Academic programs

University of Pannonia

University Center for Circular Economy Nagykanizsa



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Dear Visitor,



In this brochure you can read about the academic programs offered by the University of Pannonia, University Center for Circular Economy.

They range from bachelor's to doctoral courses but one thing is common in them, namely that they all focus on today's ineludible topic of circular economy. Please, read the detailed descriptions of the academic programmes. If you would like to get more information about them, do not hesitate to write to international@pen.uni-pannon.hu.

We wish we can welcome you at our University in the near future.

Ildikó Galambos, PhD
associate professor
Director General
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More information

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University Center for Circular Economy
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About the University Center for Circular Economy

The University of Pannonia Nagykanizsa Circular Economy University Center places the principles of the circular economy at the core of its education, research, and social engagement, aiming to promote sustainable and resource-efficient development. Its programs integrate business, sustainability, and digital technologies to equip students with the skills needed to address complex real-world challenges. Through practice-oriented learning, strong industry partnerships, and active involvement in research, students gain both theoretical knowledge and valuable hands-on experience. The university also offers a supportive international environment that fosters collaboration and innovation, preparing graduates to play a key role in shaping a more sustainable future.

We empower students to become future-ready professionals in a world shaped by sustainability and innovation.

Our unique programmes bring together business, technology, and environmental thinking to tackle real global challenges.

Here, learning goes beyond the classroom. Through hands-on projects, industry collaboration, and research-driven education, students gain practical experience that truly sets them apart.

Why Study With Us:

- Shaping the Transition to a Sustainable Future
- Interdisciplinary Knowledge for Complex Challenges
- Practice-Based and Industry-Embedded Education
- Research-Driven Learning Environment
- Career Opportunities in a Transforming Economy
- Join a Community Committed to Impact



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University of Pannonia

SUSTAINABLE AND CIRCULAR ECONOMY- BASED TOURISM

Who is it for?

The programme is aimed at training competent professionals with a deep understanding of (eco-) tourism. By the end of your studies, you will be able to navigate the workings of circular economies as well as the sector's profit- and non-profit-oriented actors, and apply systems thinking and circular-economy strategies to cater for local needs as described by destination marketing.

Length:

8 semesters

Level of education:

Bachelor's degree (BSc)

Qualification:

Economist in Sustainable and Circular Economy-based Tourism

Delivery method:

On campus

Language:

English

Tuition fee:

1,000 EUR/semester (for EU students),
1,600 EUR/semester (for non-EU students)

ADMISSION REQUIREMENTS:

- **Finished secondary school studies**
- **Proof of English language proficiency**

Career paths:

You'll graduate with a combination of tourism and circular economy skills that will give you an advantage when you enter the job market. Tourism is an area that underpins the economies of many countries, and one of the key challenges of which is sustainability. There will be a great demand in the near future for experts who know and understand the two areas.

You'll be prepared for work at:

- accommodation providers
- transport companies
- hospitality industry
- national parks
- service providers operating attractions
- municipalities involved in tourism
- event- and program organizers

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PROGRAM CONTENT

1st semester

Introduction to sustainable tourism, nature-based tourist attractions; Psychology; Business communication; The social relations of business; Mathematical foundations of Economics; Learning, self- knowledge and socialization training; Introduction to university studies

2nd semester

Fundamentals of accounting; Microeconomics; Basics of circular economy; Eco- and adventure tourism; The guidelines of sustainable tourism; Introduction to Tourism

3rd semester

Management; Sustainability in marketing; Business law; Macroeconomics; Statistics; Digital tourism

4th semester

Sustainable events; ICT in tourism (smart solutions); Organizational sustainability of tourism enterprises; Sustainable communities, change of approach; Sustainable transport in tourism; Corporate finance; The Aspects of Tourism Safety and Security

5th semester

Introduction to the systems thinking; Regional analysis; Human resource development in the circular business operations; National parks and nature protected areas in tourism; Problem-solving practice I.

6th semester

Design thinking; Product development and innovation in tourism; Circular urban development solutions; Project management of sustainable tourism; Renewable energy sources in tourism; Problem-solving practice II.

7th semester

Internship I.

8th semester

Internship II
Thesis work

More information



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WATER OPERATION ENGINEERING

Who is it for?

The aim of the training is to train water operation engineers who are able to perform the engineering, commissioning and operation tasks of the local, municipal water management facilities, and have the right to install and operate water management facilities in the appropriate engineering field.

Length:
- 6 semesters

Level of education:
- Bachelor's degree (BSc)

Qualification:
- Water Operation Engineer

Delivery method:
- On campus

Language:
- English

Tuition fee:
- 1,500 EUR/semester (for EU students), 1,750 EUR/semester (for non-EU students)

ADMISSION REQUIREMENTS:

- **Finished secondary school studies**
- **Proof of English language proficiency**

Career paths:

By completing the course, engineers have the opportunity to work in a wide range of fields:

- water treatment in nuclear power stations
- production of highly purified water and ultra pure water for the pharmaceutical industry
- technological water in the food industry
- water treatment and water recycling in the oil industry
- solving the problem of water recycling in small and large plants
- irrigation water production agriculture
- possibilities at water works
- landfill leachate treatment

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Program content

1st semester

Subjects in natural sciences physics, chemistry, mathematics, , limnology and hydrobiology, limnoecology, informatics;

2nd semester

Economics and human studies communication, economic knowledge, communication, economics, quality, security and safety skills, legal, European Union and defense, project management;

Specializations

Biotechnology and innovation specialization: Toxicology, ecotoxicology, Biological possibilities for water treatment, Bioprocessing, Enzyme technologies, Bioindustry in the business world

Environmental analysis, instrumentation and monitoring specialization: Environmental monitoring I, New methods in environmental analysis, Microcontaminants in water technology, Process control

Water quality and soil protection, waste management and remediation specialization: Biological possibilities for water treatment, Soil remediation, Waste management, Treatment of bath and thermal water

3rd semester

Water operation engineering studies provide comprehensive training in engineering and natural sciences, covering water and wastewater treatment, hydrology, automation, environmental fundamentals, and the design and maintenance of hydraulic systems.

4th semester

Specialization knowledge: environmental analysis, instrumentation and monitoring, biotechnology and innovation, water quality and soil protection, waste management and remediation

Diploma thesis

5th semester

Facultative subjects:
Altogether

6th semester

Hidraulic structures and reconstruction of hydraulics structures

More information



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CIRCULAR ECONOMY MANAGEMENT

Who is it for?

The aim of the training is to train professionals with a high level of management theoretical knowledge and confident practical application skills, who also have the theoretical knowledge related to the circular economic model, as well as the ability to solve practical problems and think innovatively and systematically in order to reach circular economy.

Length:
3 semesters

Level of education:
Master's degree (MSc)

Qualification:
Circular Economy Manager

Delivery method:
On campus

Language:
English

Tuition fee:
1,125 EUR/semester (for EU students),
1,800 EUR/semester (for non-EU students)

ADMISSION REQUIREMENTS:

- **Bachelor degree certificate in a relevant field**
- **Proof of English language proficiency**

Career paths:

The transition from a linear economy to a circular approach not only raises technological issues but also renews management tasks related to the organization and operation of systems. With this special knowledge you can obtain a top-tier position in any industries.

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PROGRAM CONTENT

1st semester

Research methodology and scientific writing; Circular economy; Strategic management; Sustainability; Modern industrial IT solutions; Sustainability in project management; Business law and protection of intellectual property

2nd semester

Renewable energy sources; Waste management – Circular economy; Supply chains, modelling of production systems; Geoinformatics; Managerial skills training; Thesis work I.

3rd semester

Complex analysis of investments; Change management; R+D+I projects and their financing; Corporate and consumer behaviour; Sectoral regional analysis; Thesis work II.



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MSC IN DESIGN AND DEVELOPMENT ENGINEER FOR A CIRCULAR ECONOMY

Who is it for?

The programme prepares engineers in circular economy and environmental systems for research, development, and further doctoral studies.

Specializations:

- **Renewable energy management in a circular economy**
- **Water management in a circular economy**
- **Waste management in a circular economy**

ADMISSION REQUIREMENTS:

- **Bachelor degree certificate in a relevant field**
- **Proof of English language proficiency**

Length:

3 semesters

Level of education:

Master's degree (MSc)

Qualification:

Design and Development Engineer for a Circular Economy

Delivery method:

On campus

Language:

English

Tuition fee:

1,250 EUR/semester (for EU students), 1,900 EUR/semester (for non-EU students)

Career paths:

The transition from a linear to a circular economy affects all industrial sectors. Skills and expertise related to the circular economy is one of the areas where today's industry is still facing significant shortages.

You'll be prepared to work at any kind of manufacturing company, as

- **Ecotechnological engineer**
- **Environmental specialist**
- **Environmental consultant**
- **Development manager**
- **Public sector administration specialist**

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PROGRAM CONTENT

1st semester

Research methodology and scientific writing; Circular economy; Circular water management; Circular energy management; Waste management – circular economy; Modern industrial IT solutions; Business law and the protection of intellectual property; Design of environmental technology systems

2nd semester

Thesis work I.;
Specialized electives

3rd semester

Thesis work II.;
Specialized electives

Renewable energy in a circular economy specialization

2nd semester: Renewable energy policies and strategies from an international perspective; Energy challenges, impacts, trends and changes in global energy demand; Renewable energy sources, Renewable energy measurements and data analysis

3rd semester: The regional analysis of the energy systems of renewable energies; Design of renewable energy projects; Renewable energy data provision in an international context, the communication of renewable energy policies; The optimization of energy generation by variable renewable energy sources; Methodology of planning and development procedures

Water management in a circular economy specialization

2nd semester: Restoration of the aquatic ecosystem; Design and evaluation of water treatment systems; Strategy for international water management and water politics; New trends in water analysis

3rd semester: Life cycle analysis in water treatment; Methodology for status survey of water environment; Circularity of pollutants in the environmental systems; Possibilities of recycle of industrial wastewater; Methodology of planning and development procedures

Waste management in a circular economy specialization

2nd semester: Waste sorting technologies; Knowledge of the plastic industry; Geoinformatics; Management of biodegradable wastes

3rd semester: Reclamation; Radioactive waste management; Automative waste and recovery; Energy from waste; Methodology of planning and development procedures

More information



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ADULT EDUCATION

INTRODUCTION TO CIRCULAR ECONOMY

The circular economy model in the operation of an organization

Who is it for?

The aim of the training is to provide corporate and institutional decision-makers with the knowledge related to the circular economy model. The course summarizes in a complex way the most important theoretical and practical issues of today's shaping topic.

The combination of 21st-century technological solutions and theoretical knowledge makes it possible for market players to enforce the economic, social and environmental aspects of the diverse concept of sustainability. The circular economy model provides a clear and understandable framework for this task.

Length:

3x5 hours

Delivery method:

Online and on campus

Language:

English

More information



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ADULT EDUCATION

INTRODUCTION TO INDUSTRIAL IT SYSTEMS (INDUSTRY 4.0)

Who is it for?

The aim of the training series is to introduce the concept of the fourth industrial revolution, to introduce its conceptual structure, advantages, operating conditions, and to clarify the concepts related to the topic.

The aim of the IT modules is to familiarize them with web development and basic programming languages, to recognize the basic concepts and practical usability of data collection and visualization and industrial performance calculation.
The training can also be carried out per curriculum unit (module) provided that the completion of each module may be a condition (input requirement) for completing another module.

Module 1:
Introduction to Industry 4.0
Number of hours: 8
Prerequisite: none
Mode of training: online consultation

Module 2:
Basics of Web/HTML
Number of hours: 16
Prerequisite: none
Mode of training: online consultation

Module 3:
Basics of jQuery
Number of hours: 16
Prerequisite: finished Module 2
Mode of training: online consultation

Module 4:
Basics of PHP
Number of hours: 8
Prerequisite: finished Module 2
Mode of training: online consultation

Module 5:
Basics of Python
Number of hours: 8
Prerequisite: none
Mode of training: online consultation

Module 6:
Data analysis
Number of hours: 16
Prerequisite: none
Mode of training: online consultation

Module 7:
Measurement of efficiency in the industry
Number of hours: 4
Prerequisite: finished Module 3, 4, 5, 6
Mode of training: online consultation

More information



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DOCTORAL PROGRAMS

PhD programme in the
Chemical Engineering and Material Sciences Doctoral School
(at the Faculty of Engineering)

Duration: 8 semesters

Tuition fee: 4,500 EUR/semester

List of research topics:

- Investigation of the possible reuse and treatment methods of used waters of various origins
- Microplastic contaminants in different water source - quality control and possibility of removal
- Water treatment for pollution removal using complex, membrane-based methods, optimization, life cycle analysis
- Polyelectrolyte multilayer nanofiltration membrane synthesis and field testing for wastewater treatment and reuse
- Pharmaceutical residues in surface and ground water (presence and fate), environmental risk assessment, drinking water quality management
- Water treatment: adsorption and dispersion stabilization/destabilization. Magnetic nanoparticles, magnetic separation

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DOCTORAL PROGRAMS

PhD programme in the Doctoral School of
Management Sciences and Business Administration
(at the Faculty of Business and Economics)

Duration: 8 semesters

List of research topics:

- Safety and security issues in the field of tourism
- Sustainability in project management
- Supply and demand of sustainable tourism
- Appearance of circular economy in tourism
- Practical interpretation of the Tourism 5.0 approach

Tuition fee: 2,750 EUR/semester

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DOCTORAL PROGRAMS

PhD programme in the Doctoral School of
Information Science and Technology
(at the Faculty of Information Technology)

Duration: 8 semesters

List of research topics:

- Embedded information systems
- Sensor networks
- Protocol modelling and testing

Tuition fee: 2,750 EUR/semester

- Intelligent adaptive systems
- Industry 4.0 and 5.0
- Scheduling of production systems
- Optimization

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STUDENT SCHOLARSHIP
offered by the University Center for Circular Economy

The purpose of the scholarship is to provide financial support for those self-financed international students studying at the University Center for Circular Economy, who are professionally outstanding and active in the community.

Students can gain professional and practical experience during their studies by participating in research, projects and the organization of events at the University Center. Students will get guidance from mentors and will work in groups or individually.

The call is open for self-financed international students who have an active student status in the semester of the call in one of the ongoing courses at the University Center.

At the end of the semester, students can get back 25-50% of the tuition fee depending on the time spent on each activity and the type of activities undertaken

Students can choose one or more activities from the following list:

- ✔participation in the marketing communication of the University Center: writing a monthly 'blog' on the University Center's own website/facebook site and the student's own social media sites
- ✔participation in the publicity of the academic programmes of the University Center
- ✔participation in research that are relevant to the field of study
- ✔participation in projects, partner search
- ✔helping in extracurricular lessons for primary students
- ✔preparation for the Scientific Students' Conference with the help of a supervisor and making a presentation at the Conference
- ✔making a presentation at different scientific conferences/writing publications
- ✔helping in the organization of competitions at the University Center
- ✔helping in the organization of conferences at the University Center
- ✔working as a mentor for students, helping lecturers at seminars

Stipendium Hungaricum

The Stipendium Hungaricum Scholarship Program was launched in 2013 by the Hungarian Government.

The core mission of the program is to increase the number of foreign students in Hungary and to encourage Hungarian higher education institutes to attract top foreign students; currently more than 50 sending partners are engaged in the program.

The program is based on bilateral educational cooperation agreements between the Hungarian government and the partner countries. Applications will be considered eligible if the applicant is nominated by the responsible authorities of the sending partner.

The Program is managed by Tempus Public Foundation, the application is managed through their webpage: https://stipendiumhungaricum.hu/

Available scholarship types:

- ✔ Stipendium Hungaricum scholarships are available for bachelor, master, one-tier master, doctoral and non-degree programmes (preparatory and specialisation courses).
- ✔ Both full-time and part-time study plans are available in case of bachelor, master, one-tier master and doctoral studies.

Monthly stipend:

- ✔ **Non-degree, bachelor, master and one-tier master programmes:**
  HUF 43,700/month (ca. EUR 130) contribution to the living expenses – for 12 months a year until the studies are completed
- ✔ **Doctoral programmes:**
  HUF 140,000/month (cca. EUR 365) for the first four semesters and
  HUF 180,000/month (cca. EUR 470) for the second four semesters
- ✔ **Subsidized dormitory quarter, or contribution worth**
  HUF 40,000/month to be spent on accomodation costs
- ✔ **Medical insurance**

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