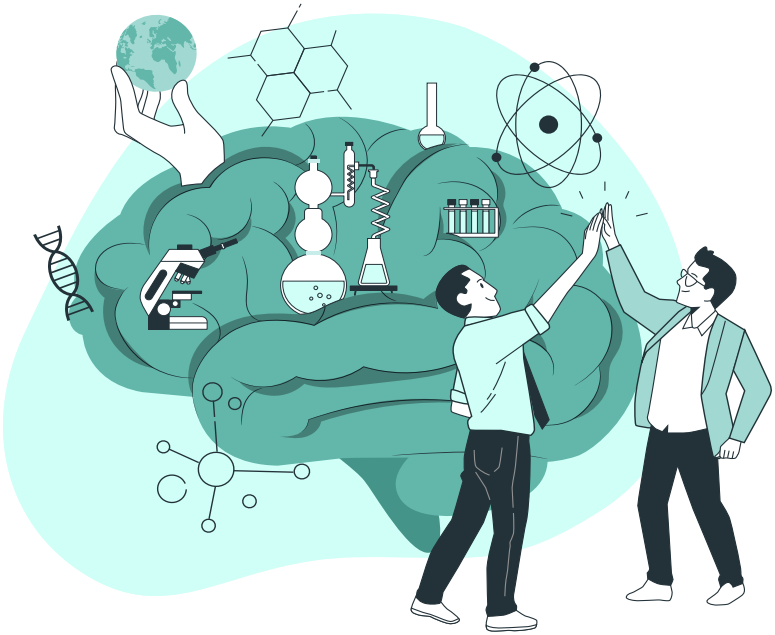
Pannon Egyetem
University of Pannonia



Together Towards Sustainability

University of Pannonia: Focus on Sustainability

Imprint

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Greeting

During the last few years, sustainability has turned from a fashionable marketing message into the biggest continuous challenge of the 21st century. The unbridled expansion of human activity, critical resources on the verge of exhaustion, and irreversible environmental impacts are now threatening the physical boundaries of our planet. There is no vaccine or miracle cure against the ever-increasing limitations and environmental problems, and limited effectiveness solutions can only be envisioned through actions based on rational principles after the conscious recognition of the problems and a change in mindset. Accordingly, circular economy, instead of being a well-sounding slogan, become a basic principle that alone can ensure the survival of modern society, but has only been applied to a limited extent. In this situation, the role of science is unquestionable.

The University of Pannonia, once a leading national stronghold of environmental protection, but nowadays – more of sustainability and the circular economy, undertakes on the ground of science by putting this basic principle into practice in many areas of the national economy. Given that a paradigm shift on such a scale cannot be imagined without trained professionals and the sensitization of society, the University of Pannonia also undertakes the training aspect.

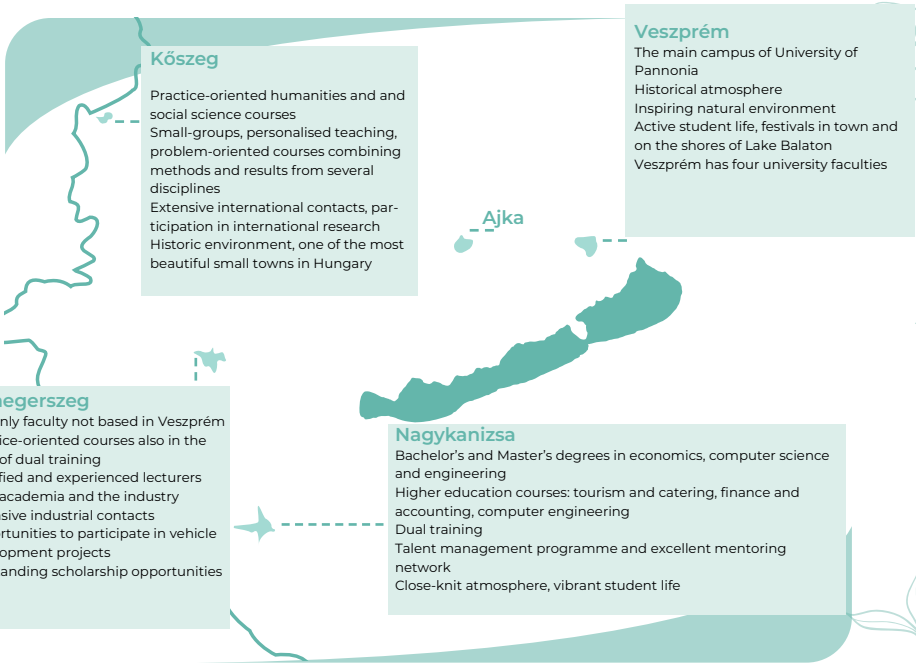
Our mission is to be an active participant in the shaping of a livable future through its internationally recognized training and research and development activities related to sustainability, covering several scientific fields.

Dr. Gelencsér András
rector
University of Pannonia

University of Pannonia

With this publication, we aim to present the values and competences of the University of Pannonia related to sustainability and the circular economy. The competences are aimed both at students who are about to continue their studies and at industrial, market and academic actors looking for answers to the modern technical, economic and social challenges, who would be our partners on the way to answering the questions that are the key to the future. The basis of education providing high-level, marketable knowledge is the internationally recognized R&D&I activities of our institution, which are manifested in directly usable results created through joint projects with partners. In recent decades, the University of Pannonia has accumulated significant research and development experience by taking on national and international tasks in the fields of natural science, technology and information technology, as well as management and tourism. Based on this, examining its values, competencies, and opportunities, sustainability and the circular economy are treated as prominent scientific areas within both its educational and research and development activities, as well as its third mission activities.

Pannon Egyetem kampuszai



Pannon Egyetem

5 Cities

Veszprém | Nagykanizsa | Zalaegerszeg | Ajka | Kőszeg

4 Faculties

Faculty of Business and Economics

Faculty of Engineering

Faculty of Humanities

Faculty of Information Technology

Gazdálkodási Kar

5 Doctoral schools

Doctoral School of Management Sciences and Business Administraton

Doctoral School of Information Science and Technology

Doctoral School of Chemistry and Environmental Sciences

Doctoral School of Multilingualism (Linguistics)

Doctoral School of Chemical Engineering and Material Sciences

80+ majors/5000+ students, 800+ market cooperation partners, 100+ parallel research and R&D projects

Future - Innovation - Knowledge. We are UP for it!

Faculty of Business and Economics

The primary objective of the Faculty of Economics and Business is to train business professionals capable of creating, managing and leading business systems. The institution offers a wide range of courses to meet the needs of the local and international market. Education takes place in an international environment in small groups, which contributes to the development of individual skills. Thanks to our active business partners, students can gain real practical experience both in the classroom and through internships. We place great emphasis on the multi-faceted development of competences, and therefore also on the involvement of students in extra-curricular talent management activities. The Faculty of Business and Economics is committed to sustainability. Our aim is to present future graduates, entrepreneurs, managers and leaders with economic and business models that point towards sustainability and the circular economy, and to this end our students are engaged in various aspects of sustainability in a range of subjects. The faculty's research on sustainability includes, among others, the impact of climate change on the economy and business, local economic development and food waste, the level of corporate CSR activities, individual consumption and responsible marketing. A number of our research activities cover different aspects of sustainable tourism.

The Business Knowledge Centre of the faculty provides professional support to companies and businesses through its tailor-made training and development programmes, in which sustainability and innovation are an integral part of the training portfolio. The faculty places particular emphasis on raising awareness of sustainability through the organisation of competitions, summer schools, lectures, information days, training courses and workshops, and the production of educational videos and podcasts.

Keywords: practical experience, talent management, economic development, food waste, CSR activities, awareness-raising programmes.

Faculty of Humanities

The Faculty of Humanities broadly supports searching for the solutions to individual and social issues related to global and domestic sustainability efforts. We believe that without the responsibility of both individuals and communities, it is impossible to protect the finite natural environment and to make the economy sustainable.

We contribute to the creation of an environmentally conscious society with educational and research activities, as well as spreading the information. In 2022, our annual conference series began under the title Climate change, anxiety and skepticism - Facts and misconceptions. Our international success is the documentary film There Is No Planet B, which won several awards, and a sequel is being prepared. We carry out extensive research related to sustainability in the field of linguistics and language use.

In terms of teacher training, specialist teacher training course in the complex application of the principle of sustainability is waiting for the interested students from September 2023. In addition, the Environmental Pedagogy and Social Challenges subjects deal directly with the topic. We operate as a training and organizing partner in several national programs (e.g. Sustainability Theme Week), and our Sustainable School art competition is aimed at high school students.

We gladly cooperate with institutional, organizational and civil partners in local environmental awareness and attitude formation activities and undertake the organization of research, education and training for the individual and community realization of sustainability.

Keywords: environmental education, social challenges of sustainability, climate change

Faculty of Engineering

Based on the traditions of classical engineering education, the Faculty has grown into an internationally recognized educational and research center for technical and natural sciences over the past 70 years. Our goal is to preserve the recognized values and traditions of classical engineering education, to open up to new fields of science, and to adapt our training profile - both in terms of structure and content - to the current needs of society. Our main mission is to train our students into professionals armed with up-to-date theoretical and practical knowledge, who are able to use their knowledge in a creative way, to successfully solve technical and natural science tasks, and who are, through further self-training - lifelong learning, - prepared to take on the challenges of the future. The scene of the ongoing research and development work at the Faculty of Engineering is the number of recognized research workshops, the operation of which is supported by industrial companies, regional and national tender sources, as well as tender grants from the European Union. Research is carried out in many fields of natural and technical sciences and in several cases - in interdisciplinary topics that are unique in the country. Our primary goal is to integrate the topics of sustainability not only into our education, but also into our research and development activities. Therefore, our research areas cover almost all technical issues of sustainability, including climate change, waste management or, for example, circular water management.

Keywords: natural sciences, technical sciences, climate change, waste management, water management, environmental education, environmental and technological challenges of sustainability

Faculty of Information Technology

In the Faculty's research and development activities, sustainability is emphasized in both the technical and IT fields. The Faculty is committed to sustainable development and tries to integrate these values into its operations both in relation to education and research and development. Forward-looking technologies, as well as the development of innovative solutions related to them, are the focus of the Faculty's attention, with which we contribute to the creation of a sustainable future. In this subject area, the faculty has many innovative results.

Among our professional activities supporting sustainability, the following can be mentioned as defining results:

In many fields of electrical energy, we apply the international and innovative results of system and control theory developed by us. We are constantly working on the development of methods and procedures that can be used to optimally integrate renewable energy sources into the network and operate electric generators and automotive batteries using the toolbox of nonlinear system and control theory. Our research goals include the optimal operation and aging estimation of electric energy storage (batteries) in this topic area, as well as the energy-efficient operation of solar panels, as well as the so-called investigations of issues related to portfolio optimization.

The issue of sustainability is also actively researched in the field of system and process optimization at the Faculty of Information Technology. Our tasks are the analysis, planning, optimization of complex processes and systems and related decision support. Applications range from in-cell processes, through industrial manufacturing systems, to the investigation of entire supply chains. Our results provide software support for the entire creative process, from the formulation of the task, through modeling and model analysis, to the practical interpretation of the best solutions.

In addition to the subject areas defined above, we carry out decisive research and development tasks related to light and color theory, image processing, intelligent control systems and data-intensive artificial intelligence methods, where we pay special attention to the development of solution methodologies that strongly support sustainability. We successfully integrate all of the above knowledge into university education in connection with our courses, promoting the broadening of the horizons of young generations regarding sustainability.

Keywords: energy storage, optimization, decision support, modeling

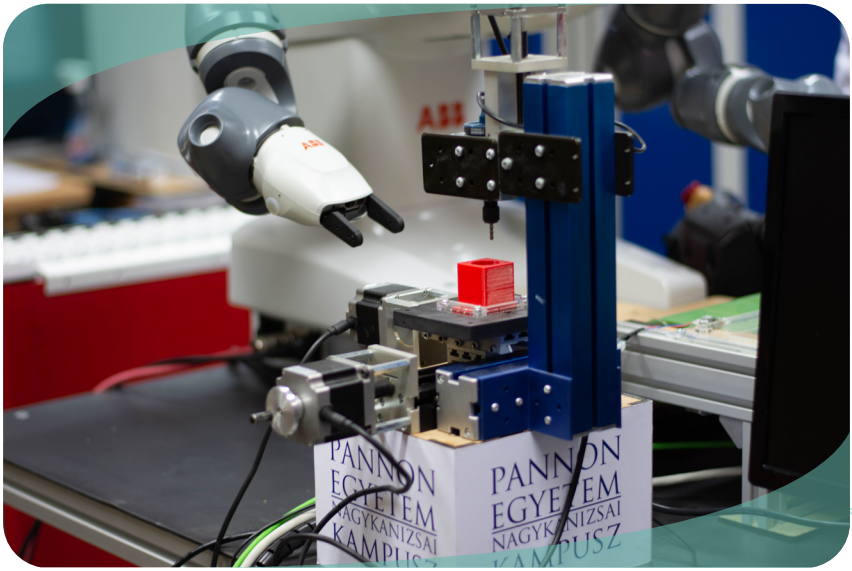
Circular Economy University Centre in Nagykanizsa

Our mission is to make PEN the bastion of countryside higher education and the centre for education and research on the circular economy in Hungary and Central Europe. We provide a supportive environment for the sustainability challenges faced by industry and service organisations, offering practical solutions for our real market environment.

Our vision is that PEN will become a key economic development centre in the region through its research in partnership, based on active corporate relations, with a focus on the dissemination and integration of a circular approach into the operations of organizations. Our training is constantly responding to the needs of the economy; we operate an innovative, adaptable campus with foreign and Hungarian students.

Our aim is to develop our research potential in response to the local needs and to offer our partners solutions that integrate engineering-economic-social aspects and are in line with the circular economy approach.

Key words: circular water management, micro-biological de-pollution, energy storage, applications of the circular economy model at corporate, institutional and municipal level, sustainable tourism and tourism security.



Zalaegerszeg University Centre

The Zalaegerszeg University Centre operates in an environmentalaly conscious way, thus contributing to the reduction of negative environmental impacts on natural systems and to the sustainable functioning of society through the strengthening of environmental awareness. In 2000, when we took possession of the area converted from a former barracks to a higher education campus, it was clear that this spacious, landscaped, natural environment was an asset to be preserved, that it had a positive impact on us and that we had a duty to give back in a positive way. A lovely tradition was started on campus - the freshmen's tree was planted to mark the opening of the year, adding a new sapling to the park's flora every year. The „green idea" really took off in the context of the „Green Campus Model Project Zalaegerszeg" tender project. Through the project, complex sustainability programmes were implemented and the results were shared in a variety of ways. Visitors can learn about the elements of sustainable lifestyle by walking the trail, and the presentation of alternative solutions can encourage them to adopt sustainable behaviour patterns.

For us, two core values are of major importance: the future generation and the sustainability of our environment. For example, we have held two certified sustainability training courses at the International Summer University. At the Sustainability in a Different Way Student Conference at the Zalaegerszeg University Centre, 40 of our young students presented their papers, and the University Centre of Zalaegerszeg had its own booth at the 3rd GreenTech Green Energy and Sustainability Exhibition and Conference. The two-day event focused on climate protection and economic competitiveness.

Keywords: green campus, trail, International Summer University

Our education

Our university recognized the importance of environmental protection, sustainability and the circular economy at an early stage, and it was the first in Hungary to conduct higher education activities related to this area. In addition, a number of courses directly or indirectly related to the subject area are also part of our training portfolio. We also constantly update and expand our course materials with sustainability topics in order to ensure that all our students are familiar with the sustainability aspect closest to their own field of study.

BACHELOR'S TRAINING

- Bioengineering
- Sustainable and circular economy-based tourism
- Environmental engineering
- Environmental science
- Chemical engineering
- Electrical engineering
- Water operation engineering

MASTER TRAINING

- Circular economy management
- Engineering design and development for a circular economy
- Environmental engineering
- Environmental science
- Chemistry
- Chemical engineering

PROFESSIONAL CONTINUING TRAINING

- Sustainable development specialist
- Developer of Industry 4.0 solutions
- Data and systems science engineering
- Research and innovation management
- Water and wastewater treatment system operation
- Educator on the complex application of sustainability

COMPANY TRAININGS, DEGREES

- Online course in circular economy (8 modules)
- Circular economy manager training (3 days)

CIRCULAR ECONOMY ONLINE TRAINING

Complete the Circular Economy online training on MOL Group Academy website!

THE FIRST 4 MODULES OF THE SERIES:

1. Circular Economy Fundamentals
2. Circularity and Sustainability in the Industry
3. CO_2 Emission and the 4R's of Carbon Sustainability
4. Waste Management

Learn more facts about the importance of Circular Economy, visit MOL Group Academy and complete the training developed for you in collaboration with the University of Pannonia.

MOLGROUP

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Our research

Since sustainability challenges and goals form a complex system, research and development activities also require a multi- and interdisciplinary approach. The University of Pannonia is an ideal organization for this, as it has a high-quality knowledge base and an excellent research infrastructure based on solid foundations, recognized both domestically and internationally.

Several researchers of the University of Pannonia are at the forefront of the world; their research area is connected to sustainability, thereby promoting the creation of a livable future.

Our main research areas:

- Water safety and water technologies (protection of natural waters, residential and industrial wastewater treatment, microplastics removal)
- Renewable energy (waste-based biogas production, synthesis gas production, hydrogen-producing bioprocesses, hydrogen technological solutions, Power-to-X, energy management, energy storage, energy use, energy communities)
- Smart cities (digital administration, optimization, software simulation systems, maintenance and operation solutions, route planning, efficient system load distribution procedures, decision support systems)
- Waste management (development of sorting technology, biological recovery, chemical and mechanical recovery, facility survey, low-waste technologies)
- Climate change
- Industry 4.0.
- Artificial Intelligence
- Bio- and nanotechnology
- Sustainable tourism
- Sustainable urban development
- Circular economy
- Environmentally friendly motor fuels and drive modes
- Modern structural materials and catalysts, green chemistry
- Defense industry
- Social aspects of sustainability (climate anxiety, environmental education, attitude formation)
- Economic aspects of sustainability (new business models, R&D management, marketing, environmental accounting)

Our R&D tender projects

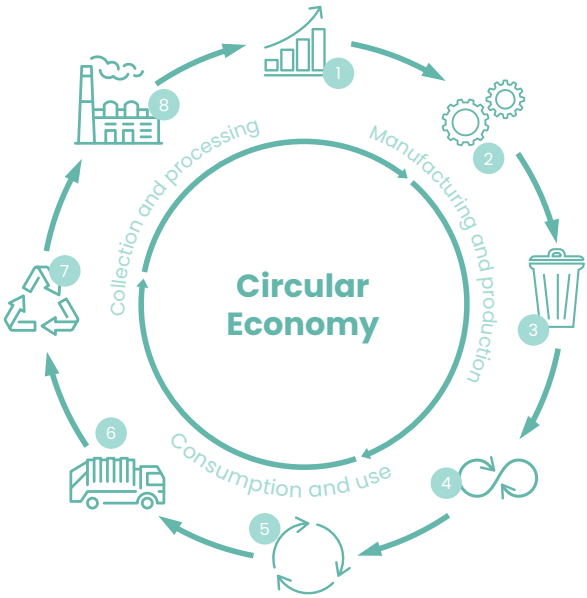
The application portfolio of the University of Pannonia, which ranks among the top universities in Hungary, is extremely rich. Between 2016 and 2021, it conducted more than 30 types of tender projects, the volume of which exceeded HUF 25.3 billion // EUR 67 million. 70% of the tender projects are directly or indirectly related to sustainability. We implement a significant part of our R&D tender projects in consortium with industrial and academic partners, which reflect real technological, economic and social challenges; however, our independent institutional development (i.e. service, training, infrastructure development) projects also play a prominent role. In the period 2021-2027, projects are being prepared - mainly in the areas of circular economy, waste management, digitalization, AI, Big Data, health, energy and climate, as well as resource-efficient economy - with which, in accordance with the National Smart Specialization Strategy, we intend to further strengthen the University's research and development activities, enhance professional excellence and deepen cooperation with the entrepreneurial sphere. In the future, we intend to place great emphasis on the protection and utilization of the results of our R&D activities, i.e. intellectual works, whose coordination organization is the Knowledge and Technology Transfer Center.

Directorate for Development and Projects

Knowledge and Technology Transfer Center

Our cooperations

The transition from linear to circular economy required new business models, new consumer behavior, new green and economical innovations and technologies, as well as new solutions for converting waste into raw materials. All these tasks cannot be implemented alone or within the framework of a project, thus long-term collaborations and broad-spectrum development work are necessary. This is why we work closely with market and government players. Sustainability and the circular economy can only be interpreted as a complex system, which is why we compile our professional programs in such a way that the contents can be connected to each other to form a basic circle. The basic circle includes R&D management, competence development, dissemination, attitude formation, social involvement, and interactive environmental education.



1. Recycled materials and secondary and secondary raw materials.
2. Product development and design
3. Waste reduction (both production and consumption)
4. Life cycle optimisation and life cycle extension
5. Promoting reuse
6. Optimising waste collection
7. Promoting recycling
8. Infrastructure technology development and optimisation

Our main services for our market partners:

- Situation and condition assessments
- Measurement services
- Technological exploration and trend analysis
- Consulting
- Strategy and concept creation
- Trainings, courses
- Development of business solutions
- Technology, process and equipment development
- Optimization
- Development of decision support systems
- Attitude and attitude formation
- Conducting informative presentations
- Eye camera and focus group marketing research

University R&D ecosystem in the field of sustainability

In addition to the traditional departmental and laboratory arenas of R&D&I activities, thematic multidisciplinary research project organizations play an increasingly important role.

Sustainability Competence Centre

The University of Pannonia Sustainability Competence Center plays a coordinating role, brings together and supervises the sustainability-related activities of our institution and helps the communication of the related educational, research and third mission activities. It coordinates the institutional appearance at various domestic and international events, forums and conferences, links the educational, research and other professional organizations of the institution. It also supervises the professional and operational functioning of the Circular Economy Competence Center and the Waste Management Center.

Pannon Egyetem
University of Pannonia

Territorial Innovation Platform
Circular Economy Technology Platform
Sustainability Platform of Hungarian Universities
Circular Economy Science Park

Partnership and cooperation with industry, market and civil players

University of Pannonia Sustainability Competence Center

University of Pannonia faculties and campuses
University of Pannonia Circular Economy Competence Centre
University of Pannonia Waste Management Competence Centre
University of Pannonia Reuse Centre
University of Pannonia Directorate for Development and Projects
Climate Change Multidisciplinary National Laboratory
National Laboratory of Renewable Energies
National Laboratory of Social Innovation
National Laboratory of Water Science and Water Safety

Climate Change Multidisciplinary National Laboratory

The mission of the Climate Change Multidisciplinary National Laboratory is to expand the level of knowledge related to climate change and to effectively strengthen the successful adaptation to the global natural phenomenon that poses serious long-term threats to our usual life. In addition to studying the factors causing climate change and their effects on natural, economic systems and society, it also conducts research and development activities in the field of technological, economic and social adaptation. The work of the National Laboratory is led by the University of Pannonia.

National Laboratory of Water Science and Water Safety

The main goal of the National Laboratory of Water Science and Water Safety is to plan the interdisciplinary expansion of our existing knowledge, resulting in new competences, equivalent to watercourses and stagnant waters, with regard to underground water resources, the security of regional and agricultural water management, the „smart" of urban water management, and the modernization of water and wastewater treatment. The work of the National Laboratory is led by the University of Pannonia.

National Laboratory of Renewable Energies

The aim of the National Laboratory of Renewable Energies is to provide a scientific and technological, legal, economic and industrial protection base for low-footprint energy technologies, especially H2 production/transport/storage/use and CO2 utilization (CCU), thus making a substantial contribution to the construction of a sustainable energy management and chemical industry. The University of Pannonia participates in the work of the National Laboratory as a consortium member.

National Laboratory of Social Innovation

The aim of the Social Innovation National Laboratory is to propose the definition and support framework of social innovation at the national level, but at the same time it also embeds domestic social innovation research and development and innovation efforts into international cooperation systems. It also aims to develop novel solutions to various social problems, as well as in response to social needs related to technological changes (social well-being, social effects of digitalization, local social innovations, environmental social innovations, future communities and labor market). The University of Pannonia participates in the work of the National Laboratory as a consortium member.

Multidisciplinary Research Center of Excellence

The task of the Multidisciplinary Excellence Research Center is to coordinate the work of the prominent scientific workshops operating in the institution (air chemistry, limnoecology, evolutionary ecology, fish genomics, electron microscopy laboratory).

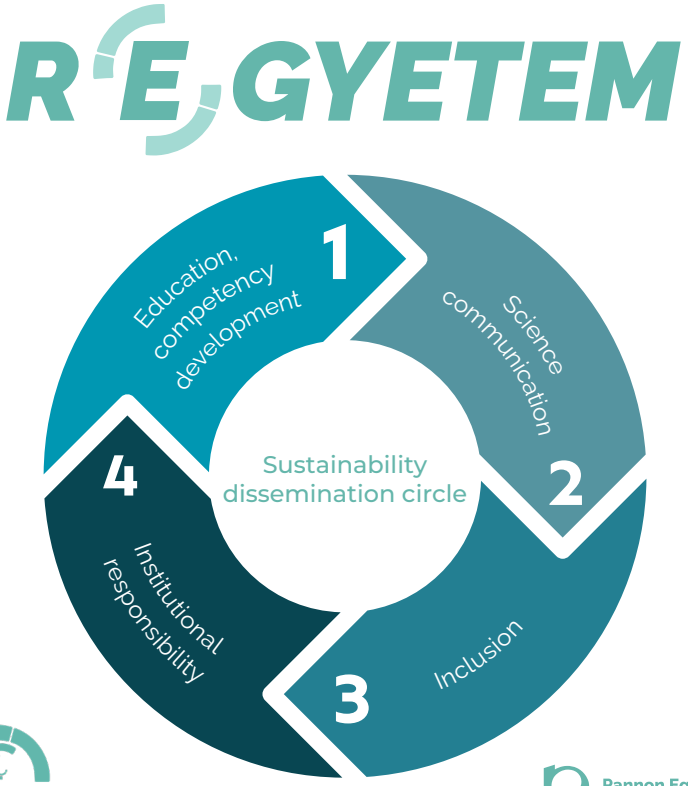
International success

By analyzing the time-series data collected at the national level on the indicators of the Sustainable Development Goals (SDGs), the adaptation trajectories of the countries can be identified, and it is possible to group the countries based on SDG problems and successes, which helps to accumulate common knowledge and the effective implementation of the 2030 agenda. The results of the research were published by the UN among the good practices of SDG.

In the mid-2000s, the University of Pannonia and MOL patented a process for tire recycling that produces special, chemically stabilized rubber bitumen. Roads made of rubber bitumen are more environmentally friendly and durable, have a longer service life, and have a higher load capacity. In 2014, this invention received an Environmental Innovation Award, while in 2020, MOL built a new plant capable of producing 20,000 tons of rubber bitumen per year based on the technology.

To see and to be seen

In addition to research and development and education, the principle of „to see, to make someone see, and to be seen" is important. In addition to seeing what is happening around us, where we are going on a local and global level, where we want to go, we also need to show our immediate environment and partners what results we have achieved, what practices we use, what experiences we have gained. We try to incorporate these results into our operations and have launched several initiatives at our University. We created the REGYETEM concept under the auspices of the Sustainability Competence Center, the purpose of which is to bring together the various sustainability programs of our institution, to use additional new initiatives and to make our activities and aspirations known as widely as possible. In this way, it promotes the active and useful role of our institution in the efforts for our environment and a livable future.



SUSTAINABILITY COMPETENCE CENTER

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Recycling Center

The waste produced by the consumer society is one of the biggest challenges of our global world. In 2022, we created the University of Pannonia Recycling Center, where the tools and objects handed in by university workers and students are exchanged, which helps to keep the products in use as long as possible. Our goal is to familiarize employees and students with the value of used but still reusable tools and objects in accordance with an environmentally conscious approach.

RE,GYETEM

The University of Pannonia opens Reuse Centre!

Together towards sustainability!

The objects can be dropped off and taken away free of charge for university citizens.

Education Center

Today's most pressing environmental, economic and social problems include waste management, which is also a central element of sustainability and the circular economy. 2.5 billion tons of waste are generated in the EU every year, 10% of which is municipal waste. According to the plan, an Education Center will be established at the University of Pannonia; its purpose is to draw attention and present problems and challenges related to sustainability and to engage visitors in an interactive way. Additional laboratories will be organically connected to the planned central location of the Education Center, such as the laboratory halls for the optical separator and the experimental reactor system for the gasification and liquefaction of waste.

HOPE Sustainability Challenges conference and event series

Dr. Jane Goodall visited the University of Pannonia in May 2023. Jane Goodall, a world-renowned primate researcher and UN Peace Ambassador, is the best-known researcher of chimpanzee life. Our institution prepared a one-week series of extensive programs in honor of the visit of the nature and environment activist, with the aim of drawing attention to the importance of moving towards sustainability as soon as possible and the importance of social outlook and attitude formation. The name of the event is HOPE, which is resolved by the words heritage, obligation, planet, environment. This, at the same time, conveys a message: it is our duty to preserve our natural, built, environmental and cultural heritage and to protect our environment.

As part of the series of programs, in addition to Dr. Jane's inspiring and heart-warming speech, a book presentation and round table discussions, a multi-section conference, a film screening, a photo exhibition, laboratory visits, and exhibitions by student groups were organized. In addition, our University adopted Kabi, a chimpanzee of the Tchimpounga reserve in the Congo.

hope

CHALLENGES OF SUSTAINABILITY
CONFERENCE AND EVENT SERIES


BUDAPEST
SCHOOL
TERÉNY

Sustainability Adventure Tour on Land – Water – Air

Based on the methodology developed by the University of Pannonia sustainability group, we guide elementary school and high school students through a ten-station complex sustainability interactive educational program in the most important topics. Our goal is for students to learn about the topics of waste, water, climate, biodiversity, smart cities, sustainable tourism, food, and sustainability within a playful framework.

Trash Art Contest

The goal of our Trash Art Contest is to show the importance of environmental protection, waste management, and sustainability combined with the power of creativity. On the one hand, in the digital world, tangibility and the role of creation are valued, and on the other hand, we want to draw attention to the amount of waste that is harmful to the environment, to the importance of managing the generated waste, which is one of the most pressing challenges of our time. During our first application, we sought answers from the applying students as to what is important to them in life.

Sustainability Theme Week

The Sustainability Theme Week is a nationwide environmental protection and sustainability initiative, which the University of Pannonia has been joining for years with its own organized programs and lectures. In the framework of the program TeSzedd!, the staff of our institution collects waste in the wider environment of the University as a part of social work.

Collective sustainability programs

• **Sock collection:** used socks are collected to make insulating material or geotextile for building roads. Pannon University collected more than 14 kg of socks in its spring campaign.

• **Jeans collection:** making a new pair of jeans requires 10 m3 of water, so it is important to keep them in use as long as possible. Denim can be recycled in its material as furniture fabric or other durable objects. Pannon University collected more than 15 kg of jeans in its spring campaign.

• **Pass it back Bro!:** the coltan ore needed for the production of mobile phones is mined in Africa, in the habitat of endangered species, eating up their living environment. By collecting mobile phones, tablets, and GPS devices, the minerals contained in them are recycled, thereby reducing the mining of these ores. Pannon University has so far collected 40 kg of used mobile phones.

PET Cup

The Tisza is one of the most plastic-polluted rivers in Hungary, and thanks to a nationwide initiative, the University of Pannonia also took part in cleaning it. As part of the environmental protection program, teams compete with each other to see who can collect more waste with their self-built rafts and accompanying canoes. During the four-day collection, the participants cleaned the Tisa of 6.5 tons of waste. The University of Pannonia is committed to taking part in the fight against environmental pollution, so it will also participate in the competition in the future.


TISZA
PET KUPA
SZELEKTÍV
ÜVEG
FÉM


Egyetem
#CSAKAPANNON

Open Day Sustainability Side Event

We are now also organizing a sustainability side event for our Open Days, with a mobile exhibition stand and installation, competitions, informative and interactive programs, in the framework of which we can personally talk about the importance of environmental education, social and ecological challenges in addition to sustainability and the circular economy.

GreenLike

GreenLike is a complex program developed by the University of Pannonia colleagues, the elements of which include the high school and university circular economy competition, the circular economy start-up summer camp, and the podcast series.

Green campuses

In addition to its research/educational activities, the University of Pannonia strives to take into account the ideas of sustainability in its operational area, and to this end, we constantly review our operations. We have introduced measures at the university in which we try to manage our resources sparingly.

Our campus in Veszprém was renovated in 2023, and we await our citizens in heat-insulated buildings equipped with an energy-saving heating system. Our community areas have been renovated, the size of our green areas has increased, and with the transfer of a multi-level underground garage, a significant part of the surface parking spaces will be used as community spaces in the future. We can travel between our campuses with university electric vehicles, so we can also reduce our carbon dioxide emissions.

We examined our processes in our administrative areas, where we had the legal opportunity to do so, we switched to electronic business processes, mostly through self-developed IT systems. As a result of our developments, we were able to reduce our use of office paper by nearly 20%.

From 2023, single-use plastic bottles have been replaced at our events, we have installed modern water dispensers at several locations on the university, so our students and employees can use their own water bottles, thereby reducing our waste production. As part of a pilot program at our university, we monitor our waste production with self-developed smart devices and introduce complex selective waste collection on campus. From the green waste generated at the university, we produce high-quality compost under controlled conditions, which university colleagues can request for their own use free of charge.

In Zalaegerszeg, as part of the Green Campus, some of our buildings use a geothermal cooling-heating system, and two gray water-producing rainwater reservoirs are in use. In addition, our solar park provides 30 percent of the campus's electricity supply. We are proud of our approximatey 400-meter-long, 14-station Green Campus Learning Trail, which explores the main challenges and issues of environmental awareness and sustainability.

UI Green Metric

In 2021, the University of Pannonia joined the sustainability assessment that lists the world's „green universities". In the ranking, our university was already in the mid-range at the time of entry, but it has set itself the goal of significantly improving its position every year. UI GreenMetric is a global ranking developed by the University of Indonesia to measure the sustainability efforts of university campuses. The „green" questionnaire examines six topics: location and infrastructure, energy and climate change, waste management, water management, transport, education. Our institution develops continuously and gradually, we strive to emphasize sustainability in our activities.

Our placements:

Overall place in the world ranking:
2021: 610 /956

Overall place in Hungary:
2021: 8 / 11

Overall place in the world ranking:
2022: 519 / 1050

Overall place in Hungary:
2022: 7 / 11

Ranking by category in 2022

Setting and infrastructure:
667 / 1050
how green is the campus?

Energy and climate change:
339 / 1050
the university's contribution to energy use and climate change

Waste:
457 / 1050
waste management and recycling on campus

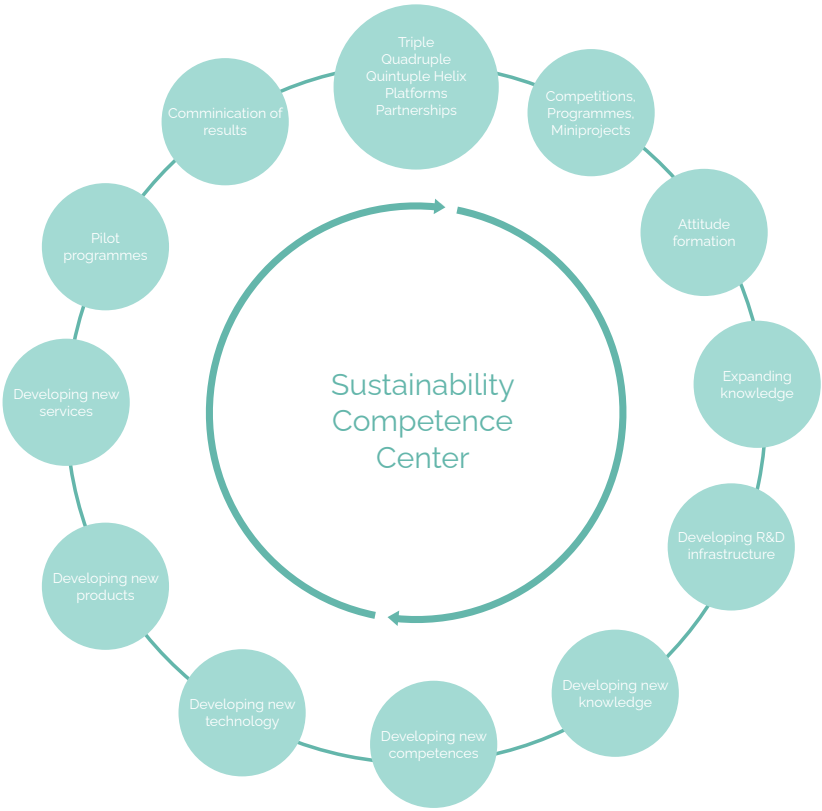
Water:
626 / 1050
water treatment and use at the university

Transportation:
736 / 1050
transport system on campus

Education:
460 / 1050
sustainability-related education at the university

Future plans

Our goal is for the University of Pannonia to become Hungary's leading higher education institution in the field of sustainability and circular economy. Our mission is to be an active participant in the shaping of a livable future through its internationally recognized training and research and development activities related to sustainability, covering several scientific fields.



OUR TEAM

SUSTAINABILITY
COMPETENCE CENTER

RE GYETEM

Accessible science, valuable community, treasured environment.

Together towards sustainability.

Pannon Egyetem
University of Pannonia

National Research, Development and Innovation Office
Hungary

PROJECT
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