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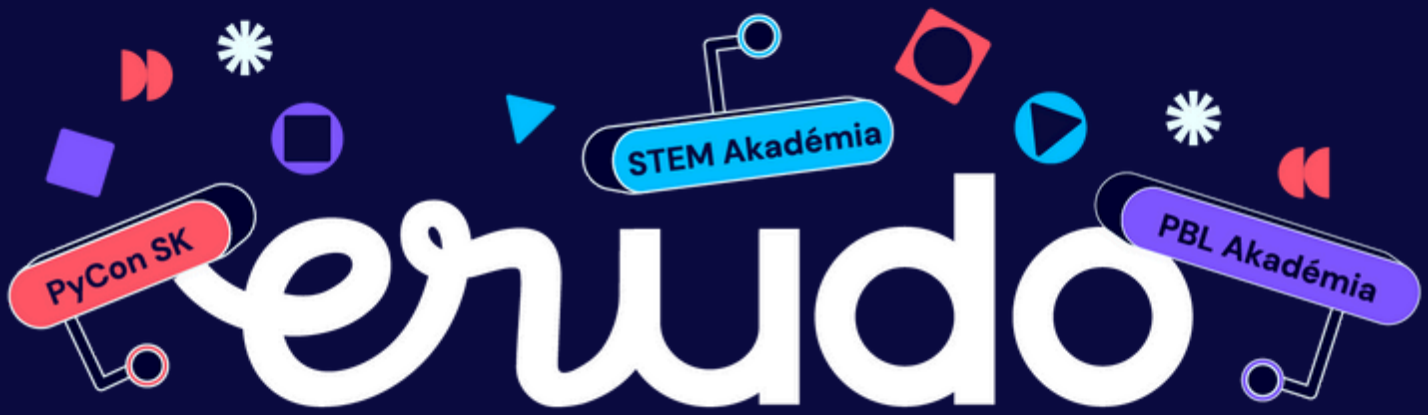
ANNUAL REPORT 2024



The 2024 annual report celebrates a year of innovation and growth in education. Through the successful implementation of STEM Academy (formerly called Teaching with Hardware) and the initiation of PBL Academy, we have made strides in empowering educators with the skills and tools to inspire their students through technology and Project-Based Learning (PBL).

Our programs are designed with flexibility and accessibility in mind, ensuring they meet the diverse needs of teachers across Slovakia. By adopting a hybrid format, combining in-person and online activities, we strive to make our initiatives available to as many educators as possible, regardless of their location.

We operate in all regions of Slovakia, focusing on building a strong and supportive community of teachers. Emphasis is placed on personal contact, fostering collaboration, and creating an environment where teachers can gradually develop new skills. Through this approach, we aim to empower educators, enhance their professional growth, and ultimately contribute to the transformation of teaching practices nationwide.

Our Team

Our team consists of education experts, trainers, didactics specialists, and teachers with many years of experience. This diverse expertise enables us to design educational activities that are practice-oriented and tailored to the needs of teachers. Drawing from our own experiences, we provide mentoring and facilitate discussions on implementing innovative teaching methods, ensuring that educators are well-supported on their professional journey.

Challenges in Slovak Primary and Secondary Education

Slovak students consistently perform below the OECD average in reading, mathematics, and science, highlighting challenges in foundational skills.

Education often focuses on rote learning and memorization rather than critical thinking, creativity, and problem-solving skills.

The curriculum is not sufficiently aligned with the needs of the 21st century or the demands of the labor market.

Teachers have limited access to professional development opportunities and resources to implement innovative teaching methods, such as Project-Based Learning.

Significant differences exist in the quality of education between urban and rural areas, with rural schools often lacking resources and qualified staff.

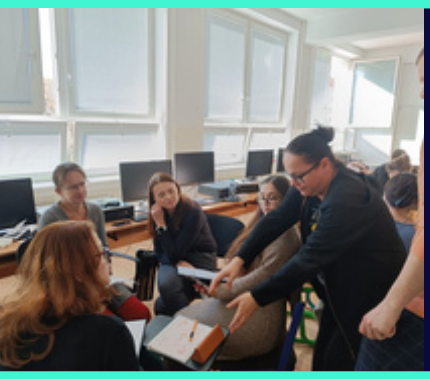
Both teachers and students often lack the digital competencies needed for modern education and the digital economy.

A lack of engaging and relevant learning experiences contributes to low student motivation and interest in education.

How do we address these challenges?

Our goal is to create space for change and support teachers in their efforts to bring new ideas into their schools. Here are a few examples:

Alexandra, a teacher from a vocational school in Bardejov, contacted us to involve herself and her colleagues in our educational program. Understanding the value of Project-Based Learning, they aim to better prepare students for real-world challenges. With limited access to training due to their location, we organized workshops at their school and included them in online sessions. Now, Alexandra and her 13 colleagues are guiding students in interdisciplinary projects like designing a gym roof, creating digital tools for disadvantaged people, and promoting their region through videos in English.



How to bring change to a suburban school in Bratislava with many students facing learning difficulties and low motivation? The school's principal reached out to us for a consultation. After an initial discussion, we organized an intensive two-day training for the entire teaching staff. Following this, we began working with two volunteer teachers to plan a project week. Gradually, their initiative inspired other colleagues to join in.

Thanks to our collaboration with the Faculty of Education at Comenius University in Bratislava, our trainers became part of a course where future teachers explore various types of educational robotics and digital technologies. By designing activities for primary school students, these future teachers practice working with technology and develop essential skills for their future teaching careers.

Our Vision

Our goal is to guide teachers in adopting innovative teaching approaches that empower students to develop essential 21st-century skills.
We envision schools as dynamic spaces where students are equipped to think critically, collaborate effectively, and engage creatively with the challenges of the modern world.
By supporting educators in this transformative journey, we aim to inspire a generation of learners prepared for the demands and opportunities of the future.

Our Programs

Our programs, STEM Academy and PBL Academy, are designed to provide educators with the knowledge, tools, and inspiration to bring innovation into their classrooms. Each program focuses on equipping teachers with practical skills and methodologies that foster creativity, critical thinking, and hands-on learning among students.

STEM Academy empowers educators to integrate modern technologies and hardware solutions into their lessons, bridging the gap between theory and real-world applications. Meanwhile, PBL Academy focuses on project-based learning, guiding teachers to design and implement projects that engage students in meaningful, interdisciplinary exploration.

In the following sections, we will delve deeper into these programs, highlighting their objectives, achievements, and the lasting impact they have on education.

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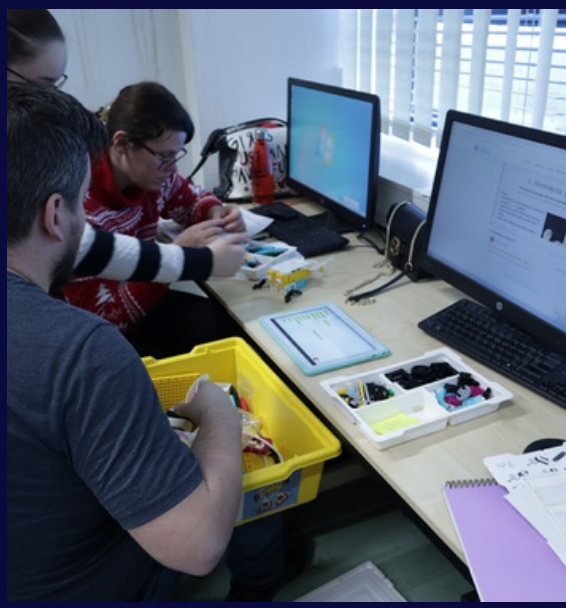
STEM Akadémia

Our STEM Academy program represents a pivotal initiative in transforming digital education and technological literacy.

The program empowers teachers to transcend traditional learning boundaries, enabling students to engage directly with digital technologies through hands-on, interactive experiences. Participants learn to design curriculum modules that seamlessly blend computational thinking, programming concepts, and practical engineering skills. This approach not only enhances digital literacy but also cultivates critical problem-solving abilities essential in today's technology-driven landscape.

The curriculum goes beyond mere technical instruction, fostering creativity, innovation, and interdisciplinary thinking. Teachers are equipped with strategies to integrate digital technologies across various subject areas, demonstrating the interconnectedness of science, technology, engineering, and mathematics in contemporary educational frameworks.



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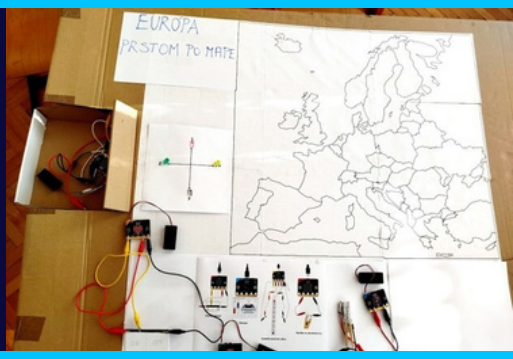
STEM Akadémia

Showcasing STEM Activities and Projects

The STEM Academy has empowered teachers to create innovative and engaging STEM activities and projects for their students. These examples highlight the creativity and dedication of educators who, through their participation in the program, have developed practical, hands-on learning experiences that connect science, technology, engineering, and mathematics with real-world challenges.

Interactive Christmas Shop: This project transforms micro:bits into a magical Christmas shop controller with blinking lights and festive songs. The "Wheel of Fortune" lets you spin for gifts, adjusting speed with a potentiometer, blending fun with programming skills.

Map Adventure: A dynamic geography game powered by micro:bits! Students use compasses and LED signals to navigate European countries, honing their digital literacy, teamwork, and circuit programming skills.



Educational Game: "Patient Operation": Bring anatomy to life with this hands-on activity! Using micro:bits, tweezers, and foil, students simulate a surgical operation, learning about conductivity and the human body through an engaging interactive experience.

Scoreboard for Sports Games: Micro:bits meet sports in this project where students design a wireless scoreboard. They program controllers and displays using radio signals, combining tech innovation with physical education.

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STEM Akadémia

STEM Academy in numbers

Participation Statistics and Events Overview

- Open Webinars: Over 1,270 participants attended.
- BBC micro:bit Courses: 660 participants enrolled.
- In-Person Training: Over 253 participants joined.
- DKPU Webinars: 7 sessions held for 137 participants.

In-Person Training and Presentations:

- 31.1.2024 RCPU Púchov (workshop)
- 1.2.2024 RCPU Považská Bystrica (workshop)
- 20.2.2024 Conference Zborovňa KE (presentation of ENTER activities at the Teaching with Hardware booth)
- 21.2.2024 RCPU Bardejov (workshop)
- 10.4.2024 RCPU Zvolen (workshop)
- 24.4.2024 Faculty of Education, Comenius University, Bratislava (workshop and presentation focused on students with special educational needs)
- 28.5.2024 Learning Restart Conference, Piešťany (presentation of ENTER activities at the Teaching with Hardware booth)
- 19.8.2023 DKPU workshops (organized by JA Slovakia)
- 10.10.2024 Women in Tech by Aj Ty v IT (ENTER School)
- 12.10.2024 Change is Here (Teacher Conference in Martin)

"I never thought my students could learn coding and engineering so quickly. This program is a game-changer for STEM education."
— Participant, Advanced BBC micro:bit Course

"The program has revolutionized how I approach technology in my classroom. The workshops were practical and inspiring, making me confident in integrating micro:bit projects into my curriculum."
— Teacher from Zvolen Workshop

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STEM Akadémia

STEM Academy in numbers

Open Webinars:

- 13.2.2024: How to Organize a Successful School Event? – 39 participants
- 9.5.2024: Teaching 3D Printing with Robotics – 270 participants
- 1.10.2024: AI Tools in Primary and Secondary School IT – 466 participants
- 11.11.2024: Introduction to 3D Modeling – 310 participants
- 12.12.2024: From 3D Models to 3D Printing – 185 participants

Webinars as Part of Online Courses:

- 23.1.2024: How Working with Hardware Develops Soft Skills
- 30.1.2024: Wearable Electronics
- 8.2.2024: Comprehensive Projects with BBC micro:bit
- 15.2.2024: Greenhouse Project
- 27.2.2024: Extension Kits with BBC micro:bit
- 27.3.2024: Comprehensive Projects with BBC micro:bit
- 15.4.2024: Extension Kits with BBC micro:bit
- 2.5.2024: Interdisciplinary Teaching with BBC micro:bit
- 16.9.2024: Wearable Electronics
- 17.9.2024: How Working with Hardware Develops Soft Skills
- 2.10.2024: Greenhouse Project
- 3.10.2024: Comprehensive Projects with BBC micro:bit
- 21.10.2024: TinkerCAD
- 22.10.2024: Extension Kits with BBC micro:bit
- 7.11.2024: Interdisciplinary Teaching with BBC micro:bit

BBC micro:bit Courses:

- BBC micro:bit & MakeCode – Basic: 302 participants
- BBC micro:bit & MakeCode – Advanced: 155 participants
- Robotics and Art: 58 participants (in collaboration with FMFI UK)
- Other Online micro:bit Courses: 145 participants

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PBL Akadémia

PBL Academy is an innovative educational program designed to equip teachers with the tools, strategies, and confidence to implement project-based learning (PBL) effectively in their classrooms.

Over the course of the program, educators gain hands-on experience in creating meaningful, real-world learning opportunities for their students, fostering critical thinking, creativity, and collaboration.

Program Components

- Workshops and Webinars: Interactive sessions led by experienced trainers to guide participants through the principles and practices of PBL. Topics include project design, assessment strategies, and facilitating group dynamics.
- Resource Development: Participants receive access to templates, guides, and examples of successful PBL plans to inspire their own projects.
- Mentorship and Feedback: Personalized support from PBL experts to refine project ideas and address challenges during implementation.
- Collaborative Network: Teachers connect with peers through online platforms and networking events, fostering a supportive community of practice.
- Capstone Projects: Participants develop and implement their own PBL projects in the classroom, culminating in a showcase event where they share outcomes and lessons learned.

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PBL
Akadémia

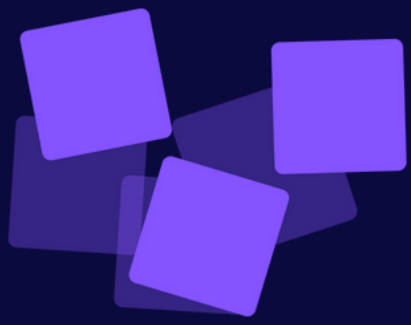
PBL Academy in numbers

Participation Statistics and Events Overview:

- In-Person Training: Over 230 participants joined.
- Webinars as Part of Online Courses: Over 100 participants.
- Open Webinars: Over 690 participants.
- Schools with personalized support: 2 primary schools, 1 secondary school, 65 teachers in total.

In-Person Training and Presentations:

- 13. 11. 2024 PBL Academy workshop, Bratislava
- 20. 11. 2024 PBL Academy workshop, Žilina
- 21. 11. 2024 PBL Academy workshop, Banská Bystrica
- 4. 12. 2024 PBL Academy workshop, Bardejov
- 5. 12. 2024 PBL Academy workshop, Košice
- 4. - 5. 11. 2024 Workshop for primary school, Bratislava
- 28. 11. 2024 Workshop for primary school in Zlaté Klasy
- 13. 9. 2024 Workshop for teacher mentors, Komárno
- 20. 9. 2024 Workshop for teacher mentors, Trstená
- 27. 9. 2024 Workshop for teacher mentors, Rožňava



Webinars as Part of Online Courses:

- 7. 10. 2024 Workshop for teacher mentors
- 16. 10. 2024 How to implement PBL in accordance with the National Curriculum?
- 22. 10. 2024 Workshop for teacher mentors (group "Eastern Slovakia")
- 24. 10. 2024 Workshop for teacher mentors (group "Central Slovakia")
- 7. 11. 2024 Workshop for teacher mentors (group "Western Slovakia")
- 11. 12. 2024 PBL Academy (workshop)

Open Webinars:

- 12.6.2024 Project-based learning as part of The New Curriculum
- 11.9.2024 Project-based learning for teachers
- 18.9.2024 Project-based learning for school management

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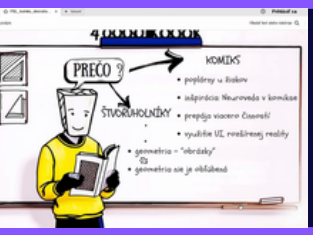
Teacher-Created Projects from PBL Academy

Through hands-on workshops, mentorship, and resources provided by the PBL Academy, teachers have successfully developed projects that inspire students, promote interdisciplinary learning, and prepare them with essential 21st-century skills.

How can first graders learn about the vital role bees play in our ecosystem? Teacher Dorota found the perfect way—through an engaging project that connects science, Slovak language, and art. And the highlight? A visit to a real beekeeper!



How do you motivate students to learn geometry? With comics! This project combines math, Slovak language, art, and IT, allowing students to create comic stories where quadrilaterals become the main characters!

Project-based learning also shines in the Business Skills course at the Business Academy. Through designing and creating an innovative toy from recycled materials, students gain hands-on experience in product design, market research, and marketing strategies.

What could be more motivating than creating a guide you'll actually use? In her English class, Teacher Blažena introduced a project where students design their own handbook titled "How to Get a Scholarship for High School Abroad."

"I can see how much they enjoy creating the toy. They don't even realize they're learning something. When I tell them they've just grasped the concept of product pricing, they're genuinely surprised."

Adriana, Teacher at Business Academy

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PBL Akadémia

Participants of the PBL Academy workshops highlighted several aspects of the training, with the following key areas standing out:

Approach of the Trainers

The trainers were perceived as professional, friendly, and well-prepared. Their practical experience in education and ability to address participants' specific questions significantly contributed to the success of the workshops.

Atmosphere and Environment

A creative and relaxed atmosphere during the workshops encouraged open communication and idea-sharing.

Collaboration and Experience Sharing

Participants found great value in working in groups, consulting their plans, and sharing experiences with colleagues. Mutual inspiration and feedback helped them further develop their project plans.

Practical Approach

The workshops focused on practical application, offering numerous concrete examples, demonstrations, and tools that teachers can directly implement in their teaching. Particular emphasis was placed on creating guiding questions, planning, and understanding the methodology of project-based learning.

Importance of Project-Based Learning

Participants recognized PBL as an innovative way to enrich teaching and engage students in more creative and active learning. Discussions and examples helped them better understand this methodology and its implementation.

PyCon SK

The PyCon SK 2024 three-day conference took place once again in March 2024 at FIIT STU in Bratislava, bringing together over 500 developers and Python enthusiasts from Slovakia and the broader region for the sixth time.

Program

- 29 talks (including a Beginner's Track
- 12 workshops (including 2 workshops for children)
- 2 Lightning Talk sessions
- 1 Conference Quiz with really awesome prizes
- 1 Django Girls workshop
- 1 PyLadies workshop

Diverse experience levels

- 42% experts
- 24% intermediate
- 13% juniors
- 21% beginners

Video recordings

Video recordings from all of the talks can be found on our YouTube account @pyconsk in the PyCon SK 2024 playlist.

Our awesome partners

We would not be able to make this event happen without the support of our generous sponsors.

Check who made this event possible at: https://2024.pycon.sk

Partners of our educational programs

Our achievements this year would not have been possible without the support of our partners.

Why Support Erudo and Its Programs?

Empower the next generation of innovators and leaders by supporting Erudo's PBL Academy and STEM Academy. These programs bring education to life, equipping students with essential 21st-century skills like critical thinking, collaboration, and creativity.

Your support fosters diverse talent, strengthens communities, and inspires future scientists, entrepreneurs, and problem-solvers. Join us in redefining education—one project, one student, and one community at a time. Together, we can build a brighter future. Support Erudo today!

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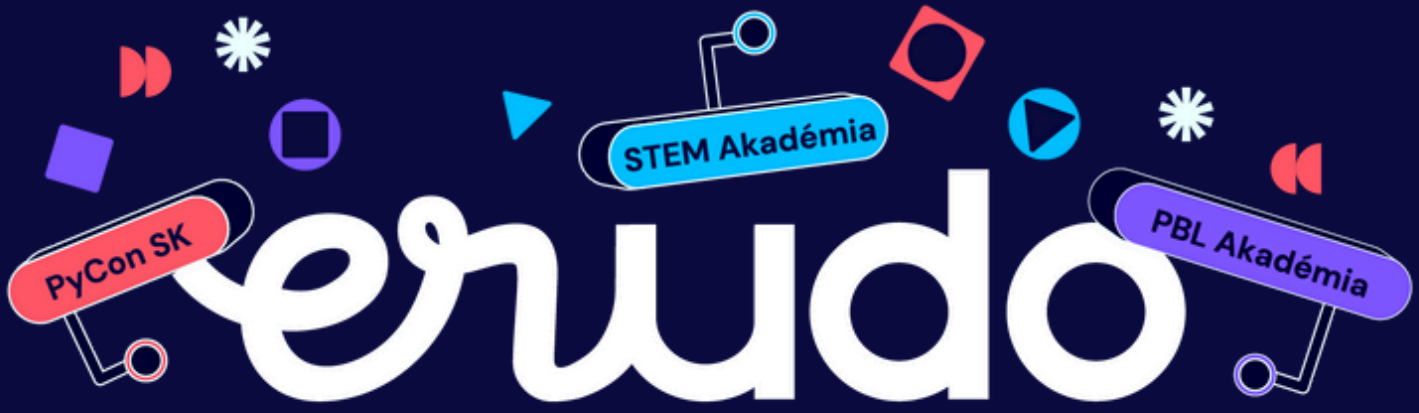

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