and competences "Skills and competences relating to the ability to interact positively and productively with others. This is demonstrated by communicating ideas effectively and empathetically, coordinating one's own objectives and actions with those of others and acting in ways which are structured according to values, ensuring the well-being and progress of others, and offering leadership."	T4.1 Communicating T4.2 Supporting others T4.3 Collaborating in teams and networks T4.4 Leading others T4.5 Following ethical code of conduct
T6 Life skills and competences "Skills and competences relating to the ability to process and use knowledge and information which has transversal significance and facilitates active citizenship. They comprise the areas of health, environment, civic engagement, culture, finance and the application of general knowledge."	T6.1 Applying health-related skills and competences T6.2 Applying environmental skills and competences T6.3 Applying civic skills and competences T6.4 Applying cultural skills and competences T6.5 Applying entrepreneurial and financial skills and competences T6.6 Applying general knowledge

In the below table, the OLOs are listed and we have started to craft suitable skills for each OLO.

Table 4

Course goals	**Skills that could be relevant for the OLO**
OLO1: identify current challenges related to sustainable cities and communities, and propose sustainable solutions by applying degrowth economic principles	**T2. Thinking skills and competences** T2.1 Processing information, ideas and concepts, T2.2 Planning and organising, T2.3 Dealing with problems, T2.4 Thinking creatively and innovative **T6 Life skills and competences** T6.6 Applying environmental skills and competences, T6.2 Applying general knowledge
OLO 2: develop and present sustainable and value-creating concepts for sustainable cities and communities	**T4 Social communication skills and competences** T4.1 Communicating, T4.3 Collaborating in teams and networks, T4.5 Following ethical code of conduct, T4.5 Following ethical code of conduct **T6 Life skills and competences** T6.6 Applying environmental skills and competences, T6.2 Applying general knowledge

OLO 3: communicate sustainable concepts, both in writing and orally, to stakeholders from diverse backgrounds	**T4 Social communication skills and competences** T4.1 Communicating, T4.3 Collaborating in teams and networks **T6 Life skills and competences** T6.2 Applying environmental skills and competences, T6.5 Applying entrepreneurial and financial skills and competences
OLO 4: discuss and reflect on group processes and group dynamics in open innovation processes where individuals from different professions collaborate interdisciplinarity	**T4 Social communication skills and competences** T4.1 Communicating, T4.3 Collaborating in teams and networks **T6 Life skills and competences** T6.2 Applying general knowledge
OLO5: reflect on their own learning process	**T3 Self-management skills and competences** T3.1 Working efficiently, T3.4 Demonstrate willingness to learn

3.1.1.2 Step 2: Order skills due to how they will be addressed in the module/challenge

When working with OLOs and related knowledge-based concepts and skills it's important to be aware of how these will be handled in the challenge or module. I.e. if they will just be (1) introduced at basic levels, (2) if they are supposed to be applied by the students, e.g. as tools or frameworks for analysis, or if they are (3) examined and hence need to be measured and graded.[3]

In the table below, the examples of skills identified in Step 1 have been graded according to how they will be treated in the challenge. The highest level is marked and this implies that previous levels are handled in the course or are something that the students bring in from prior education. Skills marked in blue are those that are examined and graded. They will hence appear in the assessment matrix in step 3.
The skills that just are introduced or are to be applied can be mentioned in the course syllabus. It is a strong recommendation that the teamcher is transparent so that the student easily can see what is required.

Table 5

[3] This corresponds to the IUAE matrix used at Linköping University, where this example course is given. IUAE, in english is Introduce, Teach, Apply and Examine. In this work "introduce" and "teach" have been merged when handling skills. The first level in our procedure is hence introduce/teach (introduce from here on), where the skill is presented at a basic level to create awareness and understanding. The second level is "apply", where students actively make use of the skill in e.g. group work, assignments, or project activities. The third level is "examine", where the skill is assessed and contributes to the final course grade.

Skill (ESCO under group)	Introduce – basic introduction (awareness)	Apply – ability to apply in practice	Examine – measure level and grade
T2.1 Processing information, ideas and concepts			**X**
T2.2 Planning and organising			**X**
T2.3 Dealing with problems			**X**
T2.4 Thinking creatively and innovative		**X**	
T3.1 Working efficiently		**X**	
T3.4 Demonstrate willingness to learn		**X**	
T4.1 Communicating			**X**
T4.3 Collaborating in teams and networks		**X**	
T4.5 Following ethical code of conduct			**X**
T6.2 Applying environmental skills and competences			**X**
T6.5 Applying entrepreneurial and financial skills and competences		**X**	

3.1.1.3 Step 3: Creation of an assessment matrix

In the table below, OLOs and skills are given formative requirements for pass-level and higher grade. It's also shown where in the challenge or module the OLOs and skills are treated. Through such a matrix, requirements become transparent and the students can see what is expected for each level and hence adjust their efforts. For teamchers the grading matrix becomes a tool for transparent and secure assessment and grading. It also becomes a tool to secure that all OLOs and skills are both addressed and examined. The levels are built upon the SOLO taxonomy, see figure below.

As an example, we have continued with our challenge and the skills identified and related to examination level have been labelled with the OLOs to which they are attached.

Table 6

Learning goals (OLO)	**Requirements for "pass"**	**Requirements for "pass with distinction"**	**Course activity in which the goal/skill are treated in main**
OLO 1: identify current challenges related to sustainable cities and communities, and propose sustainable solutions by applying degrowth economic principles	Show ability to break down the "big idea" into a graspable problem Show basic understanding of the context (SDG11) and the degrowth economic principles Show some ability to apply this on the challenge defined	Show strong ability to creatively break down the "big idea" into a relevant and graspable problem Show understanding of the context (SDG11) and the degrowth economic principles Show ability to apply this on the challenge defined	Group work process of solving the challenge, from engage phase, to investigate and act phases
OLO 2: develop and present sustainable and value-creating concepts for sustainable cities and communities	Solved the task by means of leveraging some kind of sustainable solution that can be said to have a value for an external part or for the society.	Solved the task by means of leveraging a well-funded, solution that has a clear sustainability and degrowth focus. The solution also shows an inventive step and that creates value for an external part or for the society.	Act phase, final presentation seminar and written report (group work)
OLO 3: communicate sustainable concepts, both in writing and orally, to stakeholders from diverse backgrounds	The students have made several presentations of their challenges, and their project plan is logically structured and written in a way that is understandable and able to follow. The students have shown ability to visualize their solution so that it could be understood by their audience. The students have shown ability to give feedback on other students.	The students have made several presentations of their challenges, and they have learned and improved from the feedback they have got. The students have shown ability to visualize their solution in a creative and interesting way that appeals to their audience. The students have leveraged substantial feedback to other students with robust advice on how they can improve.	All phases, group assignments (group work)
OLO 4: discuss and reflect on group processes and group dynamics in open innovation processes where individuals from different	The students have created a group contract, following the template and have also made a reflection upon the contract. In this work, risks have been identified and treated. The	The students have created a well-funded and detailed group contract and they have made a serious and deep going reflection upon the same. Each student has made an individual reflection that, in	Group report and individual reflection (group work & individual reflection)

professions collaborate interdisciplinarily	action plan has been discussed and if needed – redesigned. Each student has made an individual reflection that discusses and analyzes the group process and the own development.	depth, discusses and analyzes the group process from a critical point of view and also shows upon the own development and learnings that have been made.	
OLO 5: reflect on their own learning process	The student show some ability to reflect over the own learning process and relate this to the group learning process. The reflection follows the template and some relevant aspects are identified and discussed. Answers are based on objective grounds and the reasoning is logical. The Entrecomp[4] framework is superficially taken into account when discussing the own competence development.	The student show ability to make in depth reflections over the learning process. The analysis is qualified by literature and learnings are synthesized. The reflection follows the template and several relevant aspects are identified and discussed. Answers are based on objective grounds and the reasoning is logical. The Entrecomp framework is thoroughly taken into account when discussing the own competence development.	Individual reflection (individual)
Skills that are examined in the course	**Requirements for "pass"**	**Requirements for "pass with distinction"**	**Main relation to OLO**
T2.1 Processing information, ideas and concepts	The student can contribute to the group by working goal oriented, identifying, collecting, summarizing and analysing relevant information about sustainability challenges.	The student can contribute to the group by conducting independent, systematic research from a holistic perspective, using and analysing a range of reliable sources (academic, policy, data).	OLO1 OLO3
T2.2 Planning and 19rganizing	The student can, in group, create a goal oriented plan for the work with the challenge. All relevant parts are present at a basic level. Common rules/templates are followed.	The student can, in group, create a comprehensive holistic plan for the work with the challenge. All relevant parts are highly developed	OLO1

[4] Bacigalupo, M., Kampylis, P., Punie, Y., & Van den Brande, G. (2016). *EntreComp: The entrepreneurship competence framework* (EUR 27939 EN). Publication Office of the European Union. https://data.europa.eu/doi/10.2791/593884

T2.3 Dealing with problems	The student can identify main problems related to the challenge, and solve them in a basic way.	The student can identify and understand a range of problems related to the challenge and solve them in creative ways	OLO1 OLO3
T4.1 Communicating	The student shows conversational and verbal skills, ability to communicate orally and in writing. Can utilize a template for pitching.	The student shows strong conversational and verbal skills, strong ability to communicate orally and in writing.	OLO2 OLO4
T4.5 Following ethical code of conduct	The student shows some ability to apply, discuss and analyse issues related to values, moral principles and ethics, following templates.	The student shows strong ability to apply, discuss and analyse issues related to values, moral principles and ethics on a holistic level.	OLO2
T6.2 Applying environmental skills and competences	The student shows basic ability to apply theories related to sustainable societies and degrowth in all phases of the project.	The student demonstrates a strong ability to make holistic analysis and utilize and benefit from theories related to sustainable societies and degrowth in all phases of the project.	OLO1 OLO2 OLO3

To identify the requirements for pass grade and highest grade in the grading scale, we suggest that the SOLO-taxonomy is used for determining the level of knowledge. The Biggs (2003)[5] SOLO taxonomy is well spread and accepted and creates a logical fundament for assessment.

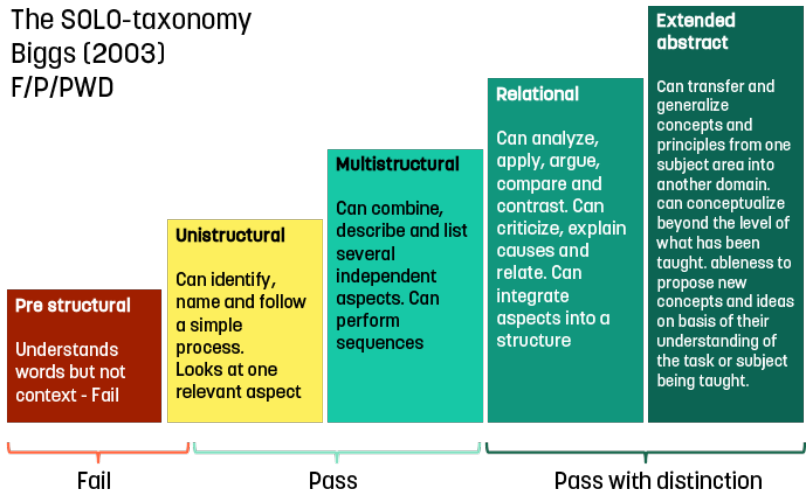

Figure 1: The SOLO-taxonomy (Biggs, 2003)

[5] Biggs, J. (2003). *Teaching for quality learning at university* (2nd ed.). Open University Press.

Regarding the assessment of skills, The SOLO taxonomy is not the most useful. Instead, suitable frameworks can be found in disciplines such as medicine or other practical areas. An example of such frameworks is Miller (1990)[6], whose pyramid ranges from Knows, Knows How, Shows How, to Does. However, this framework mix knowledge and skills. Hence we instead recommend that the thoughts of Dreyfus & Dreyfus (1980) and Dreyfus (2004) are used. Not least, due to that this framework rather well matches the steps advocated by Biggs (2003) in the SOLO-taxonomy.

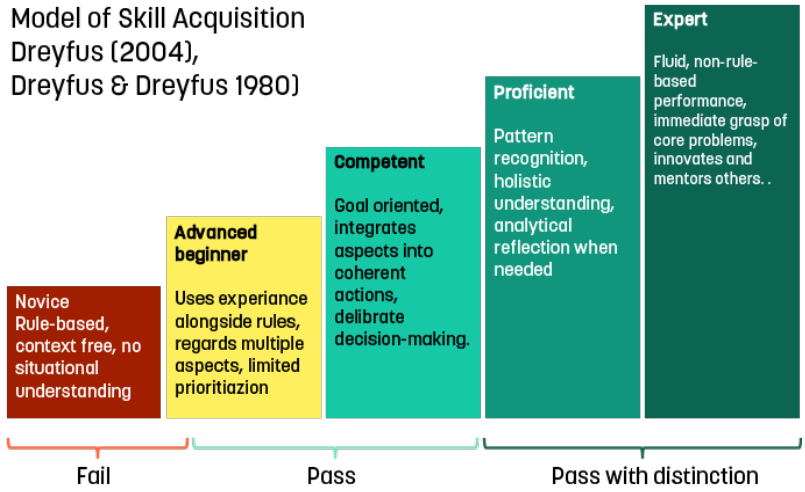

Figure 2: Model of skill acquisition (Dreyfus, 2004; Dreyfus & Dreyfus, 1980)

4. Proposed Overarching Learning Outcomes (OLOs) for the JUMP CBL Minor

Based on the above analysis we have created a shortlist of suitable OLOs for a JUMP CBL minor. The relevant OLOS are:

OLO 1 – Systems Thinking and Sustainability Literacy
Students understand and critically analyze complex societal and environmental systems. They can connect sustainability challenges to global frameworks (e.g., SDGs) and evaluate how technological, economic, and social dimensions interact within these systems.

OLO 2 – Responsible and Ethical Innovation

[6] Miller, G. E. (1990). The assessment of clinical skills/competence/performance. *Academic Medicine, 65*(9), S63–S67.

Students can apply principles of responsible innovation and degrowth to design, implement, and assess solutions that balance economic viability, social inclusion, and ecological integrity. They demonstrate ethical reasoning when faced with sustainability and innovation dilemmas.

OLO 3 – Entrepreneurial and Transformative Action
Students identify opportunities for change and develop sustainable, value-creating concepts. They apply entrepreneurial methods—such as business modelling, experimentation, and stakeholder engagement—to drive innovation toward sustainability transitions.

OLO 4 – Challenge-Based Collaboration and Leadership
Students work effectively in interdisciplinary and international teams to solve authentic challenges. They demonstrate skills in co-creation, negotiation, and leadership in open innovation processes, integrating diverse perspectives from academia, business, and society.

OLO 5 – Critical Reflection and Lifelong Learning Competence
Students reflect systematically on their own learning and competence development using frameworks such as EntreComp and SOLO taxonomy. They identify strengths and learning needs and demonstrate the ability to learn autonomously in complex, dynamic contexts.

OLO 6 – Communication and Societal Engagement
Students communicate innovative ideas and sustainability-oriented solutions effectively to different audiences. They can argue for their solutions based on evidence, ethics, and impact, and engage constructively with societal stakeholders.

The rationales behind the above choice are:

- Courses 799G60 and 799G61 provide the pedagogical and ethical backbone – focusing on sustainability challenges and responsible innovation.
- Additional modules and challenges (e.g., Circular Business Models, Responsible Futuring, Back to the Future, Track Birds) deepen specific competencies such as entrepreneurship, foresight, and stakeholder co-creation.
- These OLOs align with EntreComp (entrepreneurial competence), ESCO skill classifications, and the CBL methodology emphasizing iterative, reflective, and collaborative learning.
- The design supports progression: from understanding to application, to synthesis, and to reflection, ensuring both knowledge depth and transferable skills development.

If these OLOs are outlined and related to some of the courses in our inventory, we get the following matrix:

Table 7

Phase	Focus	Core modules	Competences/skills
Phase 1 – Foundation	Understanding sustainability, innovation, and responsibility concepts.	799G61 Responsible Innovation, ETE 401 Circular Business Models	Systems literacy, ethics, critical thinking
Phase 2 - Application	Applying theories in collaborative CBL settings.	799G60 InGenious Challenge, From Lab to Market, Green Innovators	Problem-solving, teamwork, entrepreneurship
Phase 3 - Integration and reflection	Synthesizing learning, addressing complex, future-oriented challenges.	Responsible Futuring, Back to the Future, elective challenges	Reflection, leadership, communication, societal impact

4.1 Integration of CBL Internship and Thesis

One of the main objectives (O2) of the JUMP project is: Co-creating a CBL Minor in responsible I&E: a distributed CBL Minor, composed of online micro-modules, blended CBL projects and CBL internship and thesis.

In the previous sections, we examined Challenge-Based Learning opportunities offered by the JUMP partners and the ECIUn+ alliance and developed a shortlist of suitable OLOs for the JUMP CBL minor.

The integration of a **CBL Internship and Thesis** ensures that students not only acquire knowledge and skills (OLOs 1–3) but also apply them in real-world settings. The internship provides hands-on experience in sustainability-focused innovation projects, while the thesis consolidates critical reflection, ethical reasoning, and communication competence (OLOs 4–6), ensuring that graduates are prepared for both professional and societal impact.
In this section, we analyse how to integrate a CBL Internship and Thesis into the JUMP minor while aligning them with the OLOs.

Table 8: Map the OLOs to the CBL Internship and Thesis

OLO	How it could be demonstrated in CBL Internship	How it could be demonstrated in Thesis
OLO 1 – Systems Thinking and Sustainability Literacy	Analyse the system related to the challenge addressed in the internship; map sustainability issues to frameworks like SDGs.	Conduct a literature review and system analysis for the thesis project; identify interconnections between social, economic, and ecological dimensions.
OLO 2 – Responsible and Ethical Innovation	Apply ethical reasoning in designing or implementing solutions; reflect on societal impact of interventions.	Include an ethical evaluation chapter in the thesis, discussing trade-offs and responsible innovation choices.
OLO 3 – Entrepreneurial and Transformative Action	Develop and test innovative solutions during the internship; document experiments and stakeholder feedback.	Present the development of a novel solution, business model, or implementation plan in the thesis.
OLO 4 – Challenge-Based Collaboration and Leadership	Collaborate in interdisciplinary teams; manage stakeholder communication and co-creation processes.	Reflect on team dynamics, leadership roles, and collaboration outcomes as part of the thesis methodology.
OLO 5 – Critical Reflection and Lifelong Learning Competence	Keep a learning journal during the internship; reflect on personal growth and competence development.	Include reflective analysis on skills developed, lessons learned, and future learning pathways in the thesis.
OLO 6 – Communication and Societal Engagement	Present solutions to company or societal stakeholders; prepare reports or presentations for non-academic audiences.	Produce a thesis that clearly communicates findings to both academic and societal audiences, highlighting evidence, ethics, and impact.

5. Conclusions and future direction

The following section delineates the principal preliminary conclusions derived at the project's midpoint concerning the design of a JUMP CBL Minor. These points are followed by an extended analytical exposition that further develops and substantiates the central findings of the present investigation.

1. Ensure Programmatic Coherence and Skill Progression
CBL modules should be connected through a clear learning pathway that moves from foundational understanding to advanced application and reflection. The JUMP minor must avoid redundancy and ensure that students build competencies progressively across modules.

2. Establish a Structured Competence and Skills Framework
A shared framework—drawing on ESCO and EntreComp—should define and categorize the key competencies in entrepreneurship, innovation, and sustainability. This framework will clarify expectations, ensure comparability, and guide both teaching and assessment across partner institutions.

3. Implement Transparent and Aligned Assessment Practices
Adopt a common assessment model (e.g., based on SOLO taxonomy and Dreyfus model of skill acquisition) that specifies how knowledge and skills are introduced, applied, and examined. Include formative tools such as reflective portfolios, peer feedback, and learning journals to track individual and team progress.

4. Integrate Responsible and Ethical Innovation Across All Modules
Embed ethical reasoning, sustainability principles, and societal impact considerations into every stage of the CBL process—from problem definition to solution development—to strengthen students' capacity for responsible innovation.

5. Develop a Shared Terminology and Conceptual Guide
Create a JUMP terminology guide that defines key concepts (e.g., innovation, entrepreneurship, sustainability, transversal skills). This will promote a shared understanding among educators and students and enhance coherence across partner institutions. A first example towards these common terminology guide, can be found at the beginning of the present document under the subsection Glossary, which we expect to evolve and expand for the end of the project.

This report has mapped and analyzed existing overarching learning outcomes (OLOs) related to challenge-based learning (CBL) modules and micro-modules across European higher education institutions, with a particular focus on those connected to entrepreneurship, innovation, and sustainability. The findings reveal a vibrant landscape of learning opportunities and pedagogical experimentation but also highlight the need for stronger structural coherence when integrating such modules into a unified minor program, such as the JUMP initiative.

A central conclusion is that CBL modules, while rich in content and pedagogical creativity, are often designed as isolated units rather than as components of a coherent programmatic pathway. This design independence ensures flexibility and contextual adaptability but results in a lack of progression in skills development, redundancy in learning outcomes, and limited articulation between knowledge acquisition and competence assessment. An immediate problem with this is that the base needed for a thesis work (irrespective of level) becomes thin. For the JUMP minor to function as a cohesive and high-impact program, it must therefore introduce a deliberate structure that ensures continuity and deepening of learning across modules, linking them together into longer learning pathways.

Equally important, the analysis demonstrates significant variation in how skills and competences are defined and categorized. Although transversal competences – such as critical thinking, collaboration, and communication – are consistently emphasized, they are often described vaguely and assessed inconsistently. This ambiguity hinders both comparability and cumulative competence development across courses. To address this challenge, the JUMP program should implement a structured skills framework that integrates established European references such as ESCO and EntreComp while tailoring them to the specific context of CBL and entrepreneurship education. Such a framework would clarify the intended learning progression and provide a common reference point for educators, students, and institutional partners.

Another crucial insight concerns the assessment of skills and the tracking of learning outcomes over time. While CBL is inherently experiential and student-centered, the evaluation of individual progress in complex team-based and interdisciplinary environments remains insufficiently developed. The proposed assessment matrix, based on the SOLO taxonomy and EntreComp, provides a promising direction for operationalizing transparent, formative, and summative evaluation practices. Incorporating reflective portfolios and peer-assessment mechanisms could further support continuous learning and self-awareness, reinforcing one of the core ambitions of JUMP—to foster lifelong learning competencies among students.

Moreover, the integration of ethical reasoning and responsible innovation principles emerges as a distinctive and necessary element of the JUMP program. As sustainability challenges become increasingly complex, students must be equipped not only with technical and entrepreneurial tools but also with the capacity to reflect critically on the societal implications of innovation. Embedding ethical reflection within all stages of the CBL process—from problem framing to solution development and evaluation—will strengthen the transformative potential of the program and align it with the EU's broader vision for responsible, human-centered innovation.

In light of these findings, the future development of the JUMP minor should focus on three interconnected priorities.

- First, to establish a program-level competence map that articulates how knowledge and skills are progressively developed across modules.
- Second, to implement a comprehensive assessment and reflection framework that makes student learning visible and measurable while respecting the open and exploratory nature of CBL.
- Third, to create a shared terminology and conceptual guide that ensures coherence across partner institutions and enhances mutual understanding of key concepts such as innovation, entrepreneurship, and sustainability.

In conclusion, while the European higher education landscape already provides a strong foundation for challenge-based learning, the next step lies in transforming a collection of individual learning experiences into an integrated, cumulative, and transformative learning journey. By adopting a structured and reflective approach to learning outcomes, assessment, and ethical engagement, the JUMP program can set a benchmark for how interdisciplinary, entrepreneurial, and sustainability-oriented education can be realized at the European level. This alignment will not only strengthen the academic rigor and coherence of the program but also empower students to act as responsible innovators and change agents in a rapidly evolving global context.

Appendix 1

Competences used in ECIUn+ courses

Competence names	Occurrences
Transversal	**130**
Challenge	28
Micro-Module	102
Critical and innovative thinking	**93**
Challenge	24
Micro-Module	69
Inter-personal skills	**67**
Challenge	23
Micro-Module	44
Entrepreneurship, technology and innovation	**62**
Challenge	18
Micro-Module	44
Preparatory	**62**
Challenge	18
Micro-Module	44
Media and information literacy	**52**
Challenge	6
Micro-Module	46
SDG/Domain	**48**
Challenge	14
Micro-Module	34
Creative thinking	**44**
Challenge	12
Micro-Module	32
Innovative thinking	**44**

Challenge	13
Micro-Module	31
Problem solving	**42**
Challenge	12
Micro-Module	30
Teamwork	**40**
Challenge	22
Micro-Module	18
Working with technology	**40**
Challenge	9
Micro-Module	31
Intra-personal skills	**37**
Challenge	9
Micro-Module	28
Digital competence	**33**
Challenge	3
Micro-Module	30
Generate ideas	**30**
Challenge	16
Micro-Module	14
Resilient communities	**30**
Challenge	9
Micro-Module	21
Verbal Communication skills	**29**
Challenge	9
Micro-Module	20
Global citizenship	**25**
Challenge	7
Micro-Module	18

Analysing and evaluating media content	**25**
Challenge	5
Micro-Module	20
Ability to learn	**25**
Challenge	2
Micro-Module	23
Exercise self-reflection	**21**
Challenge	6
Micro-Module	15
Energy and sustainability	**20**
Challenge	7
Micro-Module	13
Conscientiousness	**20**
Challenge	7
Micro-Module	13
Empathy	**20**
Challenge	3
Micro-Module	17
Intercultural understanding	**17**
Challenge	5
Micro-Module	12
Social innovation	**16**
Challenge	9
Micro-Module	7
Respect for Diversity	**15**
Challenge	4
Micro-Module	11
Environmental impact	**15**
Challenge	5

Micro-Module	10
Project management	**15**
Challenge	6
Micro-Module	9
Quality of life in cities and communities	**15**
Challenge	6
Micro-Module	9
Circular economy	**12**
Challenge	2
Micro-Module	10
Universal access to services	**12**
Challenge	2
Micro-Module	10
Self management	**12**
Challenge	5
Micro-Module	7
Planning	**11**
Challenge	1
Micro-Module	10
Entrepreneurial skills	**9**
Challenge	2
Micro-Module	7
Non-verbal communication skills	**9**
Challenge	3
Micro-Module	6
Understanding and analysing numerical and statistical information	**9**
Micro-Module	9
Responsible consumption and production	**9**

Challenge	2
Micro-Module	7
Locating and accessing information	**8**
Challenge	1
Micro-Module	7
Resource-efficient systems	**8**
Challenge	3
Micro-Module	5
Transport and Mobility	**7**
Challenge	2
Micro-Module	5
Sharing and reusing	**7**
Challenge	1
Micro-Module	6
Language learning	**7**
Challenge	1
Micro-Module	6
Openness	**6**
Challenge	1
Micro-Module	5
Inclusive policies	**5**
Challenge	1
Micro-Module	4
Perseverence	**4**
Challenge	1
Micro-Module	3
Inclusive public spaces	**4**
Micro-Module	4
Low carbon transport	**4**

Challenge	2
Micro-Module	2
Tolerance	**3**
Challenge	1
Micro-Module	2
Demonstrate enthusiasm	**3**
Micro-Module	3
Resilience	**3**
Micro-Module	3
Finnish	**3**
Micro-Module	3
Optimising movement	**3**
Challenge	1
Micro-Module	2
Sustainable urbanization	**3**
Challenge	1
Micro-Module	2
Sustainable transport policies	**2**
Challenge	1
Micro-Module	1
English	**2**
Challenge	1
Micro-Module	1
Conflict resolution	**2**
Micro-Module	2
Waste management	**2**
Micro-Module	2
Air pollution	**2**
Micro-Module	2

Financing circular economy	**2**
Micro-Module	2
Assertiveness	**1**
Micro-Module	1
Portuguese	**1**
Micro-Module	1
Disaster risk reduction	**1**
Micro-Module	1
Swedish	**1**
Micro-Module	1
French	**1**
Micro-Module	1
Grand Total	**1310**

Appendix 2

Challenge-Based learning opportunities offered by the ECIUn+ alliance (2024-2025)

Name	SubTitle	Start	End	ECTS	Responsible HEI	JUMP Partner
Quantum Communication and Computing	A Short Introduction	2025-02-03	2025-05-31	2.0	INSA Group	JUMP
TRIZ and AI-Driven Innovation	Unlock Advanced Problem-Solving at the Intersection of TRIZ, AI, and Industrial Revolution	2025-02-03	2025-07-11	6.0	INSA Group	JUMP
Inventing in a Digital World Using TRIZ and AI	Understand Structured Creativity and Transform it into an Actionable Process	2025-02-03	2025-04-30	2.0	INSA Group	JUMP
Shared Access for Family Electrically-Assisted Tricycle	Using Ultra Wide Band Technology - A new way for smart mobility	2024-10-15	2025-01-31	2.0	INSA Group	JUMP
Developing a Network of Climate Shelters	Development of a climate shelter network in Toulouse, France	2025-04-12	2025-05-28	2.0	INSA Group	JUMP
Green Innovators	Transform Your Campus	2025-03-03	2025-05-30	2.0	INSA Group	JUMP
Sustainable development	UN Global Goals and sustainability challenges	2024-09-02	2024-12-01	3.0	Linkoping University	JUMP
Autonomous Delivery Robots: the future of delivery services in urban environments	How can robotic delivery systems overcome technical, ethical and legal challenges and contribute to sustainable cities?	2024-09-05	2024-12-13	8.0	Linkoping University	JUMP
Advancing Sustainable Futures: Integrating Biogas Production into Society for a Greener Transition	Turn organic waste from a problem to a solution	2024-09-09	2024-12-13	5.0	Linkoping University	JUMP
Solutions to global sustainability challenges	understand solutions to complex sustainability challenges through an interdisciplinary perspective	2024-09-30	2024-11-08	5.0	Linkoping University	JUMP
Responsible Innovation for a Sustainable World	How we can innovate for the better	2025-02-06	2025-04-17	3.0	Linkoping University	JUMP
Ethics of Artificial Intelligence	Ethical questions about technology and AI	2025-03-24	2025-06-06	7.5	Linkoping University	JUMP
From lab to market:	Overcoming early-stage challenges in green energy innovation	2025-03-24	2025-04-13	4.0	Linkoping University	JUMP
Future-ready Young Citizens in the Smart City Era	Empowering the Next Generation for Innovation, Sustainability, and Connectivity	2025-03-01	2025-05-31	4.0	Łódź University of Technology	JUMP
Industry Project Management Masterclass SS24_25	Practical Solutions for Managing Challenges in Industry through simulations	2025-05-06	2025-06-27	9.0	Łódź University of Technology	JUMP
New ideas to revolutionize the Future of Plant-Based food	Be a trailblazer in the world of plant-based foods!	2024-10-07	2024-12-20	3.0	University of Trento	JUMP

Challenge Basics		2024-10-07	2024-12-20	1.0	University of Trento	JUMP
Back to the Future	Circular Economy of Functional Ingredients: Technological and Market Perspectives in Novel Food and Feed Sectors.	2025-02-17	2025-05-29	3.0	University of Trento	JUMP
EcoTech Challenge – Pioneering Innovative Technologies for a Sustainable Future	Leveraging cutting edge technologies to support a greener future	2024-09-09	2024-12-13	5.0	Dublin City University	
Bioprocessing for the Circular Economy	Learn how bioprocessing can be a key enabler of circularity across different industrial sectors.	2024-09-09	2024-11-30	7.5	Dublin City University	
Load-Bearing Efficiency: A 3D Printing Challenge		2024-10-29	2025-01-28	6.0	Hamburg University of Technology	
Designing Flexible and Stretchable Electronics for Real-World Applications	Exploring the Fundamentals of Soft Polymer Electronics and Their Practical Impact	2025-03-11	2025-04-14	1.0	Hamburg University of Technology	
Enabling Industry 4.0	Get in touch with Industry 4.0 challenges	2025-03-24	2025-04-28	3.0	Hamburg University of Technology	
Hydrogen and Sustainable Aviation Fuels (SAF) – Key Factors for Carbon-Free Aviation?	Explore future scenarios for refueling infrastructure and supply networks, with Airbus, Hamburg Airport and the German aerospace centre (DLR)	2025-04-14	2025-07-18	6.0	Hamburg University of Technology	
Technology Transfer and Entrepreneurship with a Focus on Technological Innovation	Empowering Startups to Solve Real-World Problems	2025-07-01	2025-07-31	1.0	Hamburg University of Technology	
Beyond Boring Green Narratives	How can we make sustainability education interesting?	2024-10-03	2024-12-19	6.0	Kaunas University of Technology	
Telecommunications Services With Net-Zero Emissions	How can we transform the ICT business and services to achieve net-zero emissions?	2024-10-03	2024-12-19	6.0	Kaunas University of Technology	
Digital Transformation of Energy Sector Greenhouse Gas Management	Co-creating data-driven sustainable solutions sought by energy sector leaders	2024-10-03	2024-12-19	6.0	Kaunas University of Technology	
Ride, game, thrive: indoor cycling revolution	How can you turn a bicycle into a year-round, interactive fitness adventure?	2024-10-03	2024-12-19	6.0	Kaunas University of Technology	
Urban Digital Twins for Sustainability	How can innovative technologies be applied for improvement of sustainability indicators within the built environment?	2024-10-03	2024-12-19	6.0	Kaunas University of Technology	
Accelerating Innovation Adoption	Accelerating Innovation Adoption: Strategies for Rapid Implementation and Success	2024-10-15	2024-11-19	2.0	Kaunas University of Technology	
Intercultural Teamwork	MASTERING INTERCULTURAL TEAMWORK: A PRACTICAL VIRTUAL COURSE	2024-10-15	2024-11-25	2.0	Kaunas University of Technology	
Laser Principles and Applications	Ignite the laser emission and light up the pathways for its emerging applications	2024-10-15	2024-11-26	2.0	Kaunas University of Technology	

Track birds, empower informed biodiversity decisions	How can we empower communities to make better choices that protect wildlife?	2025-03-06	2025-05-29	6.0	Kaunas University of Technology
From Waste to Worth: Harnessing Excess Summer Heat	What is the best way to use cheap summer surplus heat of district heating?	2025-03-06	2025-05-29	6.0	Kaunas University of Technology
Shaping the Future of District Heating	How to manage short-term consumption peaks using available technological innovations?	2025-03-06	2025-05-29	6.0	Kaunas University of Technology
Socio-Economic Evaluation of Projects	It is essential for every company and various governing bodies that projects' choices would be evaluated to ensure an optimal outcome	2025-03-17	2025-05-05	2.0	Kaunas University of Technology
Pathway of Disruptive Innovation	Ignite your potential and transform tomorrow with the power of innovation	2025-03-17	2025-04-17	2.0	Kaunas University of Technology
Rethinking Manufacturing	It's time to rethink manufacturing	2025-03-17	2025-04-17	2.0	Kaunas University of Technology
Accelerating Innovation Adoption	Accelerating Innovation Adoption: Strategies for Rapid Implementation and Success	2025-03-17	2025-05-09	2.0	Kaunas University of Technology
Cognitive Neuroscience	Cognitive neuroscience provides a window on how the structure of the mind through behavioural experiments processes occur	2025-03-17	2025-05-19	3.0	Kaunas University of Technology
AI and Consumer Behaviour	AI's impact on consumer behaviour	2025-03-17	2025-05-02	2.0	Kaunas University of Technology
Laser Principles and Applications	Ignite the laser emission and light up the pathways for its emerging applications	2025-03-18	2025-05-13	2.0	Kaunas University of Technology
Introduction to Biomaterials	Unlocking the Potential of Inorganic Biomaterials for a Healthier Future	2025-04-01	2025-05-31	2.0	Kaunas University of Technology
Intercultural Teamwork	Mastering Intercultural Teamwork: a Practical Virtual Course	2025-04-08	2025-06-08	2.0	Kaunas University of Technology

Circular Business Model	Be a sustainability champion: dive into the exciting world of circular business models and learn how to transform businesses into forces for good!	2025-04-14	2025-05-18	2.0	Kaunas University of Technology
Circular Value Chains	Is designed for everyone, who wants to take on the challenge of transforming the entire value or supply chain to become more circular and sustainable	2025-05-12	2025-06-08	2.0	Kaunas University of Technology
Data Visualisation and Presentation	Improve your data visualisations	2025-03-17	2025-05-04	2.0	Kaunas University of Technology

Track birds, empower informed biodiversity decisions	How can we empower communities to make better choices that protect wildlife?	2’25-03-06	2025-05-29	6.0	Kaunas University of Technology
ECIU AI assistant hackathon	Creating learner guidance AI tools for the digital and virtual environments	2025-02-26	2025-03-28	2.0	Tampere University
Climate change and migratory movements.	How could we identify to what extent the effects of climate change are causing new migratory processes at an international level?	2024-10-03	2024-12-19	3.0	Universitat Autònoma de Barcelona
Challenge Based Learning enhanced by Virtual Reality		2024-11-06	2024-11-08	0.0	Universitat Autònoma de Barcelona
Mentoring in Challenge Based Learning: tools to face the challenge	Discover new activities to guide your students in solving their challenges.	2025-02-01	2026-03-31	0.0	Universitat Autònoma de Barcelona
Adultcentrism in Educational Relationships	Creating Awareness of Adultcentrism in Educational Relationships through Game-based Learning	2024-09-05	2024-11-25	3.0	University of Stavanger
Adultcentrism in Educational Relationships	Creating Awareness of Adultcentrism in Educational Relationships through Game-based Learning	2025-04-24	2025-06-20	5.0	University of Stavanger
Art-based Research Methods in Intercultural Competence and Multilingualism	Exploring, analyzing, and using various research methods	2025-05-12	2025-06-02	5.0	University of Stavanger
Children's Thinking in Kindergarten Daily Life	Supporting Children’s Thinking Skills and Confidence Through Engaging, Practice-Based Learning	2025-06-16	2025-09-19	5.0	University of Stavanger
Empathy, Compassion and Meaning	Theory and participatory approaches	2025-08-18	2025-10-3	5.0	University of Stavanger
Adapting to Climate Change with Spatial Engineering	Help the city of Valencia (Spain) to adjust sustainably to climate change with Spatial Engineering	2024-11-11	2025-01-31	15.0	University of Twente
ECIU Staff Days at UT	Inspire, connect, innovate	2024-11-20	2024-11-22		University of Twente
Responsible Futuring	Proactively take up societal challenges and design interventions that co-shape societies for pluriversal futures.	2025-02-05	2025-04-17	10.0	University of Twente
Sustainable Nanotechnology	Help co-create sustainable solutions using nanotechnology tools.	2025-02-12	2025-06-25	5.0	University of Twente
Leading Systemic Change	Learn how to manage the change-making process by designing, developing, and deploying holistic systems thinking	2025-04-22	2025-07-04	10.0	University of Twente
Unlocking B2B Opportunities in the Energy Transition		2025-05-12	2025-5-21	2	University of Aveiro