

CASE STUDY



Engagement of Students and Academic Staff in Climate Action Activities at Vilnius College of Technologies and Design (Lithuania)

Lithuania 2024
Vilnius College of Technologies and Design (VTDK)

ilca-project.eu

TABLE OF CONTENTS

1. INTRODUCTION.....	2
2. CONTEXT AND CHALLENGES	2
3. DESIGNING ENGAGING PROGRAMS.....	2
4. PROMOTING AWARENESS AND PARTICIPATION	2
5. COLLABORATIVE PROJECTS AND INITIATIVES.....	2
6. INTEGRATION INTO CURRICULUM	2
7. CAPACITY BUILDING AND SKILL DEVELOPMENT.....	2
8. IMPACT AND SUCCESS STORIES.....	2
9. LESSONS LEARNED	2
10. CONCLUSION.....	2



1. INTRODUCTION

Higher education institutions play an important role in raising the awareness of the society by development of research and innovation and knowledge transfer. Therefore, students and academic and non-academic staff engagement are essential components in the fight against climate change. Having an aim to foster sustainable solutions Vilnius College of Technologies and Design (College) implement the EIT Climate-KIC project “Innovation Laboratories for Climate Actions – ILCA” which aims to strengthen human capital in climate innovation and entrepreneurship for systemic problem solving.

Education about climate change is important for many reasons. Firstly, it is essential that students and staff understand the science of climate change. They need to know what causes climate change, what its impacts are and what we can do to adapt to the changes that are taking place. Second, climate change education can help students and staff develop the skills they need to become climate competent. This includes critical thinking skills, problem-solving skills and the ability to make informed decisions about climate change. Thirdly, climate change education can help students develop and staff broaden a sense of community involvement. Through research and innovation, the development of specialised competences, the promotion of green policies and engagement in sustainable practices, students and staff can become more aware of the challenges facing our planet and take action to change them.

This case study found that although climate change is a very relevant issue for the College and for all higher education institutions, its coverage in the curricula is not as broad as one might expect. It also identifies challenges to mainstreaming climate change into college programmes. Finally, it describes some of the measures that can be taken to maximise the contribution of higher education to addressing the challenges of a changing climate.

2. CONTEXT AND CHALLENGES



The European Green Deal policy, converging technologies, the ageing of the society and the need for qualification development, the unfavourable demographic situation, the increasing competition for students with domestic and foreign higher education institutions, and the increased demands on the quality of studies - these are the main trends and challenges that the College is facing today. In response to these changes and trends, the College intends to implement various initiatives focused on green and digital transformation, on improving the quality of the services provided and on creating an organisational culture that strengthens the proactivity of the members of the College community.

Vilnius College of Technology and Design has set out in its vision to be an engineering higher education institution providing education in the fields of construction, transport, engineering industry and design, which is in line with the Green Europe agenda and the challenges of the digital transformation, and which makes a significant contribution to the economic prosperity and technological development of Lithuania. One of the strategic development directions in the College's strategy for 2022-2027 is studies focused on green and digital transformation. The College aims to develop student-centred engineering and design studies that respond to the demands of the Green Deal and Industry 4.0.

To achieve this objective, the following measures are planned:

- Updating the content of study programmes in line with the Green Deal and Industry 4.0 needs;
- Update the package of study programmes offered;
- Introduce teaching(s) models optimised for blended and distance learning;
- Develop the digital, didactic and professional competences of staff;
- Develop the internationalisation of studies.

As part of this strategic objective, contents of the ongoing study programmes are being reviewed and updated considering the elements of the European Industrial Strategy, the Sustainable and Smart Mobility Strategy, the Strategy for the Integration of the Energy System, the Waste Management Strategy, the Climate Change Adaptation Strategy, the Circular Economy Action Plan. Nevertheless, there have been challenges in engaging students and academic staff in climate change initiatives.

Climate change education at the College is delivered through formal, non-formal and informal learning and teaching methods, including nature-immersive field projects, international case studies and research, publications, among others. College is developing curricula and pedagogical approaches to educate students (and by extension society) about the imperatives of carbon neutrality and climate change mitigation and adaptation. The College recognises its responsibility to develop climate change modules in the curriculum, but efforts are hampered by organisational inertia, the complexity of the activities and the lack of systematicity. There are individual members

of the college community taking action on climate change and sustainability (e.g. individual studies, publications, changes in programmes), but there have been no systematic interventions, no clear process management, and no mass involvement of the community on a regular basis and in a way that can be understood by all, and so there has not been the possibility of achieving major systemic change.

College with ILCA project can instil environmental awareness, knowledge, and values in academy and non-academy staff, and students, empowering them to become environmentally conscious individuals who contribute to a more sustainable future.

3. DESIGNING ENGAGING PROGRAMS



In order to achieve the objectives of the ILCA project and to incorporate environmental education into college curriculum following actions have been taken:

1. In order to prepare the academic and non-academic staff of the College for the forthcoming discussions on climate change, a seminar on "How to talk about climate change?" was first organised by a College psychologist. In 2022, a Lecturers' Café format was chosen for this and other project trainings. The training was conducted on the MS Teams platform. Furthermore, to improve the competences of academic and non-academic staff for sustainable development and climate innovation and to enhance innovation and design thinking during the 2022 autumn 5 training programs and initiatives (3 for students and 2 for academic and non-academic staff) were organised throughout.

For example, academic and non-academic staff participated in open distance (MS Teams) lectures in the format of the Lecturers' Café in the autumn semester 2022 on the following topics: Ieva Šūmakarytė, consultant at StarUp Lithuania lecture on "Lithuanian Startup Ecosystem"; Erika Kuročkina, Deputy Minister of the Ministry of Economy and Innovation of the Republic of Lithuania, lecture on "National Innovation and Digitisation Policies"; Grėtė Lelė, Adviser to the Minister of Economy and Innovation of the Republic of Lithuania, presentation "How we will build a green economy".

2. In autumn 2022, an Innovation Week was organised, during which the College and three other companies that are not social partners gave students four tasks to solve. This format was chosen because it allows to bring together students from different faculties and study programmes, encouraging diverse perspectives and collaboration. Innovation Week brings together students, mentors, lecturers and business representatives. All the challenges focused on finding a climate-friendly solution - the profile of each company determined the scope of the task/challenge:

- The college challenge was related to measuring sustainability monitoring in the college. The Director explained that as an institution we are already doing a lot of work but we don't have a unified system and a way to monitor and document everything.
- The Smoke Factory Ltd is a private space for various events and the challenge they presented was about finding a sustainable solution for the recycling of disposable waste left over after events, such as plastic and paper containers, utensils, decorations, etc.
- The Lithuanian Red Cross was looking for a sustainable solution to organise the increased flow of volunteers during crises, a problem the organisation faced after the COVID-19 pandemic and the migrant crisis at the Lithuania-Belarus border.

- The company, which did not want to give its name, presented the students with a challenge to find a solution for the recovery or recycling of CR2032 batteries (10,000 units/year) in the EU, as there is currently no technology available to do so.

The challenges were presented by company managers and representatives themselves, giving students the opportunity to find out the broader context and scale of the problem, and to ask questions directly to the challenge-makers.

During the Innovation Week, students worked in teams of 4-5 people for three days (on the 4th day there was a presentation to the jury, judging, and an award for the best ones), and each day there was an invited guest speaker with a public lecture:

- Erika Kuročkina, Deputy Minister of the Ministry of Economy and Innovation of the Republic of Lithuania, presentation "National innovation and digitalisation policy directions".

- Igoris Vasiliauskas, Public Speaking Mentor, presentation "How to present your ideas well so that others believe?"

- Presentation by Jonas Malinauskas, lecturer at the College of Design, on "How do students see climate change?"

Throughout the Innovation Week, students were advised by lecturers/mentors on entrepreneurship, economics, finance, climate change, environmental impact and other issues.

3. In order to structure the training for both students and staff, a training plan for the ILCA project for the academic years 2023-2024 was developed to improve the quality of competences required for sustainable development and to promote climate innovation and scientific research. It set out the main directions and actions that will be implemented to achieve the objectives.

4. Following the above activities climate issues were consistently integrated into the content of students curricula, projects, coursework and theses. For example, at the Faculty of Civil Engineering, the content of the subject "Building Maintenance" includes topics such as sustainable construction principles, certification systems for the sustainability of buildings and life cycle analysis.

Innovation as a problem-solving approach and design thinking are also promoted among students through the organisation of Innovation Weeks and hands-on training. From the beginning of the 2023 semester, micro credential material in English language is available to promote creativity and visual communication and a 1-day practical training during the innovation week was organised.

5. It was decided to partially integrate the 2023 Spring Innovation Week into the study process. Two courses - Circular Economy and Responsible Innovation - were chosen, where students would work on different topics related to sustainable innovation and its applications, according to their study programmes (Transport Logistics, Building Engineering Systems and Civil Engineering).

All students are in their final year of their degree programmes to demonstrate a deeper understanding of the topics they have chosen to explore. Particular attention was paid to the recycling of raw materials. Students explored innovative solutions to issues relevant to their sectors, such as uncollected rainwater in the streets after heavy rains, unrecyclable car tyres, excess plastic waste, improving the efficiency of routes to reduce environmental impacts, etc. The students had 6 weeks to prepare their presentations by working in groups. Throughout the process, they had the opportunity to consult with their lecturers, so that during the Innovation Week their presentations were more in-depth, with more time for analysis, and with a clearer communication of the issues and possible solutions. The winning project was one that looked at capturing excess water in the city through wet pits. 14 student teams took part in this Innovation Week - 5 per team. The

presentation of the students' work was a public event where questions could be asked and discussions could take place with the students who proposed innovative solutions.

6. In 2023, teams of permanent mentors were formed.

The teams are based on the themes of Climate Change - 4 mentors, Design

Thinking - 9 mentors and Pitching - 7 mentors. In total there are 16 mentors, several of whom are mentoring on multiple themes. The competences of mentors were reinforced through training:

- "SustainAcademy" Sustainability Training (40 academic hours training, 1 person);
- Design Thinking (8 academic hours training, 9 people);
- Pitching (academic hours training, 2 people).

Mentoring of students at the College is carried out in the following ways:

- during lectures and tutoring sessions;
- during Innovation Week;
- the best teams are offered the opportunity to develop their idea after the Innovation Week and are offered additional mentoring.

Mentors provide one-to-one, peer or instant mentoring to academic and non-academic staff. The following mentoring sessions are organised and implemented:

- on the inclusion of climate topics in final theses and coursework;
- the inclusion of climate topics in the content of courses;
- on the development of projects.



4. PROMOTING AWARENESS AND PARTICIPATION

College plays a crucial role in promoting environmental awareness and encouraging participation among students, academic and non-academic staff. The following are the main measures that have contributed to the achievement of this important goal:

1. We have tried to change the community's sluggish attitude towards climate change, while at the same time trying to get them more involved in activities, by using the following measures:
 - During the meetings with the college community, faculties, and departments, information was disseminated about the importance and benefits of participating in training programs for academic and non-academic staff and explaining to them how the acquired knowledge, competences and the obtained results can be used in their further activities and careers;
 - Individual interviews and consultations with teachers and students were conducted;
 - Dissemination of information about Innovation Weeks, trainings, achieved results and other activities was carried out through the social network Facebook; information is constantly published on the college's website and the college community and students were also informed by e-mail.

Studentai netaršų aplinkai, autonominį ir mobilių biurą siūlytų įrengti troleibuse [f](#) 2



2023.12.07 13:27



Vilniaus troleibusas / Pranešimo žiniasklaidai autorių nuotr.

For example, information about the Innovation Week and the results achieved was widely disseminated both on the College's website and on the social networking site Facebook. Students and lecturers were actively invited to join the International Innovation Week and HAKATON organized by the College together with ILCA partners from Finland, Bulgaria, Romania and Ukraine, where student teams, supported by mentors, worked on solving the challenges posed by start-ups and developing innovative, climate-neutral solutions.

- Interviews with authoritative teachers and college administration were published in the press showing the importance of the topic for the college's strategy, study programs or individual taught subjects. For example: the public broadcaster LRT has published an article on its news portal about the Innovation Week at the College.

2. Involvement of authoritative teachers in the role of mentors.

Mentoring of students at the College is carried out during lectures and tutoring sessions, Innovation Week's and additional mentoring sessions after them. Mentors provide one-to-one, peer or instant mentoring to academic and non-academic staff on the inclusion of climate topics in final theses and coursework, in the content of courses or on the development of projects.

3. The support of the administration for the programme has been very significant, it gives a sense of importance.

Meetings were organised with the deans of the faculties and heads of departments, during which the idea of the ILCa was presented, possible training topics and the need for such training was discussed; and the topic of climate change was brought up in the College's strategy.

It is very important to emphasize that when communicating both about training for academic and non-academic staff, encouraging staff to mentor, and publicizing Innovation Week events, in our communication messages we try to emphasize the importance of personal responsibility of staff and students and contribution to the well-being of the climate: *"You can innovate for a more sustainable future!", "Let's innovate for a more sustainable future together", "Let's solve systemic problems together"*.

5. COLLABORATIVE PROJECTS AND INITIATIVES



To engage students and academic staff and facilitate collaborative projects and initiatives we chose 3 main directions:

1. Innovation Week format.
2. Collaboration between College and Start-Ups;
3. Research community collaboration between College and LAMMC.

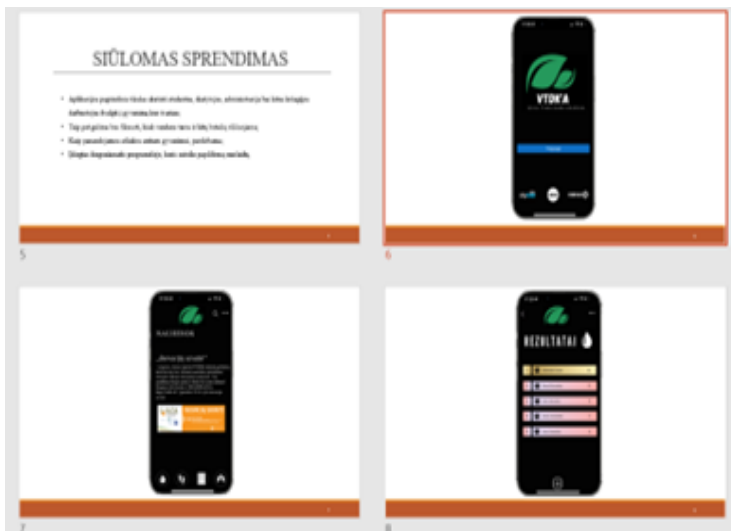
1. Innovation Week represents an alternative teaching format with a high focus on real-world climate-change problems and College academic, non-academic staff and students' engagement in teaching and is a contemporary way of not only increasing students' learning experience but also of developing the skills of creative problem solving and critical, customer centric thinking. Innovation Week develops not only individual skills such as social intelligence, personal features, professional expertise, transformation skills (optimism and the eagerness to experiment), but also team skills. People can only use their full potential if they are part of an innovation team that can develop innovations in a collaborative way. For solving complex design problems related to climate-change adaptation different perspectives, professions and personal features are needed - and each of these factors hampers collaboration in teams. Personalities, personal values, age, social or ethnic background, education, profession or existing knowledge about the problem are different and the team members have to find a way to work together. This week-long event is designed to spark students' creativity, ignite their passion, and propel them into the world of entrepreneurship, cutting-edge ideas and discovery of climate-neutral solutions to problems.

Two Innovation Weeks were organized in the college. The first (autumn 2022) followed the boot camp format. It was a 3-day-design that aims at offering an intense learning experience. The students experienced all the stages of a user-driven innovation process, mainly following the Stanford Design Thinking approach. During this Innovation Week, the College and three other companies that are not social partners gave students four tasks to solve. All the challenges focused on finding a climate-friendly solution - the profile of each company determined the scope of the task/challenge. Students worked in teams of 4-5 people for three days (on the 4th day there was a

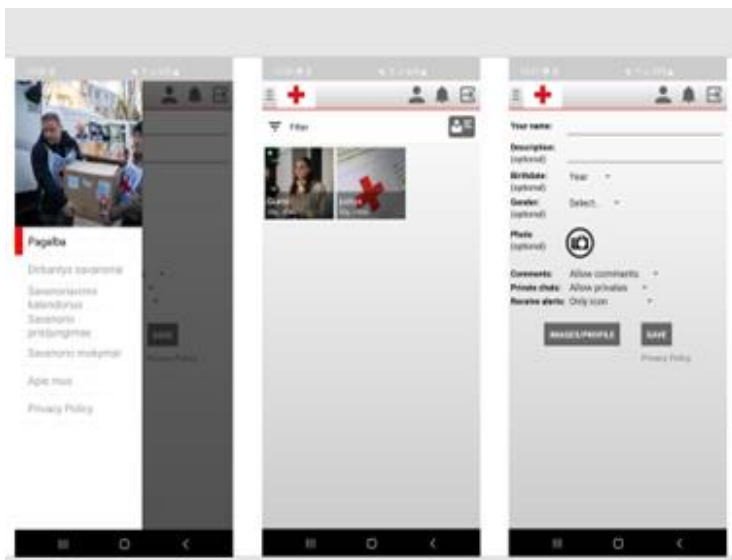
presentation to the jury, judging, and an award for the best ones), and each day there was an invited guest speaker with a public lecture.

Two teams are the winners of Innovation Week 2022:

Team 1 submitted an interactive proposal for the college - Apps to track and record sustainability steps of the college community, collecting points for it and thus encouraging everyone to actively participate.



Team 2 also proposed to create an interactive app that would allow Red Cross volunteers to organise their own activities, see the latest information, etc.



The 2023 Innovation Week was organised in a Hackathon format. It was a time-bound (48 hours) competitive event where students tackled a challenge set by an architectural design company to develop a concept for a mobile office, completely environmentally neutral and autonomous from centralised engineering networks, able to fully meet its needs. The challenge was addressed by 14 student teams: they considered which engineering systems, identity, interior solutions and materials to choose, and how to apply circular economy and sustainability trends. The winning team proposed to set up the office in old trolleybuses that are no longer in use and ready for disposal.



Comparing the 2 Innovation Week formats, the boot camp format (where all teams are working on the same problem) has one advantage - their proposals can be compared with each other and evaluated more easily. Also, the 2023 Innovation Week showed that more effective proposals were produced by teams made up of students from different study programmes. The concepts developed by these teams were more complex, of higher quality and more detailed.

Innovation Weeks in the College was an events aimed at strengthening the capacity of our students to develop innovative, climate-neutral solutions to problems in the business world. Students from different study programs, faculties and study years' work is developed in consultation with mentor teachers from different faculties to solve real word tasks submitted by start-ups. It is important to note that both academic and non-academic staff are involved in the programme, to have people from different backgrounds in the team and to involve people from all departments of the College.

2. When it comes to collaboration between the college and start-ups, we've observed a distinctive trend: smaller organizations tend to prioritize higher education solutions tailored to address their immediate, resource-related challenges over concerns such as climate change, which may seem distant and less pertinent to higher education institution consultancy. In this regard the College decided to adopt an approach, initially selecting start-ups already contributing to sustainable practices before addressing their immediate needs. Following a first 2-month consultancy period, after building trust with the start-up, the College strategically shifts the focus to in-depth discussions on climate-related issues (products or services).

As an illustration of the successful implementation of this strategy, our collaboration with the start-up MISKANTAS serves as a noteworthy example. In next phase of ILCA project, we facilitated another consultancy series wherein the start-up team collaborated with VTDK scientists to conceive a novel product idea—an artificial intelligence-based model focused on predicting emissions from internal combustion engines. This innovation not only ensures the seamless integration of biofuels and blends into the transport sector but also yields environmental and economic benefits while maintaining transport mobility and conserving natural resources. Moreover, the development of emission prediction tools using artificial intelligence represents a cutting-edge synthesis of advanced deep learning, data analysis, and domain expertise, fostering advancements in artificial intelligence and data science. The resulting R&D product would benefit authorities, car manufacturers, biofuel producers, the energy sector, environmental organizations, and researchers. Building on this concept, VTDK assisted the start-up in preparing a project proposal that, upon success, would secure the start-up with €86,000 for R&D activities.

The other successful cooperation approach, which could serve as a model, involves collaboration with JSC MADHOUZ, a start-up focusing on sustainable architecture. Seeking fresh perspectives, the startup posed a challenge: to conceive a concept for a mobile office that is entirely environmentally

neutral and independent from centralized engineering networks, capable of satisfying all its needs. Fourteen student teams took on the challenge, deliberating on the selection of engineering systems, interior solutions, materials, and how to integrate the trends of circular economy and sustainability. The hackathon was clinched by a team of seven future engineering professionals. The winning idea, to transform a trolleybus into a mobile office, materialized unexpectedly for the students while riding an old Vilnius trolleybus and running late for college due to the snow that had blanketed the city. The winning team's idea not only resonated with the start-up but also captured the interest of Vilnius media, resulting in several articles in the public domain. Moreover, in November 2023, this start-up underwent a deep interview led by Savonia's team in order to identify its potential to innovate.

3. In 2023, Lithuanian Innovation Laboratory on Climate Actions was formed in collaboration between the College and LAMMC. The following joint initiatives were implemented to ensure intensive cooperation:

- A seminar facilitated by Savonia UAS helped to identify the intersection of the scientific interests of researchers from both institutions and explore possible project initiatives;
- The joint seminar of VTDK and LAMMC researchers and scientists aimed to analyse and deepen the insights of Tauragė city community's climate actions;
- A practical workshop organized and implemented by the college for LAMMC PhD students to develop their presentation skills to effectively communicate research ideas to the business community.

It is worth mentioning that this collaborative model is rather unique in Lithuania, where academic research centers and professional bachelor applied education colleges seldom collaborate more intensively. Notably, the synergy between different fields of activity, agriculture, and forestry at LAMMC and engineering and design at VTDK, brings diverse expertise and addresses various needs within the value chain. For instance, VTDK's expertise in biofuel research complements LAMMC's focus on developing and implementing new technologies related to energy crops.



6. INTEGRATION INTO CURRICULUM

The integration of climate change action into the academic curriculum has been consistent:

- Integrating the topics into the content of the subjects taught;
- Incorporating climate change and/or innovation development and transfer themes into final theses;
- Organising workshops both with students from the College and with students from partner institutions abroad;
- Organising and implementing Erasmus+ Blended Intensive Programmes on climate change themes;
- Implementing students' projects during lectures and organising exhibitions and presentations of their work.

In addition, to ensure the testability of the activities, training is foreseen for Heads of Departments on possible topics in the field of sustainability, climate change and it is planned to integrate the Innovation Week into the study process and to maintain the mentoring.

Here are some examples how climate action has been integrated into the academic curriculum:

- At the Faculty of Civil Engineering, the content of the subject "Building Maintenance" has been expanded to include the topics "Sustainable Building Principles", "Sustainability Assessment Systems for Buildings" and "Building Life Cycle Analysis".
- The main contents and topic areas of the interdisciplinary course "Building Design Practice" and the annual international interdisciplinary workshop have been expanded with the following points: Construction using green building principles, characteristics and features; Sustainability and Local environmentally friendly ecological building materials and construction products.
- The Faculty of Design organised a student exhibition "The World of Modern Art in a Changing Climate". In the History of Modern Art lectures, the second-year students carried out a project that explored the issues of climate change, looking for ways to reveal them in the chosen stylistics of modern art movements. The creative solutions used photomanipulation, various image processing programs and the possibilities offered by artificial intelligence.
- 3 Blended Intensive Programmes (BIPs) were successfully organised, incorporating climate action into their content and themes. 2 BIPs organised and implemented at the Faculty of Design - a

workshop practice and an art workshop "Re-re-definition", which explored creative solutions for the synthesis of design, ergonomics, form and materiality in working with eco-friendly materials.

1 BIP programme "Green Business Idea" was carried out at the Faculty of Civil Engineering during which students learned how running a business can solve environmental problems, form environmentally friendly values and promote a sustainable lifestyle, with special emphasis on proper waste management in communities.

These examples are just some of the ways to integrate climate change and innovation themes into courses, workshops and joint projects between students and academic staff to raise awareness and disseminate information about the need to act on climate change.



7. CAPACITY BUILDING AND SKILL DEVELOPMENT

To provide students and academic staff with capacity building initiatives and skill development opportunities, the following steps have been taken in the College.

1. 19th of April 2023 Andrejus Račkovskis, Project Specialist at Vilnius College of Technology and Design, and Veronika Žvirblė, Lecturer at the Faculty of Design, visited Lithuanian Agrarian and Forestry Science Centre (LAMMC) in Girionys, Kaunas district, where they gave a training session on the international ILCA project on the topic of *"Delivering scientific research to potential business partners"* to the scientists and PhD students gathered.

During the meeting the participants had the opportunity not only to get acquainted with the principles of verbal and visual presentation of an idea to business partners, but also to put them into practice by preparing pilot presentations and receiving feedback from colleagues and lecturers. After the training, participants were invited to try out the ILCA project's distance micro-credit course "Creative Visual Communication for Pitching Ideas" and to give their opinion on the usefulness of the course as well as to make suggestions for its further development.

2. Training programme for students, academic and non-academic staff was designed, organised and implemented during 2023. The training programme consists of 3 blocks: Adapting to the impacts of climate change; Design thinking for new solutions; and Messages/communication that persuade. A total of 22 academic and 15 non-academic staff members and 115 students took part in them. In autumn 2023, a training on "Innovation Launchpad: the basics of climate change adaptation, developing solutions and presenting ideas" was organised, which covered the following topics: Adapting to the effects of climate change; Design thinking for new solutions; and Messages/communication that persuade. In spring 2023 students had a "Pitch Perfect – Impactful Idea Presentation" training session, which gave them the skills to present ideas accurately, clearly and expressively in order to maximise their impact; to choose presentation tools that increase the effectiveness of their communication and leave a lasting impression; and to select and use visual aids effectively in order to increase the impact and clarity of their presentation.

The analysis of the results of the activities carried out shows that the initiatives and training have been successful and have led to the development of courses for both staff and students at the College. These courses have been successfully tested and made publicly available with a view to their future implementation.



8. IMPACT AND SUCCESS STORIES

The impact of student and academic staff participation in climate action has influenced many of the College's activities. 5 training programme sessions and initiatives for students, academic and non-academic staff, involving a total of 38 academic, 29 non-academic staff and 298 students, have contributed primarily *to increasing satisfaction with the quality of studies for students*. Although no formal survey was carried out, informal interactions with students indicate a desire to participate more frequently in events such as Innovation Week, etc., even in the broader context of sustainable development and climate action themes such as healthy living, healthy eating, etc. The biggest impact was on the community - *many of the College's academic and non-academic staff and students were aware of the ILCA project and were involved in some form*. This also allowed for extensive and active internal and external communication, raising awareness of climate change in the community. In order to make a real difference, this needs to be done on a continuous basis, through repetition and a wider range of formats (especially with the academic and non-academic community).

In addition, climate action has been integrated into the academic curriculum, e.g. at the Faculty of Civil Engineering, the topics "Principles of Sustainable Buildings", "Sustainability Assessment Systems for Buildings", and "Building Life Cycle Analysis" have been included in the content of the course "Building Maintenance". The main content and themes of the interdisciplinary course "Building Design Practice" and the annual international interdisciplinary seminar have been expanded to include the following items: Building with Green Building Principles, Characteristics and Features; Sustainability and Local Environmentally Friendly Green Building Materials and Building Products. A student exhibition "The World of Contemporary Art in a Changing Climate" was organised at the Faculty of Design. In the History of Modern Art lectures, second year students carried out a project in which they explored the issues of climate change, looking for ways to reveal them in their chosen styles of modern art movements. The highly successful format of the Innovation Week is likely to be successfully developed and introduced into the study process with new members of the College community - students and academic and non-academic staff.

3 Blended Intensive Programmes (BIPs) were successfully organised, incorporating climate action into their content and themes:

- Creative workshop practice. BIP programme was carried out at the Faculty of Design with the participation of students from the Interior Design Programme, students from the Interior Design Programme of the EKA University of Applied Sciences in Riga, Latvia, supervised by lecturer well-known Latvian glass artist Anna Heinsberga Varnase, and students from the Sculpture and Intermedia Department of the Gdańsk Academy of Arts, supervised by the well-known Polish sculptor Prof. Dr Tomasz Sobisz. The workshop was attended by students and lecturers from Lithuania, Poland and Latvia. The workshop explored creative solutions for the synthesis of design, ergonomics, form and materiality when working with eco-friendly materials such as wool, wood, fabric, etc. Students researched the chosen materials in depth and then applied them to create a new furniture design, using parts of old, unusable furniture.

- Art workshop "Re-re-definition". An international workshop (on ecology and materials synthesis) was organised by Design Faculty, during which an international exhibition of students' work was held in the Student Zone of Vilnius College of Technologies and Design. Interdisciplinary activities (experience and skills of teachers and students of Graphic Design, Media Design and Interior Design programmes were transferred to the external environment). The idea of the project focused on creative sustainable design, ergonomics and the synthesis of materiality with eco-friendly materials. This approach reflects a concern for the environment and awareness of the importance of the use of materials in design. Students gained practical experience in design by exploring selected materials and creating new furniture designs.

- "Green Business Idea". BIP programme was carried out at the Faculty of Civil Engineering. The main goal of this BIP program was to create a green business idea using the canvas business model while working in diverse multinational teams. Participants of the BIP learned how running a business can solve environmental problems, form environmentally friendly values and promote a sustainable lifestyle, with special emphasis on proper waste management in communities.

Despite all the positive aspects, a fundamental change in the daily life of the College is still not visible. The college community's sluggishness and unwillingness to participate in the ILCA activities remains.



9. LESSONS LEARNED

The ILCA project is very important for new initiatives, training and the testing and deployment of new models, and it is therefore essential to actively develop these activities in the future. The key lessons learned from engaging students and academic staff in Climate Actions are listed below.

- During the 1st Innovation Week, there was a problem with student attendance during lectures - even though the organised retreat took place from 2pm to 5pm every day, it was difficult to coordinate the attendance of the students when they were scheduled to attend the lectures. The students registered for the event voluntarily, forming their own teams. Online registration was conducted, so it was difficult to predict how many students of which groups would participate before the event started. Almost all the teams participating in the event lacked interdisciplinarity, i.e. they were formed based on academic groups and therefore very specialised in a particular field: transport logistics, informatics, electrical engineering, construction, etc. In addition, the students of the Faculty of Design could not be included in the event - they only participated by presenting their posters on climate change together with their supervisor.

Therefore, there is a lack of involvement of students from all study programmes, and a way should be found to fit the students' participation in the event into the regular lecture schedule, so that both the study process and the event are not affected.

- To overcome the problems encountered during the first Innovation Week, it was decided to partially integrate the 2nd Innovation Week into the study process. This decision proved to be a good one, as the biggest advantage of this format was time. The students had much more time to work on their presentations, which made for a more comprehensive work.

However, it was observed that not all degree programmes can integrate such an exercise into the course content and allocate sufficient time and other resources to it, thus limiting the number of participants, leaving no voluntary choice for students to participate or even making the format unsuitable. Also, too many different topics, as students chose what they found interesting and meaningful to explore rather than one problem for all.

- Although the Innovation Weeks events were open to the whole college community, there was little involvement of academic and non-academic staff. The open lectures were more well attended, suggesting that there was a lack of training on the same topics for the community.

It is therefore essential to provide additional training on climate change and sustainability to the college community and to increase the dissemination of information about the training and events among the college's academic and non-academic staff.

- It is worth mentioning that prior to the Innovation Week, individual groups of students had lectures with their lecturers on climate change and financial indicators in business to help monitor

business progress, with the aim of increasing students' entrepreneurial skills and interest in climate change and sustainability. The lectures were delivered live and remotely by our lecturers.

This practice has been successful and needs to be expanded in the future to include more subjects and lecturers.

- While 5 training programmes and initiatives for students, academic and non-academic staff (3 for students and 2 for academic and non-academic staff) during 2023 have been successfully organised and implemented, there is a lack of consistency and a lack of system in the training for both staff and students. Although the format of the training sessions, and particularly the Innovation Week, is appropriate and attractive to all, the faculty and staff were joining the training sessions in a haphazard manner, and it was not possible to ensure that the same people joined all the sessions and received training on all topics. As for the students, as mentioned above, they registered themselves for training and events - from different groups, different courses, but it was not possible to ensure that students from all study programmes at the College participated (for example, the Innovation Weeks had very little or no participation of students from the Faculty of Design).

Therefore, it is envisaged to integrate climate change, mitigation and adaptation themes in all study programmes, in course descriptions, in final thesis topics, through workshops, Erasmus+ Blended Intensive Programmes, etc.

- Although training and workshops have been organised throughout the academic year to improve the competences of academic and non-academic staff in the field of sustainable development and climate innovation, as well as to reinforce innovation and project thinking, it has been noted that the level of training is not sufficient.

Therefore, there is a need to integrate training, especially on design thinking, into the College's curricula.

- Although there has been communication with the college administration (meetings with deans of faculties and heads of departments to present the idea of the ILCa, to discuss possible training topics and the need for such training, and to integrate climate change into the college's strategy), as well as with the academic and non-academic staff (meetings, trainings, and innovation weeks), the community's sluggishness and unwillingness to participate in the ILCa activities remains. *Continued engagement with the College community through faculty and departmental meetings and one-to-one interviews remains essential in order to disseminate information on the importance and benefits of participation in training programmes for academic and non-academic staff, and to explain how the acquired knowledge, competences and results can be used in future activities and careers. The role of mentors therefore continues to be crucial in terms of involving the community in more significant initiatives and incorporating climate topics into final and course work, course content, workshops, project development, etc.*

- In 2023, Lithuanian Innovation Laboratory on Climate Actions was formed in collaboration between the College and LAMMC.

This cooperation is very important for the College and will be sought to be continued in future activities and new projects and initiatives.

- Dissemination of information on innovation weeks, training, results and other activities has been found to be an important factor in raising awareness among students and academic staff and encouraging their participation in activities.

Therefore, it is very important to ensure the continuity of the dissemination of information on Facebook, on the College's website, and via e-mail to the College community and students.



10. CONCLUSION

1. Climate change education at the College is delivered through formal, non-formal and informal learning and teaching methods, including nature-immersive field projects, international case studies and research, publications, among others. The College recognises its responsibility to develop climate change modules in the curriculum, but efforts are hampered by organisational inertia, the complexity of the activities and the lack of systematicity. There are individual members of the college community taking action on climate change and sustainability (e.g. individual studies, publications, changes in programmes), but there have been no systematic interventions, no clear process management, and no mass involvement of the community on a regular basis and in a way that can be understood by all, and so there has not been the possibility of achieving major systemic change.

2. In order to achieve the objectives of the ILCA project and to incorporate environmental education into college curriculum following actions have been taken: (a) to prepare the academic and non-academic staff of the College for the upcoming discussions on climate change, a seminar on "How to talk about climate change" was organised for the first time by a psychologist of the College in autumn 2022. Furthermore, in order to improve the competencies of academic and non-academic staff in sustainable development and climate innovation, and to promote innovation and design thinking, 5 training programmes and initiatives (3 for students and 2 for academic and non-academic staff) were organised throughout the autumn of 2022; (b) In autumn 2022, an Innovation Week was organised, during which the College and three other companies that are not social partners gave students four tasks to solve; (c) an ILCA training programme for the 2023-2024 academic years for academic and non-academic staff, students and mentors has been developed to improve the quality of competences required for sustainable development and to promote climate innovation; (d) 2023 Spring Innovation Week was partially integrated into the study process. Two courses - Circular Economy and Responsible Innovation - were chosen, where students would work on different topics related to sustainable innovation and its applications, according to their study programmes (Transport Logistics, Building Engineering Systems and Civil Engineering); (e) to improve the competences of students, academic and non-academic staff for sustainable development and climate innovation and to enhance innovation and design thinking, Training programme for students, academic and non-academic staff was designed, organised and implemented during 2023. The training programme consists of 3 blocks: Adapting to the impacts of climate change; Design thinking for new solutions; and Messages/communication that persuade. A total of 22 academic and 15 non-academic staff members and 115 students took part in them; (f) in 2023, teams of permanent mentors were formed. The teams are based on the themes of Climate Change - 4 mentors, Design Thinking - 9 mentors and Pitching - 7 mentors. In total there are 16 mentors, several of whom are mentoring on multiple themes.

3. To promote environmental awareness and encouraging participation among students, academic and non-academic staff College tried to change the community's sluggish attitude towards climate change, while at the same time trying to get them more involved in activities, by communication during meetings with the college community, faculties, and departments, individual interviews and consultations with teachers and students, and dissemination of information about activities through the social network Facebook; college's website and the e-mail. Also, worth to mention that the support of the administration for the programme has been very significant, it gives a sense of importance.

4. When it comes to collaboration between the college and start-ups, we've observed a distinctive trend: smaller organizations tend to prioritize higher education solutions tailored to address their immediate, resource-related challenges over concerns such as climate change, which may seem distant and less pertinent to higher education institution consultancy. In this regard the College decided to adopt an approach, initially selecting start-ups already contributing to sustainable practices before addressing their immediate needs.

As an illustration of the successful implementation of this strategy, our collaboration with the start-ups MISKANTAS and JSC MADHOUZ serves as a noteworthy example.

5. In 2023, Lithuanian Innovation Laboratory on Climate Actions was formed in collaboration between the College and LAMMC. This collaborative model is rather unique in Lithuania, where academic research centers and professional bachelor applied education colleges seldom collaborate more intensively. Notably, the synergy between different fields of activity, agriculture, and forestry at LAMMC and engineering and design at VTDK, brings diverse expertise and addresses various needs within the value chain. For instance, VTDK's expertise in biofuel research complements LAMMC's focus on developing and implementing new technologies related to energy crops.

6. The integration of climate change action into the academic curriculum has been consistent through- integrating the topics into the content of the subjects taught, incorporating climate change and/or innovation development and transfer themes into final theses, organising workshops both with students from the College and with students from partner institutions abroad, organising and implementing Erasmus+ Blended Intensive Programmes on climate change themes and implementing students projects during lectures and organising exhibitions and presentations of their work.