DENNIS GABOR UNIVERSITY

PANEVĖŽIO KOLEGIJA

Palacký University Olomouc

Erasmus+ BLENDED INTENSIVE PROGRAMME

SUMMER UNIVERSITY 2026

"INFORMATICS NOT ONLY FOR IT PROFESSIONALS"

I. Aim of the program, organizers

Program focus: familiarization with basic informatics and its applications in top fields of IT technology.

By incorporating a combination of theoretical concepts, practical skills, hands-on projects, and industry insights, this summer university in basic informatics and IT applications can provide participants with a solid foundation and valuable experience in the rapidly evolving field of technology. The courses are designed to reflect international trends, ensuring that students are equipped with the knowledge and skills demanded by a globalized marketplace. From robotics to artificial intelligence, from image acquisition and processing to 3D printing, each course reflects the ever-evolving landscape of technology, offering students a panoramic view of the opportunities and challenges that lie ahead.

At our summer university, we believe that learning extends far beyond the confines of the classroom, encompassing collaborative teamwork, vibrant social events, and eye-opening excursions that leave a lasting impact. Participants will acquire new knowledge through rich programs enhanced with playful elements.

Organizers: Dennis Gabor University in association with Palacký University Olomouc and Panevėžio Kolegija /State Higher Education Institution.

Location: Dennis Gabor University Budapest, Fejér Lipót street 70.

II. Target group of participants, entry requirements

Target group of participants: higher education students

Acceptance of applications: May 31, 2026

Selection process of participating students: the applications will be evaluated based on the student's academic scores at the home institution.

Participation fee for non-BIP partners (e.g. students NOT from Palacký University Olomouc or Panevėžio Kolegija /State Higher Education Institution): 495 € (participation fee includes online and face-to-face training and cultural programs)

Participation fee includes:

- Lectures with professional background.
- Equipment and materials necessary to complete the project work.
- Opportunity to work in an international environment.
- Opportunity to gain insight into the economy and culture of Eastern Europe.
- Social and cultural programmes.

Participation fee does not include accommodation, insurance, visa, and travel expenses. Students can apply for Erasmus grant at their home institution.

III. Course modules

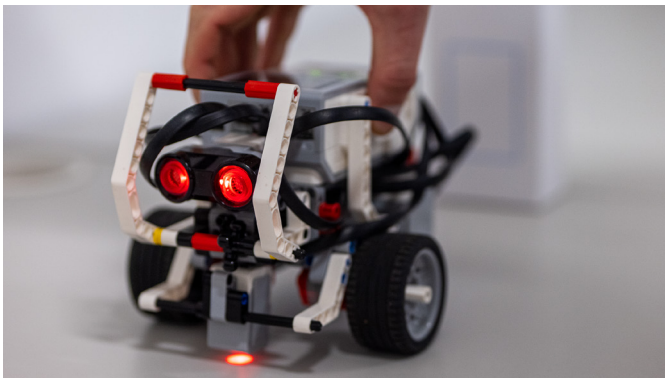
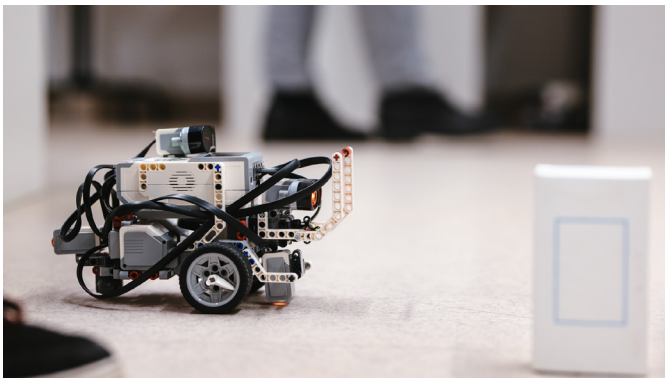
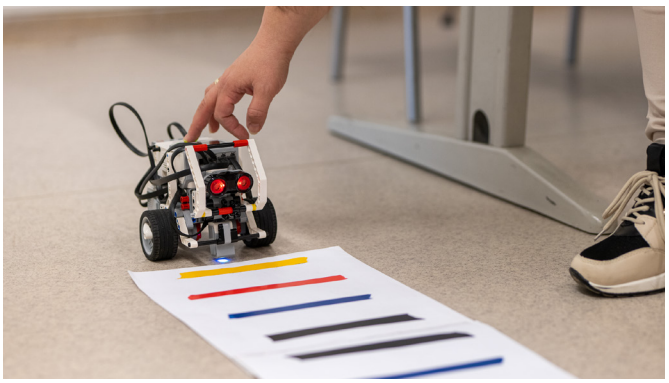
PYTHON BASICS, LEGO ROBOTS

Course objectives and competencies:

The purpose of the practice-oriented session is to introduce the exciting world of robotics with modern tools. With the help of the LEGO® Education SPIKE™ Prime set, participants get to know the basic concepts of mobile robotics, the characteristics and use of the device's sensors. We develop algorithmic thinking and engineering skills through creative, problem-solving and exciting tasks. Students will be able to program Spike Prime robots to perform simpler tasks.

The main topics are:

1. Robotics today.
2. LEGO® Education SPIKE™ Prime robot and its sensors.
3. Robot programming. Programming techniques in Word Blocks.
   a. Movement tasks.
   b. Tasks that can be solved using sensors.
4. Independent solving of creative, problem-solving tasks in groups.


LEAN MANAGEMENT

Course objectives and competencies:

The objective of the course is to enable students to become familiar with the main principles of lean management through hands-on experiences. Students participate in a project work where their goal is to support the continuous development of the manufacturing processes, while monitoring and managing the changes and effects of their executive decisions based on key performance indicators.

The main topics are:

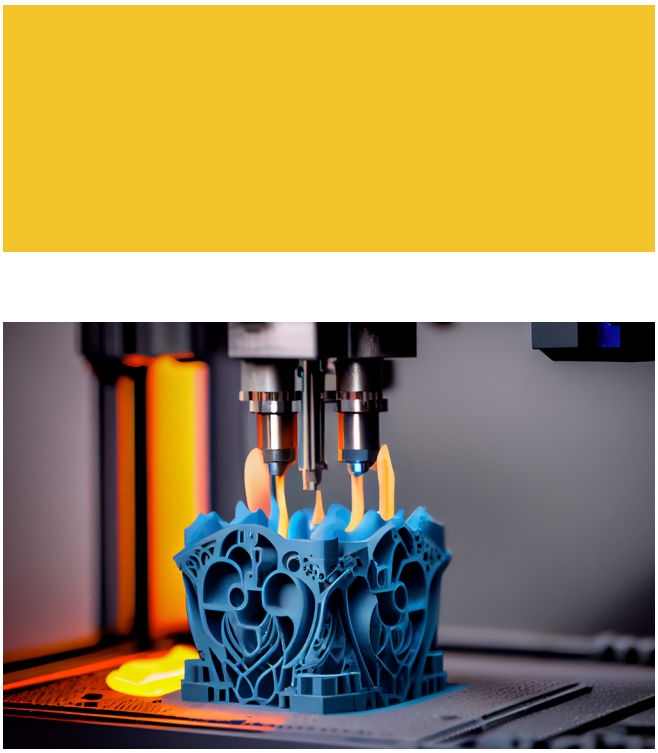
1. Push and pull manufacturing.
2. Defining, monitoring and evaluating KPIs.
3. Kaizen - Continuous improvement.
4. Detection and elimination of bottlenecks.
5. Visual management: Kanban.
6. Muda - Elimination of waste.

3D PRINTING

Course objectives and competencies:

The 3D printing revolution is reshaping industries and inspiring creativity. While 3D printers are becoming increasingly accessible, mastering the art of 3D modeling is crucial to unlocking the full potential of this technology.

Participants of this session will gain hands-on experience with 3D printing technologies, exploring various methods and materials. They will learn the fundamentals of CAD modeling, designing 3D models optimized for 3D printing.



The main topics are:

1. A brief introduction to 3D printing. How does it work?
2. Different technologies, various application areas:
   - Fused filament fabrication (FFF) – the most easily accessible manufacturing technology.
   - Which software to choose for design?
   - Basics of CAD modeling.
   - 3D printing-specific design.
   - Printer settings, software fine-tuning. Slicer program settings.
   - Printing, turning ideas into finished products in a short time frame.

VR and EXTENDED REALITY

Course objectives and competencies:

The aim of the course is to introduce participants the fundamentals of virtual reality technologies and their applications across various fields. Students will gain insight into how VR systems work, including hardware components, interaction methods, and immersive experience design.

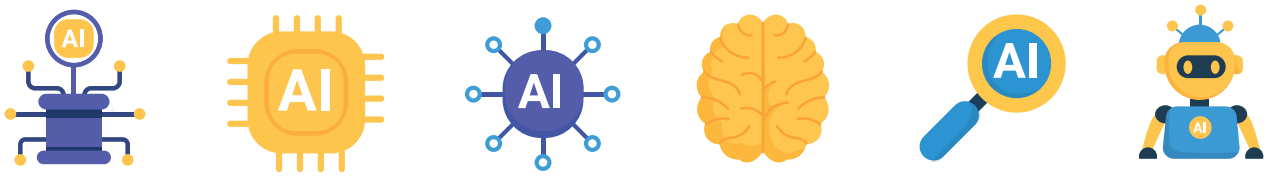
The main topics are:

1. Introduction to virtual reality: concepts, history, and current trends.
2. Overview of VR hardware (headsets, controllers) and software platforms.
3. Principles of immersive experience and interaction design.
4. Basics of VR content creation and development tools.
5. Applications of VR in different domains (education, healthcare, entertainment, industry).
6. Hands-on activities: exploring VR environments and creating simple interactive experiences individually or in small groups.

INTRODUCTION TO AI AND PROMPT ENGINEERING

Course objectives and competencies:

The course introduces participants to the basic principles, current development, and practical applications of artificial intelligence. It also focuses on prompt engineering as a practical skill for effective work with AI tools. Through hands-on exercises, participants will develop critical thinking, ethical awareness, and practical competencies, regardless of their prior experience.



The main topics are:

1. AI concepts, history, and current trends.
2. Machine learning, neural networks, and generative AI.
3. Prompt engineering principles and strategies.
4. Practical AI applications in different fields.
5. Guided hands-on work with AI tools.
6. Ethical considerations and responsible use of AI.

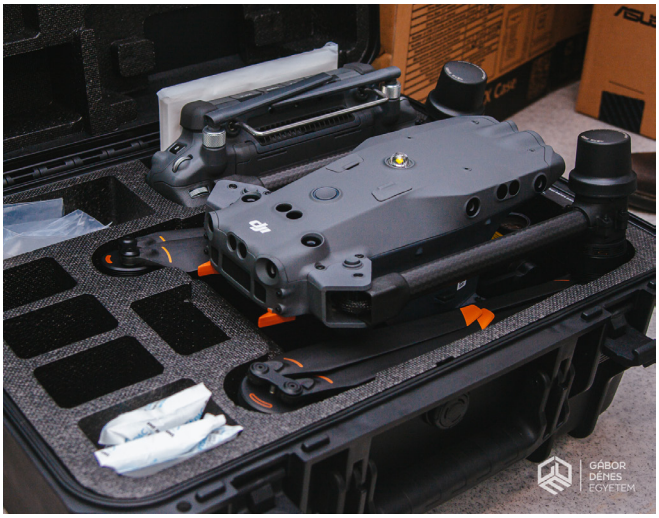
DRONE TECHNOLOGY AND IMAGE PROCESSING

Course objectives and competencies:

The aim of the course is for participants to become familiar with the basics of drone technology, remote sensing and digital image processing. They will get to know the main areas of application. Basic image processing and data analysis methods are applied in practice through the processing of own flight data.

The main topics are:

1. History of drones.
2. Technical basics of drones.
3. Basics of image processing.
4. Image classification and AI.
5. Applied remote sensing.
6. Application of drones.



The goal of the practical part is for students to become familiar with the preparation and planning of environmental, agricultural and economic operations that can be carried out with drones. Perform targeted remote sensing operations in practice.

The main topics are:

1. Aeronautical fundamentals.
2. Planning drone operations.
3. Conduct drone operations.
4. Data backup, data protection.
5. Applied remote sensing.
6. Application of drones.

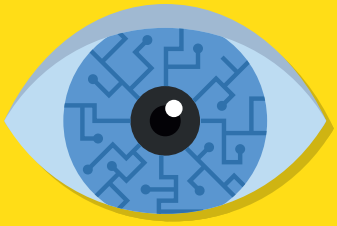
COMPUTATIONAL THINKING

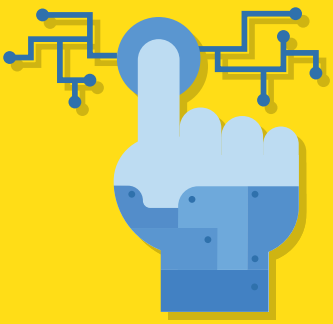
Course objectives and competencies:

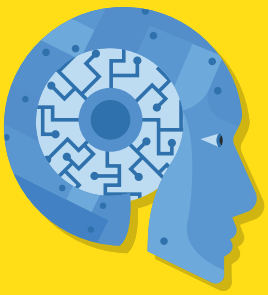
The course introduces computational thinking as a universal problem-solving approach. Participants will learn to analyse problems, decompose them into smaller parts, identify patterns, use abstraction, and design step-by-step solutions. The course develops structured thinking and enables participants to apply these methods without prior programming experience.

The main elements of the course are:

1. Principles and importance of computational thinking.
2. Problem decomposition and abstraction.
3. Pattern recognition and generalisation.
4. Algorithmic thinking and solution design.
5. Practical programming and automation activities.
6. Real-world problem solving in small groups.







COURSE REQUIREMENTS

Participation in the online courses. Active participation in groups; finding and providing a solu-tion for the proposed project.

Summer University Program ECTS

Course	Contact	Total Credits
Lego Robots and Virtual Reality	1	1
Lean Management	1	1
3D Printing	1	1
Introduction to AI and Prompt Engineering	1	1
Drone Technology and Image Processing	1	1
Computational Thinking	1	1
Project work	1	1
Total	**6**	**7**

Get In Touch

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