



Disaster Resilience in Higher Education Systems via a Cloud University Model

WORK PACKAGE 4

ACTIVITY 4.1

TITLE: Implementation of transversal and resilience skills in pilot curricula

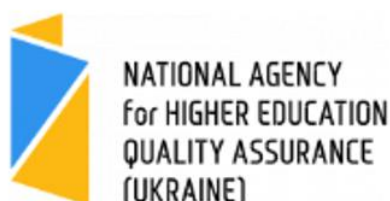


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Basic project information

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Implementation of Transversal and Resilience-Related Skills in the Pilot Curricula

1. Purpose and methodology

Crisis-sensitive higher education is not only about teaching online. It also means helping students continue learning and working when conditions are unstable: making decisions with incomplete information, collaborating when routines are disrupted, using digital tools critically, communicating under pressure and adjusting professional practice when usual arrangements no longer work. Activity A4.1 of the CLOUD HED project looks at how transversal and resilience-related skills can be built into selected pilot curricula in ways that are visible, assessable and workable in crisis-affected and largely digital settings.

This work builds on the curriculum analysis conducted under [Activity A3.3](#) (Selection of pilot-curricula in partner HEIs and adaptation to Cloud University), in which four pilot Master's programmes were investigated based on a curriculum analysis scheme: International Economics and International Management at Sumy State University (SSU), Education Sciences at Riga Technical University Rezekne Academy (RTU), Managerial Economics at Cardinal Stefan Wyszyński University in Warsaw (UKSW), and Management and Organisation of Educational Systems at Tel-Hai University (formerly Tel-Hai Academic College). The programmes were selected to reflect different institutional contexts, including universities directly affected by acute crises (SSU and Tel-Hai) and universities operating in comparatively stable settings (UKSW and RTU), as well as varying experiences with partial or extensive shifts to online delivery. As outlined in more detail in Régent et al. (in press)¹, the analysis covered the dimensions: programme structure and modularity, accessibility and delivery, crisis sensitivity, assessment, support, governance and adaptability, equity and inclusion, technical/cloud readiness, and collaboration. In this analysis, the curricula were also analysed to determine whether transversal and resilience skills were visibly embedded in the courses. The findings of the curricula analysis were enriched with a literature review. For this report, three questions were pursued:

1. What skills are addressed in the four curricula? Which transversal and resilience skills are present, and which are absent?
2. How are these skills addressed? Are they embedded in disciplinary courses, taught through dedicated courses, addressed once or progressively throughout the curriculum, practised through assignments, assessed, etc.?
3. What would constitute a stronger approach? Which principles for curriculum design and delivery can be derived from the observed gaps and variations?

The recommendations presented here do not aim to increase the number of transversal/resilience skills mentioned in curricula, but to ensure that they are deliberately designed, practised, and reinforced. For this purpose, different features of curricular integration were identified, alongside consideration of how skill development changes when approached from a crisis-sensitive perspective.

2. Theoretical background and findings from the curriculum analysis

2.1 Definition of terms

Throughout this report, transversal skills and resilience-related skills are treated as related, but distinct. Both skill sets are cross-cutting, i.e., relevant regardless of disciplinary background, and are frequently framed as “soft skills”. That said, transversal skills are often linked to employability, while resilience-related skills focus more specifically on the capacity to act, adapt, and continue learning when established routines and structures are disrupted. In the four pilot programmes, elicited transversal skills include critical thinking, problem-solving, communication, collaboration, digital and data literacy, intercultural competence, ethical reasoning, and adaptability. They are best developed in context – for example, through cases, projects, simulations, group work, and problem-based tasks – so that students practise them while working with disciplinary content.

Although transversal skills are often framed in relation to employability, many of them become particularly important during and after disruption. For example, self-organisation supports autonomous learning under reduced structure; digital competence becomes essential when access to physical learning environments is interrupted; and

¹ Régent, V., Pfaffel, A., Krasny, Y., Tarasenko, S., Vorontsova, A., Pigozne, T., & Spridzans, M. (in press). *From Pandemic Adaptation to Conflict Resilience: Rethinking Curricula for Crisis Condition*. In Netzwerk für Hochschulforschung (HoFo) (Ed.), *Tagungsband des Netzwerks für Hochschulforschung 2026*. Wien: Waxmann.

communication and collaboration gain additional importance when interaction takes place remotely or under uncertainty.

Resilience skills, in contrast, focus more strongly on coping with crises and include capacities such as decision-making under stress and uncertainty, crisis communication, adaptive coping and self-regulation, safety awareness, digital resilience, organisational continuity and collaborative responses to crisis. Some can be developed through regular coursework; others may need more deliberate reflection, guided practice, or a dedicated space in the curriculum.

2.2 Integration of transversal and resilience skills

Evidence from the curricula analyses shows that transversal and resilience skills are integrated into curricula in different ways. Some HEIs offer dedicated courses – either mandatory or electives – that are often open to students across disciplines, reflecting the cross-cutting nature of these skills. Others embed them within existing courses, sometimes explicitly identifying them as learning outcomes or course components, but often without clear labelling. As a result, curricula alone do not always make it possible to determine whether, where, and how transversal and resilience skills are taught. Their integration may remain largely invisible when these skills are embedded implicitly rather than addressed through clearly designated courses or learning outcomes.

Moreover, during our analyses, it became apparent that a skill being present in a curriculum does not necessarily mean that students actually have meaningful opportunities to develop it – notably in crisis contexts.

For example:

- Digital learning may appear nowhere explicitly in a curriculum, but students may nevertheless be required to use a digital platform. This is, however, not necessarily the same as developing digital learning competence in crisis conditions.
- Communication may be listed as a learning outcome; but unless students repeatedly practise communication, receive feedback and are assessed on it, its presence in the curriculum may be largely declarative.

Thus, curricula do not necessarily benefit from merely increasing the number of transversal and resilience skills mentioned, but from ensuring meaningful and crisis-sensitive integration. Based on the findings, different degrees of curricular integration can be distinguished:

- ⇒ **Implicit exposure:** Skills are indirectly developed through learning activities but are not explicitly identified.
- ⇒ **Explicit articulation:** Skills are formulated as learning outcomes or course objectives within existing disciplinary courses.
- ⇒ **Deliberate practice:** Students are given opportunities to practise the skills through authentic tasks, projects, simulations, collaborative work, independent learning, or similar activities.
- ⇒ **Feedback and assessment:** Students receive feedback on their development of these skills and, where appropriate, their achievement is assessed.
- ⇒ **Curriculum-wide reinforcement:** Skills are developed progressively across the programme rather than being addressed in isolated courses.

These features do not constitute a fixed sequence or a model that every skill is expected to follow. Their relevance depends on the nature of the skill, the course context, and students' needs. Some skills may be meaningfully addressed within individual modules, while others benefit from repeated practice and reinforcement across the programme. This is particularly relevant for resilience-related skills, whose development needs to remain sensitive to the specific educational and crisis context. The four CLOUD HED curricula therefore illustrate different combinations of these features rather than successive stages of curricular maturity.

2.3 Introducing the crisis dimension

This report is not generally about how to improve transversal skills in curricula, but about doing so in crisis contexts. Thus, the question is: What makes the embedding of a skill crisis-sensitive? Here, our findings show that the crisis context changes what it means to develop and demonstrate these skills. The following table illustrates the difference between generic integration of transversal skills, and crisis-sensitive integration.

Table 1 Examples of how selected transversal skills take on a crisis-sensitive focus.

Skill	General learning focus	Crisis-sensitive learning focus
Self-organisation	Time management	Working autonomously when routines, schedules and institutional structures are disrupted
Digital competence	Using digital tools	Learning and communicating when physical access to campus is interrupted, or infrastructure is unreliable
Communication	Public speaking and presentation skills	Communicating under uncertainty and across disrupted/remote environments
Collaboration	Group work	Collaborating remotely, asynchronously and under stressful/uncertain conditions
Problem-solving	Solving complex tasks	Making decisions with incomplete information and under rapidly changing conditions
Adaptability	Adjusting to change	Adapting learning strategies when established learning environments suddenly become unavailable
Employability	Career preparation	Maintaining career pathways and professional networks during and after disruption

3. Basis for the recommendations

This report focuses on how transversal and resilience skills can be taught in crisis-affected curricula. From our findings, we can derive two complementary approaches to delivery:

1. **Dedicated modules** – elective or mandatory, depending on programme context. Dedicated modules can be particularly useful for skills that require explicit conceptual knowledge, structured practice, or a clearer curricular focus. Since this approach may increase curriculum load, introduce such modules carefully and, where appropriate, design them for use across programmes. Skills that may warrant dedicated modules include crisis preparedness, digital learning strategies, career adaptability, psychological and social dimensions of crisis, or information literacy.
2. **Embedded disciplinary learning** – developing transversal and resilience skills within existing courses. This approach links skill development to disciplinary content while avoiding unnecessary additions to already dense curricula. In this model, students develop the relevant skills through disciplinary learning activities. For example, instead of teaching “adaptability” only as a concept, students may work on a project in which requirements change during the process.

Across both approaches, **experiential and authentic learning can support skill development**. Whether transversal and resilience skills are addressed through dedicated modules or embedded disciplinary learning, students need opportunities to apply them through realistic, practice-oriented tasks. Useful approaches include simulations, scenario-based learning, project work, problem-based learning, case studies, crisis scenarios, collaborative projects, and reflective assignments. These activities help students engage with uncertainty and complexity in structured learning settings and connect skill development to disciplinary and professional contexts. At the same time, this approach requires a deliberate orientation towards transversal and resilience-related skills. It therefore fits particularly well in courses whose subject matter already lends itself to such an approach.

4. Recommendations for analysed curricula

The four programmes show considerable variation, which is not surprising. No uniform model currently exists for embedding transversal and resilience skills in higher education curricula, and their integration often depends on individual courses, programme structures, or teaching practices. Rather than prescribing a single curriculum model, CLOUD HED proposes individualised recommendations for each curriculum, as well as an overall, more general flexible framework that defines core principles of integration while allowing HEIs to adapt content and delivery to disciplinary, institutional, and crisis-specific contexts.

Table 2 therefore summarises the main direction proposed for each curriculum rather than treating the four cases as variations of a single model, followed by the details below.

Table 2 Comparative overview of programme starting points and proposed pathways.

Pilot programme	Transversal skills	Resilience-related skills
RTU Education Sciences	Current basis: Relevant courses offer clear entry points; “media and information literacy” was explicitly identified as transversal skill in the curriculum analysis. Proposed direction: Embed transversal skills across learning outcomes, assignments and assessment, supported by experiential and authentic learning experiences.	Current basis: The curriculum analysis found limited explicit integration at Master’s level. Proposed direction: Use embedded disciplinary learning within existing courses to integrate crisis, socio-emotional, digital and cooperation-related competences, supported by scenario- and case-based learning.
SSU International Economics and International Management	Current basis: Managerial and analytical competences already provide a foundation, alongside socio-emotional and media/information literacy elements. Proposed direction: Develop three cross-curricular threads across mandatory courses.	Current basis: Programme outcomes already address uncertainty and risk, but crisis-navigation learning is not concentrated in one course. Proposed direction: Add a 5-credit elective, supported by experiential and authentic learning activities such as scenarios, reflection and collaborative work.
UKSW Managerial Economics	Current basis: Existing management and economics courses already support cross-cutting competence development. Proposed direction: Embed transversal skills across learning outcomes, projects, internships and active learning.	Current basis: The curriculum analysis identified a relatively broad crisis-relevant foundation, although some provision is dispersed or peripheral. Proposed direction: Integrate resilience throughout the curriculum using cases, simulations, reflection and applied assessment.
Tel-Hai Management and Organisation of Educational Systems	Current basis: Strong foundations in leadership, planning, multicultural/global citizenship and AI-related learning. Proposed direction: Make transversal skill development more systematic through cross-curricular practice and assessment.	Current basis: Broad crisis-sensitive and trauma-informed foundation, supported by flexible delivery. Proposed direction: Add a dedicated elective and reinforce it through three cross-curricular threads.

In all four programmes, transversal skills are embedded in disciplinary learning rather than treated as a separate generic subject. The main differences concern where and how that practice is organised. In contrast, the integration of resilience-related skills varies more. In some programmes, resilience is mainly developed through existing courses; in others, partners propose a dedicated elective alongside embedded work. Based on our findings, the following recommendations can be made for each curriculum. They draw on the approaches outlined above – dedicated provision, embedded disciplinary learning, and experiential and authentic learning – in different combinations depending on the existing programme structure and identified needs.

4.1 RTU – Education Sciences

Transversal skills: At RTU, the proposal follows primarily an embedded disciplinary learning approach, working through the existing curriculum. Courses in educational leadership, digital teaching, communication, inclusion, and sustainability already offer opportunities to develop transversal skills. The next step is to name these competences more clearly in course descriptions and learning outcomes and to revisit them through assignments, academic practice and assessment. Case work, collaborative tasks and reflection can provide experiential and authentic learning opportunities, allowing students to practise these competences in realistic educational situations without adding new credits.

Resilience skills: RTU likewise relies primarily on embedded disciplinary learning rather than a dedicated module. Instead, the partner submission groups the additions around professional competence development, personal skills, the media and digital environment, and cooperation in the social environment. Existing courses can therefore address crisis management and continuity planning, socio-emotional awareness and self-regulation, digital resilience and information verification, and community engagement and conflict-sensitive communication. Scenario and case work, reflective assignments, and criteria within academic practice would provide experiential and authentic learning opportunities while making this skill development visible.

4.2 SSU – International Economics and International Management

Transversal skills: SSU takes a more structured embedded disciplinary learning approach, organised through three cross-curricular threads within mandatory courses. The Complexity and Uncertainty Thread adds scenario planning and uncertainty analysis to Strategic Management, International Economic Analysis and Global Economy. The Reflection and Adaptive Learning Thread introduces short reflective notes across major assessments, creating a cumulative portfolio. The Cross-Cultural and Collaborative Practice Thread uses negotiation simulations and team projects in International Commercial Agreements, HR Management, and Leadership and Communication. Together, these experiential and authentic learning activities allow the competences to be revisited in different parts of the programme rather than addressed once in isolation.

Resilience skills: SSU complements this embedded approach with a dedicated 5-credit elective, Crisis Navigation and Adaptive Management in International Business. The course gives a clearer curricular home to programme outcomes that already refer to decision-making under uncertainty and risk assessment. It would focus on organisational resilience and business continuity, decision-making under pressure and scenario analysis, and cross-cultural communication in crisis contexts. The elective would sit alongside the transversal threads described above, with experiential and authentic learning activities – including simulations, portfolio reflection and collaborative assessment – linking the dedicated module with embedded skill development elsewhere in the programme.

4.3 Tel-Hai – Management and Organisation of Educational Systems

Transversal skills: Tel-Hai already has a strong base in educational leadership, strategic planning, multicultural education, global citizenship and social justice, and AI in education. The proposal is therefore less about adding a new set of transversal skills and more about strengthening their development through embedded disciplinary learning across the programme. Leadership decisions can be connected to communication under pressure, relational trust, ethical prioritisation, inclusion, community engagement and adaptive planning. Case and scenario work, reflection and practicum-based assessment offer practical ways to do this.

Resilience skills: Tel-Hai combines a dedicated elective with embedded development across the curriculum. At Tel-Hai, the main task is to consolidate an already substantial crisis-sensitive foundation. The proposed elective, Socio-Emotional Leadership, Safety Awareness, and Resilience in Educational Systems, brings together socio-emotional leadership, emotional, physical and digital safety, self-care and stress regulation, and resilience-oriented educational leadership. Three cross-curricular threads extend this work into reflective leadership, safety and wellbeing, and adaptive crisis-sensitive practice. Scenario-based dilemmas, reflective journals and practicum-based assessment provide experiential and authentic learning opportunities closely connected to educational practice.

4.4 UKSW – Managerial Economics

Transversal skills: UKSW also follows primarily an embedded disciplinary learning approach rather than introducing a separate generic skills module. Priorities such as critical thinking, communication, digital/data literacy, adaptability, intercultural competence, leadership and sustainability would be built into revised learning outcomes, project-based learning, employer cooperation and internships, simulations and managerial tasks. Courses such as Strategic Management, Negotiation Methods, Economic Forecasting, Project Management, and Environmental Economics already provide suitable contexts for this work.

Resilience skills: UKSW likewise relies on embedded disciplinary learning rather than a dedicated module. Emotional, cognitive, organisational, financial, digital and sustainability resilience are linked to economic and managerial decision-making through crisis-management cases, simulations, reflective learning, scenario thinking, liquidity and risk planning, cybersecurity awareness and crisis-response presentations. These activities provide experiential and authentic learning opportunities linked directly to economic and managerial decision-making. Strategic Management, Negotiation Methods, Economic Forecasting, Credit Risk Management and Environmental Economics are among the courses where this work could be placed.

5. General recommendations for implementation

Our findings allow for the following overall recommendations:

1. Make transversal and resilience skills explicit

Identify relevant transversal and resilience skills in programme and course learning outcomes, assessment criteria or course expectations rather than relying exclusively on their implicit development. Making these skills visible helps students recognise what they are expected to develop and allows programmes to address them more systematically.

2. Embed skills in disciplinary learning while allowing for dedicated provision where useful

Transversal and resilience skills should be developed primarily through disciplinary courses and authentic learning activities, rather than treated as separate from the curriculum. Depending on the programme and what is already in place, this may be complemented by dedicated modules or electives where more focused or guided development is needed.

3. Provide repeated and progressively demanding opportunities for practice

Students need recurring opportunities to apply and develop these skills across the curriculum. Activities should move from introductory exposure and guided practice towards increasingly complex, independent and autonomous application.

4. Use authentic and crisis-oriented learning environments

Cases, scenarios, simulations, projects, collaborative tasks and problem-based activities can connect transversal and resilience skills to realistic educational, managerial, economic or professional challenges. Where relevant, these activities should reproduce conditions such as uncertainty, disruption, digital dependency, limited resources and the need for collaborative decision-making.

5. Combine assessment, feedback and reflection

If students are expected to develop transversal and resilience skills, they should also have opportunities to demonstrate and reflect on their development. Portfolios, presentations, applied tasks, teamwork criteria and reflective activities can provide evidence of progression, while feedback and structured reflection can help students recognise strengths and areas for further development.

6. Design for flexibility and disrupted delivery from the outset

Especially in crisis contexts, learning opportunities should accommodate disrupted attendance, asynchronous participation, uneven digital access and different student circumstances. Where possible, activities should be adaptable across face-to-face, online and asynchronous formats and provide alternatives when synchronous participation is not possible.

7. Apply a broad understanding of resilience

Resilience should not be reduced to individual coping or self-regulation. While these dimensions remain important, curriculum design should also address skills such as decision-making under uncertainty, crisis communication, digital resilience, continuity planning, adaptive problem-solving and collaboration. This broader perspective recognises that resilience involves both individual capacities and the ability to act effectively within changing organisational and social conditions.

6. Conclusion

Activity A4.1 takes the findings from A3.3 a step further by turning identified gaps and existing strengths into concrete curriculum options. The four cases do not point to one preferred model. RTU and UKSW mainly work through curriculum-wide integration, while SSU and Tel-Hai combine embedded development with dedicated electives. What they have in common is the need to move from implicit or dispersed skill development towards learning that students can recognise, practise and demonstrate.

The recommendations also reinforce a wider point for CLOUD HED: preparedness for disruption should be built into ordinary curriculum design rather than added only when a crisis occurs. Transversal and resilience-related skills can support this when they remain connected to disciplinary learning and when teaching and assessment can continue under changed delivery conditions. In that sense, the aim is not simply to help programmes react to disruption, but to make preparedness, adaptability and continuity part of the curriculum itself.