

EVENT REPORT

Project Title: Fostering Dual Green and Digital Transitions through Education and Innovation in the Neighbourhood East, Central Asia, and Asia
Acronym: GreenTech Horizons

Event Title:	2nd and 3rd Train the Teachers Workshop
Event Date/Time:	19–23 January 2026
Event Location:	Kaunas University of Technology, Kaunas, Lithuania Riga Technical University, Riga, Latvia
Organizer (s):	KTU+RTU
Report Author (s):	Rasa Brūzgienė
Report Issue Date:	03.02.2026

1. Overall Event Description

1.1 Event Objectives

The main objective of the GreenTech Joint 2nd & 3rd Train the Teachers Training School was to strengthen the pedagogical, didactic, and technological capacities of academic staff from partner institutions to design and deliver high-quality digital and green courses addressing green and digital transitions within GreenTech Horizons project objectives. The training school aimed to:

- Equip university teachers with advanced pedagogical approaches and instructional design methods for delivering sustainability-oriented courses supported by digital technologies, AI tools, and learner-centered methodologies.
- Provide hands-on experience with innovative teaching practices, including AI-supported education, cyber risk simulation through serious games, and competency-based learning design.
- Support participants in structuring and aligning course content, learning outcomes, and assessment methods for key thematic areas such as digital tools for sustainability, digital literacy and transformation, cyber security and data ethics, environmental science, sustainable energy systems, and smart cities.
- Strengthen teachers' capacity to integrate cross-cutting competencies—cyber security, data ethics, and digital responsibility—into sustainability-focused curricula.
- Facilitate peer learning, inter-institutional exchange, and collaborative course development across consortium partners through joint sessions, laboratory visits, and implementation-focused discussions.

These objectives directly contribute to the GreenTech Horizons project's overarching goal of fostering dual green and digital transitions through higher education innovation, while ensuring



alignment with Erasmus+ priorities on digital transformation, sustainability, innovative pedagogy, and capacity building across partner regions.

1.2 Event Description

The GreenTech Joint 2nd & 3rd Train the Teachers Training School was held from 19–23 January 2026, taking place at Kaunas University of Technology (KTU), Lithuania, and Riga Technical University (RTU), Latvia. The event brought together academic staff from partner institutions, project coordinators, and invited experts for an intensive, multi-location training focused on strengthening teaching capacities for green and digital transition-oriented education.

The training school combined interactive lectures, hands-on sessions, guided laboratory visits, and collaborative discussions. Each training day was structured around a specific thematic focus, including digital tools and literacy for sustainability, AI in education, cyber security and data ethics in green innovation, environmental science and sustainable energy systems, and smart cities and urban green innovation. Dedicated “How to Teach” sessions emphasized pedagogical and didactic approaches for each course area, supporting participants in translating subject-matter expertise into effective learning designs.

Practical activities played a central role in the programme. Participants engaged with AI-supported educational tools, took part in an interactive cyber risk table-top simulation game, explored digital infrastructure and participated in laboratory and campus tours at both KTU and RTU. These activities enabled participants to contextualize course content within real technological, institutional, and infrastructural environments.

A key strength of the training school was its collaborative and practice-oriented design. Participants actively reviewed and discussed draft course structures, exchanged experiences on curriculum development challenges, and shared good practices related to digitalization, sustainability integration, and competency-based teaching. Peer feedback and inter-institutional dialogue supported the refinement of teaching approaches and highlighted opportunities for joint course delivery and blended learning models.

By the end of the training school, participants had strengthened their capacity to design, adapt, and deliver digital and blended courses aligned with green and digital transition goals. The event also reinforced collaboration within the GreenTech Horizons consortium, providing a strong foundation for further course piloting, digital infrastructure implementation, and coordinated dissemination activities.

1.3 Participant Profile

The GreenTech Joint 2nd & 3rd Train the Teachers Training School gathered over 40 participants representing a diverse set of countries across the Neighbourhood East, Central Asia, Asia, and the EU. Attendees included professors, lecturers, early-career researchers, and academic staff, all of whom are directly engaged in higher education, curriculum development, and training delivery.

Participants came from universities and partner organizations such as:

- University of Novi Sad (Serbia)



- University of Split (Croatia)
- Riga Technical University (Latvia)
- Kaunas University of Technology (Lithuania)
- European Academy (Latvia)
- University of Information Technology and Management (Poland)
- Mongolian University of Science and Technology (Mongolia)
- National University of Mongolia (Mongolia)
- Al-Farabi Kazakh National University (Kazakhstan)
- International Engineering-Technological University (Kazakhstan)
- Almaty Technological University (Kazakhstan)

This diversity ensured that perspectives from both EU Member States and Widening/Neighbourhood countries were equally represented, enriching the discussions on how green and digital transition topics can be embedded into teaching practices. The participants played a dual role: (1) as trainees in the piloting of new curricula and methodologies for digital and green education, and (2) as multipliers who will adapt and integrate the training outcomes into their own institutions.

2. Session Reports

2.1 How to Teach – Pedagogy & Didactics for Course: Digital Tools for Sustainability

Trainer: assoc. prof. Rasa Brūzgienė, Kaunas University of Technology, Lithuania

Objectives:

- Introduce participants to the strategic role of digital technologies in addressing sustainability challenges across environmental, social, and economic domains.
- Familiarize participants with the structure, learning objectives, and competency outcomes of the Digital Tools for Sustainability course, with a focus on the Twin Transition (green and digital).
- Strengthen understanding of how digital tools such as IoT platforms, data visualization systems, AI-based analytics, and open data repositories can support evidence-based sustainability decision-making.
- Provide hands-on experience in using open digital platforms to visualize sustainability data and critically interpret results in order to avoid oversimplification and greenwashing.
- Encourage reflection on pedagogical challenges, ethical considerations, and institutional contexts when teaching digital sustainability topics.

Description of Activities:

- *Introductory Discussion & Course Contextualization.* The session began with an introduction to the relevance of digital tools in contemporary sustainability practice, highlighting global drivers such as climate urgency, policy frameworks (European Green Deal, UN SDGs), and increasing demands for transparency and data-driven decision-making. Trainer presented the overall course structure, learning objectives, and the progressive, modular design combining theory with hands-on digital experimentation.
- *Pedagogical & Didactical Framework.* The trainer outlined the course's competency-based and project-oriented pedagogical approach. Emphasis was placed on systems thinking, data literacy, sustainability-oriented design, and ethical digital reasoning. Teaching strategies



such as flipped classroom models, case-based learning, and experiential activities were discussed as key methods for translating abstract sustainability concepts into practical learning outcomes.

- *Thematic Overview of Digital Sustainability Tools.* Open sustainability data platforms were presented as foundational resources for evidence-based analysis. Tools such as the UN SDG Tracker, European Environment Agency (EEA) Data Viewer, and Our World in Data were discussed as reliable sources for accessing validated environmental, social, and economic indicators at global, regional, and national levels. Trainer highlighted how these platforms support comparative analysis, trend identification, and alignment with international sustainability frameworks, while also stressing the importance of understanding data aggregation levels and contextual limitations. Data visualization and dashboard tools formed a second core category. Platforms including Power BI, Tableau, Tableau Public, Google Looker Studio, Excel, and Google Sheets were presented as practical means to translate complex sustainability datasets into accessible visual narratives. The discussion emphasized visual design principles, clarity, and the role of dashboards in supporting decision-makers, stakeholder communication, and transparency, while avoiding misleading representations or oversimplification of sustainability performance. Geospatial and remote sensing tools were introduced as critical instruments for spatial sustainability analysis. Participants explored platforms such as Google Earth Engine, QGIS, ArcGIS Online, StoryMaps, Sentinel Hub EO Browser, and Mapbox Studio, which enable monitoring of land use change, urbanization patterns, environmental degradation, and climate-related risks. Trainer underlined the pedagogical value of spatial visualization in helping learners “see” sustainability challenges that are not evident in tabular data. The session also covered tools supporting life-cycle assessment and environmental impact evaluation, including OpenLCA and SimaPro. These tools were positioned as essential for assessing carbon footprints, energy use, and material flows across product and service lifecycles, thereby reinforcing systems thinking and sustainability-oriented design principles. Emerging digital technologies were discussed through examples of AI-driven analytics and digital twin simulations. Tools such as Google Colab with Python, Earth Engine ML APIs, and AI-assisted platforms (e.g. OpenAI GPT, Claude, Gemini, Microsoft Copilot) were introduced as enablers for predictive modeling, anomaly detection, and narrative sustainability reporting. At the same time, trainer emphasized ethical considerations, transparency, and the environmental footprint of AI systems themselves. Collaborative and learning-support platforms were highlighted as enablers of participatory and project-based learning. Tools including Miro, Notion, Trello, Microsoft Teams, Canva, and Pitch were presented as means to support teamwork, documentation, visual communication, and co-creation of sustainability projects and teaching materials. Throughout the overview, trainer consistently stressed that digital tools are not neutral solutions but socio-technical systems that require critical interpretation, ethical governance, and responsible pedagogical framing. Participants were encouraged to treat tools not as ends in themselves, but as instruments for developing sustainability literacy, critical data reasoning, and informed decision-making.
- *Practical Activity – “Making Sustainability Visible Through Digital Tools”.* In the practical session, participants worked in small groups on a guided exercise simulating a real-world policy support scenario for a city administration. Participants selected a sustainability focus (e.g. CO₂ emissions, renewable energy, waste, air quality), accessed open sustainability datasets, and created a simple visualization (i.e., trend, a comparison). They formulated key

observations and discussed data limitations, aggregation issues, and ethical responsibilities in presenting sustainability information.

- *Reflection & Group Discussion.* The session concluded with a structured reflection, where participants discussed how digital tools can support sustainability monitoring while also recognizing their limitations. Particular attention was given to the importance of critical interpretation, transparency, and contextualization when using digital sustainability data in teaching and decision-making.

Observations:

- Participants demonstrated strong engagement with both the conceptual and practical components of the session, particularly in linking sustainability goals with concrete digital tools.
- The practical task effectively illustrated how even simple visualizations can support decision-making while simultaneously exposing risks of misinterpretation and overconfidence in data.
- Trainer observed a high level of awareness regarding ethical concerns, especially the need to prevent greenwashing and to communicate uncertainty and data limitations clearly.

Participant Feedback:

- Participants appreciated the clear structure of the course and the balance between strategic context and practical application.
- Many highlighted the usefulness of open data platforms and simple visualization tools as accessible entry points for teaching digital sustainability, even in resource-constrained institutional settings.
- The reflection component was positively received, with participants valuing the discussion on data limitations, ethical responsibility, and critical digital literacy.

Follow-up Recommendations:

- Provide step-by-step practical guides and example datasets to support instructors with limited prior experience in digital sustainability tools.
- Develop assessment criteria that explicitly evaluate critical interpretation, ethical awareness, and transparency in data-driven sustainability work.
- Encourage integration of local or regional sustainability data to increase relevance and student engagement.
- Reinforce connections between digital tools, policy frameworks, and real decision-making contexts in future course iterations.

2.2 How to Teach – AI in Education: Pedagogical and Technological Aspects

Trainers:

- **assoc. prof. Marko Hell, University of Split, Croatia**
- **assoc. prof. Daina Gudonienė, Kaunas University of Technology, Lithuania**

Objectives: [Key learning outcomes]

- Provide hands-on experience with innovative teaching practices including AI-supported education
- Strengthen participants' ability to develop AI agents for learning through dialogue

Description of Activities: [What was done – group work, tools, discussions]

- The session, titled "AI Assisted Teaching," highlighted the fundamental difference between traditional programmes, which follow fixed rules and provide predictable responses, and AI agents, which perceptively adapt, learn, and take autonomous actions. This shift was proposed as a solution to modern educational challenges, such as low student engagement with traditional reading materials and the difficulty of providing personalised attention to students with varying levels of prior knowledge.
- To address these challenges, the presentation introduced "My Personal Education Tutor" (My PET), an AI-driven agent designed to foster systems thinking and critical problem-solving through dialogue. Unlike standard educational tools, these AI agents support self-regulated learning by adapting content to a student's specific interests and providing constant feedback.
- The technical foundation for creating such effective tutors was the Five-Step Prompt Framework. This methodology requires educators to be "crystal clear" about the Task, provide the necessary Context for the AI, and use References to establish a specific tone or style. The final stages involve Evaluating whether the output meets the desired goals and Iterating to refine the instructions until the tutor functions perfectly. This framework ensures that the AI maintains its designated persona – in this case, an expert tutor specialising in blockchain technology for economics students.
- Finally, the presentation emphasised that the rise of AI in the classroom necessitates a higher level of pedagogical knowledge for teachers to manage these "GPT tutors" effectively. Because education and vocational training are classified as "high-risk systems" under the EU AI Act, educators must ensure a legal framework for the implementation of similar AI systems. Ultimately, the goal is to use AI as a powerful tool to deepen understanding while remaining compliant with ethical and legal standards.

Observations: [Trainer reflections, engagement, challenges, achievements]

- Participants demonstrated strong engagement in linking sustainability education with AI agents that facilitate systems thinking and translate knowledge into real-world actions.
- The practical tasks on My pet example increased interest of participant in communication with AI agent on their mother language.
- There was a high level of awareness regarding ethical concerns, particularly the necessity of aligning with the EU AI Act, which classifies education as a "high risk system" and requirements of strictly defined pedagogical quality metrics and instructions.

Participant Feedback: [Comments, reactions, level of interaction]

- Participant feedback was highly valued, as participants engaged in critical discussions regarding data limitations (risks of AI "guessing" without clear context), ethical responsibility under the EU AI Act for high-risk educational systems, and the importance of critical thinking to question assumptions and evaluate solutions.

Follow-up Recommendations: [Suggestions for adaptation, improvements]

- Provide comprehensive, step-by-step practical guides and curated reference materials, based on the Five-Step Prompt Framework, to assist instructors of all experience levels in effectively configuring AI agents such as "My PET".

2.3 How to Teach — Pedagogy & Didactics for Course: Digital Literacy & Transformation for Sustainability

Trainer(s):

- dr Joanna Wójcik, University of Information Technology and Management, Poland
- dr Joanna Świętoniowska, University of Information Technology and Management, Poland
- Łukasz Stokłosa, University of Information Technology and Management, Poland

Objectives:

The session aimed to strengthen participants' pedagogical and didactic competencies for delivering the course *Digital Literacy & Transformation for Sustainability*, with a particular focus on learner-centered design and contextual adaptation. The specific objectives were to:

- Familiarize participants with the pedagogical logic, modular structure, and learning outcomes of the course.
- Support trainers in critically reviewing and adapting course modules to their own institutional, cultural, and student contexts while preserving core learning objectives.
- Encourage active, participatory teaching approaches suitable for complex topics related to digital transformation and sustainability.
- Facilitate discussion on potential implementation challenges, including student workload, cognitive complexity, and generational differences in learning preferences.
- Explore the role of AI tools in enriching course content, supporting personalization, and generating additional learning resources.

Description of Activities:

- The session was delivered in a workshop-based format and consisted of two clearly defined phases: a structured presentation introducing the pedagogical design of the course, followed by a guided group task focused on practical adaptation.
- During the presentation phase, the trainers introduced the pedagogical and didactic foundations of the course *Digital Literacy & Transformation for Sustainability*. The presentation explained the rationale behind the course design, emphasizing competency-based education, active and experiential learning, and the shift from content delivery to facilitated learning experiences. The trainers presented the overall course structure and learning pathway, explaining how the sequence of modules supports the gradual development of digital literacy, systems thinking, and transformation-oriented competencies.
- The presentation outlined the standard module architecture, including clearly defined learning objectives, short conceptual inputs, practical tasks and discussions, microlearning elements, and reflection and assessment components. Particular attention was given to the

distinction between fixed elements (learning outcomes, core competencies, and module logic) and flexible elements (case studies, examples, tools, platforms, facilitation style, and pacing), highlighting where trainers have autonomy to adapt the course to their own contexts without compromising its integrity.

- In the second phase of the session, participants worked in small groups on a practical adaptation task using the Trainer Implementation Worksheet. Each group selected one module and analyzed it in terms of applicability to their own teaching environment. As a result of this task, Module 5 – Sustainable Business Models was most frequently selected by participants for detailed analysis and adaptation.
- During group work and subsequent discussion, participants emphasized that the module requires contextualization to local institutional and economic conditions and agreed that sustainable business models should be presented as dynamic and adaptable rather than fixed solutions. Participants also identified potential implementation challenges, including task complexity, workload, and the risk that some activities may be demanding for Generation Z students if insufficiently scaffolded.
- As part of the task reflection, participants discussed opportunities to support learning through AI-assisted tools, particularly for generating additional explanations, examples, and microlearning content tailored to different student needs. These points emerged organically from the group discussions as responses to the adaptation task rather than as predefined elements of the presentation.

Observations:

- From the trainers' perspective, the session was characterized by a very high level of engagement and active participation. All participants were involved in discussions, group tasks, and peer exchange, demonstrating strong interest in both the pedagogical approach and practical implementation aspects.
- A key observation concerned potential implementation risks, particularly when teaching Generation Z students. Participants noted that some tasks may be perceived as too complex or time-consuming if not carefully scaffolded. This led to constructive discussion on simplifying task structure, breaking activities into smaller steps, and providing clearer guidance without reducing cognitive challenge.
- An important achievement of the session was the strong alignment among participants on the need for flexibility and contextualization, while respecting the course's core pedagogical structure.

Participant Feedback:

- Trainers from partner institutions expressed strong appreciation for the pedagogical approach, particularly its emphasis on active learning, adaptability, and real-world relevance. Several participants highlighted the value of being treated as co-designers rather than passive recipients of course materials.
- The focus on sustainable and digital business models was seen as especially relevant and inspiring. Participants valued the open discussion on adapting content to their own institutional realities and student needs.

Follow-up Recommendations:



Based on the outcomes of the session, the following recommendations were identified:

- Provide additional examples of adapted tasks and case studies for Module 5 to illustrate different levels of complexity and contextualization.
- Develop optional, simplified task variants and clear scaffolding guidelines, particularly for undergraduate and Generation Z student groups.
- Support trainers with practical guidelines for the pedagogically sound use of AI tools in content generation and student support.
- Encourage continued peer exchange among trainers to share experiences from course piloting and implementation.

2.4 How to Teach – Pedagogy & Didactics for Course: Cyber Security and Data Ethics in Green Innovation

Trainer: assoc. prof. Rasa Brūzgienė, Kaunas University of Technology, Lithuania

Objectives:

- Introduce participants to the critical role of cybersecurity and data ethics as foundational enablers of green and digital transitions.
- Familiarize participants with the structure, learning objectives, and professional competencies of the Cyber Security and Data Ethics in Green Innovation course, highlighting its relevance for employability and long-term organizational resilience.
- Strengthen participants' understanding of how cybersecurity failures can directly undermine sustainability goals in areas such as smart grids, smart cities, renewable energy systems, and environmental monitoring.
- Present pedagogical strategies for integrating technical cybersecurity knowledge with systems thinking, ethical reasoning, and governance considerations.
- Encourage reflection on contextual adaptation, including legal frameworks, infrastructure maturity, and institutional constraints affecting course delivery.

Description of Activities:

- *Course Overview and Strategic Context.* The session opened with an overview of why cybersecurity and data ethics are indispensable for sustainable innovation. Trainer contextualized the course within the Twin Transition framework, emphasizing that secure, trustworthy digital systems are prerequisites for achieving environmental and social objectives. Examples from smart energy systems, IoT-enabled environmental monitoring, and AI-driven optimization illustrated how cyber incidents can disrupt sustainability outcomes and erode stakeholder trust.
- *Pedagogical & Didactical Approach.* Trainer presented the course's competency-based and project-oriented pedagogical model. Emphasis was placed on learning through real-world cases, experiential analysis, and ethical reflection rather than abstract theory alone. Teaching methods included case- and project-based learning, hands-on analysis of cyber-risk scenarios, and structured ethical discussions addressing privacy, fairness, transparency, and greenwashing risks. The importance of integrating cybersecurity "by design" rather than as an afterthought was highlighted as a core didactic principle.
- *Module-Level Teaching Strategies and Case Examples.* Participants were guided through the modular structure of the course, illustrating how foundational concepts (cybersecurity

principles, threat landscapes, regulatory frameworks) progressively lead to advanced topics such as secure IoT architectures, ethical AI, blockchain security, and cyber resilience. Trainer demonstrated how case examples—such as ransomware attacks on smart grids or data misuse in smart mobility platforms—can be used to connect technical vulnerabilities with sustainability, social, and ethical consequences.

- *Ethics, Governance, and Contextual Adaptation.* A dedicated part of the session addressed responsible and ethical digitalization. Trainer discussed how to teach complex regulatory environments (GDPR, NIS2, Cyber Resilience Act, AI Act) in a way that remains accessible and relevant for learners from diverse technical backgrounds. Participants explored strategies for adapting course content to different national legal frameworks, levels of digital infrastructure maturity, and institutional capacities.
- *Final Reflection & Group Discussion.* The session concluded with a reflective discussion focusing on teaching challenges and opportunities. Participants exchanged views on managing diverse learner backgrounds, addressing ethical ambiguity in cybersecurity scenarios, and maintaining course relevance in a rapidly evolving technological and regulatory landscape.

Observations:

- Participants demonstrated strong engagement with the interdisciplinary nature of the course, particularly the integration of cybersecurity, sustainability, and ethics.
- Trainer observed high interest in real-world case studies, which effectively grounded abstract governance and ethical concepts in concrete operational scenarios.
- The emphasis on systems thinking helped participants recognize cybersecurity as a socio-technical issue rather than a purely technical discipline.

Participant Feedback:

- Participants valued the clear modular structure and the explicit linkage between cybersecurity risks and sustainability outcomes.
- Many noted increased confidence in teaching cybersecurity topics within sustainability-oriented programmes, even when their primary background was not in information security.
- The discussion on ethical dilemmas and regulatory requirements was highlighted as particularly relevant for preparing students for real-world decision-making roles.

Follow-up Recommendations:

- Provide simplified risk assessment and governance frameworks suitable for learners with limited cybersecurity background.
- Encourage interdisciplinary co-teaching approaches, combining technical, policy, and sustainability expertise.
- Regularly update case materials to reflect emerging threats, regulatory changes, and evolving green digital infrastructures.

2.5 How to Teach – Table-top Game “NOrisk”

Trainers:

- **prof. Šarūnas Grigaliūnas, Kaunas University of Technology, Lithuania**
- **assoc. prof. Rasa Brūzgienė, Kaunas University of Technology, Lithuania**

Objectives:



- Introduce participants to experiential, game-based learning methods for teaching cybersecurity risk management in sustainability-oriented digital systems.
- Strengthen participants' ability to identify, assess, and manage information security risks using realistic, human-centric cybercrime scenarios.
- Familiarize participants with the application of ISO/IEC 27002:2023 controls and structured risk assessment methodologies in an educational context.
- Develop critical thinking and decision-making skills related to cyber risk evaluation, control selection, and risk treatment strategies.
- Demonstrate how AI-supported learning tools can enhance understanding of complex cybersecurity concepts.

Description of Activities:

- *Introduction to the Game and Learning Context.* The session began with an introduction to the educational objectives and pedagogical rationale of the table-top game "NOrisk." Trainers explained how the game supports competency-based learning by simulating real-world cybersecurity incidents affecting digital infrastructures that underpin sustainability services. The role of human-centric attack vectors and organizational decision-making was emphasized.
- *Scenario Briefing and Role Assignment.* Participants were introduced to the fictional organization "Technical Centre X," including its core responsibilities, critical services, asset landscape, and organizational structure. Each group received detailed scenario documentation, asset descriptions, implemented security controls, and game rules. Roles and responsibilities were clarified to mirror professional cybersecurity and risk management contexts.
- *Risk Identification and Analysis.* Working in small groups, participants analyzed assigned cyber incident scenarios, such as unauthorized access leading to service disruption, *etc.* They identified affected assets, evaluated compromised security properties (confidentiality, integrity, availability), and examined relevant threats and vulnerabilities. Participants assessed existing preventive, detective, and corrective controls using ISO/IEC 27002-aligned principles.
- *Risk Evaluation and Strategy Selection.* Participants applied a structured risk assessment methodology, estimating impact and likelihood scores and calculating overall risk levels. Based on their analysis, groups selected and justified appropriate risk management strategies (mitigation, transfer, acceptance, or avoidance). The AI agent "NOrisk" was used as a learning support tool to guide analysis, clarify concepts, and validate reasoning.
- *Presentation, Discussion, and Debrief.* Each group presented a concise overview of their scenario analysis, risk evaluation results, and chosen management strategy. The session concluded with a facilitated discussion focusing on lessons learned, effectiveness of proposed control measures, and opportunities to improve organizational risk management approaches in sustainability-oriented digital environments.

Observations:

- Participants were highly engaged and actively collaborated in analyzing complex scenarios, demonstrating strong critical thinking and problem-solving skills.
- The table-top format effectively bridged theoretical cybersecurity concepts and practical decision-making under realistic constraints.
- The use of the AI-supported "NOrisk" agent enhanced participant confidence and supported deeper understanding of risk assessment logic.

Participant Feedback:

- Participants valued the realism of the scenarios and the clear structure of the risk assessment process.
- Many highlighted the game’s effectiveness in making abstract security controls and standards more tangible and applicable.
- The interactive and collaborative nature of the session was seen as particularly suitable for teaching cybersecurity and data ethics topics to diverse learner groups.

Follow-up Recommendations:

- Integrate the “NOrisk” table-top game as a recurring practical component within cybersecurity and sustainability-related courses.
- Develop additional scenarios reflecting different green innovation contexts (smart cities, renewable energy systems, circular economy platforms).
- Encourage reflective discussions linking cyber incidents to broader sustainability, ethical, and societal impacts.

2.6 How to Teach – Pedagogy & Didactics for Course: Environmental Science & Technology

Trainer(s): [Name(s)]

Objectives: [Key learning outcomes]

Description of Activities: [What was done – group work, tools, discussions]

Observations: [Trainer reflections, engagement, challenges, achievements]

Participant Feedback: [Comments, reactions, level of interaction]

Follow-up Recommendations: [Suggestions for adaptation, improvements]

2.7 How to Teach – Pedagogy & Didactics for Course: Sustainable Energy Systems

Trainer(s): Bane Popadic

Objectives:

- Introduce participants to the systemic nature of sustainable energy systems and their role in addressing environmental, social, and economic sustainability challenges.
- Familiarize participants with the structure, learning objectives and competency outcomes of the Sustainable Energy Systems course, with emphasis on energy transition, decarbonization pathways and systems integration.
- Strengthen understanding of how renewable energy technologies, energy efficiency measures, smart grids, and distributed energy resources (DER) contribute to low-carbon and resilient energy systems.
- Provide participants with analytical tools and conceptual frameworks to evaluate energy technologies not only technically, but also from sustainability, economic, and policy perspectives.
- Encourage reflection on pedagogical approaches, ethical dimensions, and institutional challenges when teaching complex energy transition topics.

Description of Activities:

The session opened with a strategic framing of the global energy transition, emphasizing that energy system transformation represents one of the most significant technological and societal shifts of the present time. Participants were introduced to the broader importance of energy in economic development, environmental sustainability, and social well-being. The trainer positioned sustainable energy systems as a central pillar of the twin green and digital transition and highlighted the growing relevance of energy-related competencies for future professionals. A dedicated section of the presentation explained what the course is fundamentally about. The trainer emphasized that sustainable energy systems cannot be understood through purely technical knowledge. Instead, energy systems were presented as living socio-technical systems, shaped by technology, markets, regulations, and human behavior. The slides highlighted that “clean” solutions are not always simple, and that technically sound designs may fail if economic and policy dimensions are ignored. This framing introduced participants to the interdisciplinary philosophy of the course.

The course structure overview formed a central part of the session. Participants were guided through the modular organization of the curriculum, ranging from foundational energy system concepts and renewable energy basics, through power system integration, sustainability dimensions, digital tools, and policy frameworks. The trainer explained how this progression allows students to build understanding from technical foundations toward system integration, sustainability assessment, and real-world governance contexts. A key segment focused on why this course is necessary today, highlighting energy as a rapidly transforming job market and a career domain that intersects technology, economics, and sustainability. Slides described the hybrid skillset required of modern energy professionals, including technical system understanding, economic reasoning, life-cycle sustainability thinking, digital tool usage, and policy literacy. The trainer then presented the pedagogical philosophy of the course. The presentation emphasized that there is no single correct answer in energy system design. Teaching methods rely on hands-on activities, real-world scenarios, stakeholder simulations, debates, and software-supported exploration. Students are expected not only to calculate but to make decisions, justify trade-offs, and defend their solutions. This section encouraged participants to rethink traditional lecture-based approaches and move toward experiential, decision-oriented learning. A major highlight of the presentation was the capstone learning concept. The trainer described the “Designing the Energy Mix” simulation, where learners assume stakeholder roles and must balance conflicting goals such as sustainability, affordability, security, and technical feasibility. Participants learned how policy targets, economic constraints, and grid limitations interact, often producing different outcomes depending on priorities. This activity was presented as a way to expose students to real-world complexity and trade-offs. Another important section addressed contextual adaptation of the course. The trainer discussed how instructors should tailor examples to local energy systems, adjust software depth depending on infrastructure, and adapt language and discussion formats to student backgrounds. Emphasis was placed on developing critical thinking rather than memorization of solutions. Participants reflected on how educational context influences learning effectiveness.

The training concluded with a practical interactive activity titled “Build Your Energy System.” Participants engaged in a short simulation where they constructed an energy system using resource cards while attempting to maximize sustainability under uncertain evaluation criteria. This exercise demonstrated that sustainability outcomes depend on system interactions and trade-offs rather than single-technology choices. The activity reinforced the course’s systems-thinking philosophy and decision-oriented pedagogy.

Observations:

- Participants demonstrated strong interest especially considering the wider range of topics covered by the course.
- The trainer observed especially high interest in real-world system design scenarios and stakeholder-based simulations.
- Participants recognized that the emphasis was on interdisciplinary solutions with high interdependencies, uncertainty, and competing objectives.

Participant Feedback:

- Participants had generally positive reaction to practical activity
- Participants generally reacted positively to presented course structure
- Participants recognized the breadth of subject topics within course contents

Follow-up Recommendations:

- Organize follow-up activities focusing on adopting realistic teaching examples from a regional and national perspective.
- Encourage continued peer exchange among trainers to share experiences from course piloting and implementation.
- Develop shared teaching resources and adaptable learning materials (case studies, datasets, and practical exercises) that support consistent delivery of sustainable energy systems content while allowing contextual customization

2.8 How to Teach – Pedagogy & Didactics for Course: Smart Cities and Urban Green Innovation

Trainers:

- **Prof. Nadežda Kuņicina, Riga Technical University, Latvia**
- **Dr. ing. Sc. Anatolijs Zabašta, Riga Technical University, Latvia**

Objectives

- To strengthen the pedagogical and didactic capacities of academic staff and trainers involved in delivering the course Smart Cities and Urban Green Innovation.
- To ensure that trainers are equipped not only with subject-matter expertise but also with effective teaching methodologies suitable for interdisciplinary, technology-driven, and sustainability-oriented education.
- To enhance trainers' understanding of learner-centered pedagogy and active learning principles.
- To align teaching methods with the learning objectives and modular structure of the Smart Cities and Urban Green Innovation course.
- To support trainers in integrating digital tools, case-based learning, and practical exercises into their teaching practice.
- To encourage reflective teaching and peer exchange among trainers from different institutional and disciplinary backgrounds.

Description of Activities

- **Introductory Discussion & Course Contextualization.** The session was delivered in an interactive format combining short theoretical inputs with hands-on pedagogical exercises. It began with an overview of contemporary higher education teaching approaches relevant to smart city and urban innovation topics, including problem-based learning, experiential learning, and blended learning models.
- **Thematic Overview of the Smart Cities and Urban Green Innovation technologies and tools.** The presentation showcased a well-balanced selection of Smart City and Urban Green technologies, effectively linking theoretical concepts with practical applications. A strong emphasis was placed on IoT-enabled urban systems, including smart infrastructure management, real-time sensing networks, and system-of-systems integration, which illustrated how data-driven decision-making can improve efficiency, resilience, and service quality in cities. The demonstrated use of digital twins, GIS platforms, and predictive analytics highlighted advanced tools for urban planning, mobility optimization, and resource management.
- Particularly noteworthy were the urban green technology examples, such as Positive Energy Districts and the LITES intelligent street lighting system, which clearly demonstrated measurable energy savings, reduced environmental impact, and scalability in real urban contexts. The inclusion of grid and motion emulators provided valuable insight into experimental validation and testing of smart energy and mobility solutions. Overall, the examples successfully illustrated the transition from conceptual sustainability goals to deployable, technology-supported urban solutions, reinforcing the practical relevance of smart city innovation for education and real-world implementation
- **Alignment between learning objectives, teaching activities, and assessment methods.** Participants engaged in structured discussions on how complex topics—such as sustainable urban development, smart infrastructure, legal frameworks, and citizen participation—can be translated into accessible learning units for diverse student groups. Sample modules from the course were used as reference points to demonstrate constructive alignment between learning objectives, teaching activities, and assessment methods.
- **Reflection & Group Discussion:** Emphasis was placed on the use of real-world case studies, data-driven examples, and digital platforms (e.g., learning management systems, interactive mapping tools) to support student engagement. Reflection sessions allowed participants to identify challenges in their current teaching practice and explore solutions collaboratively.

Observations (Trainer Reflections)

- From a trainer perspective, the session demonstrated a high level of engagement and openness to pedagogical innovation. Trainers showed strong motivation to move beyond traditional lecture-based delivery and expressed interest in more interactive and practice-oriented approaches.
- A key observation was the diversity of pedagogical experience among participants. While some trainers were already familiar with active learning techniques, others were at an earlier stage of pedagogical development. This diversity enriched discussions but also highlighted the need for differentiated support and continuous professional development.
- The integration of digital and technical content with pedagogical considerations was identified as both a strength and a challenge. Trainers acknowledged the importance of balancing technical depth with clarity and accessibility, particularly for interdisciplinary student cohorts.

Participant Feedback

- Participant feedback was generally positive. Trainers appreciated the practical orientation of the session and the opportunity to exchange experiences with peers. The micro-teaching and peer feedback exercises were highlighted as particularly valuable, as they provided concrete insights into how teaching approaches could be improved.
- Participants also noted that the session helped clarify expectations regarding learning outcomes and assessment within the Smart Cities and Urban Green Innovation course.
- Some feedback indicated a desire for additional time dedicated to assessment design and evaluation of student learning in project-based settings.

Follow-up Recommendations

Based on the session outcomes, it is recommended to:

- Organize follow-up Train-the-Trainers workshops focusing on assessment methods and evaluation of interdisciplinary learning outcomes.
- Encourage peer observation and mentoring among trainers to support continuous pedagogical improvement.
- Provide ongoing support for the use of digital teaching tools and platforms to ensure consistent and effective implementation across institutions.

These actions will help consolidate the pedagogical capacity built during the session and support high-quality, innovative delivery of the course in future iterations.

3. Overall Feedback and Observations

Overall Feedback and Observations

Key challenges identified across the sessions

Opportunities

Recommendations for future activities and piloting

Dissemination and Visibility

The event was promoted through communication channels, including: Social media platforms (Facebook, LinkedIn).

Facebook: KTU

<https://www.facebook.com/ktuif/posts/pfbid0oYqfu6m4RxzHmiAMJQb2V664a676G2QoKQj1HqqDohgU7LD5u5kKCdCabRVb1sclI?rdid=FIDMpJIR1nI0D9Cp#>

LinkedIn: KTU https://www.linkedin.com/posts/ktu-faculty-of-informatics_sausio-19-d-startavo-antroji-train-the-trainers-activity-7419314289808904192-



yADm?utm_source=share&utm_medium=member_desktop&rcm=ACoAABZRn70Bh57clabuiWOpu25oCIWvknhORLs

Related Documents	Location
Agenda (PDF)	https://docs.google.com/document/d/1Nc-gK8xLh5VFeCB7l-XTdKHXd_Ok06LdKRU5HHjXb2k/edit?usp=drive_link
Attendance list (PDF)	https://drive.google.com/file/d/125VvR7rEr2j8S4-80ySn-mHF-jDDQQJw/view?usp=drive_link
Presentations (PPT)	https://drive.google.com/drive/folders/1hrkcjo7BT3GWIsX2Sstidf-6CP07UBfL?usp=drive_link
Photos (JPG)	https://drive.google.com/drive/folders/1PJ2LLhF4YPASlzhRZt-llpbidnwK4X_x?usp=drive_link