



OP RDE PROJECTS

in photographs



EUROPEAN UNION
European Structural and Investment Funds
Operational Programme Research,
Development and Education

**ME
MT**
MINISTRY OF EDUCATION,
YOUTH AND SPORTS

OP RDE projects in photographs

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A book of photographs capturing projects supported by the Operational Programme Research, Development and Education

The publication you have just opened is a photographic gallery presenting 30 projects supported by the Operational Programme Research, Development and Education (OP RDE). The images capture both specific individuals involved in the projects (Czech and foreign scientists, researchers, teachers, children, pupils and students) as well as state-of-the-art instruments, technologies, aids and equipment acquired through the support by OP RDE. All the photos have something in common. They demonstrate that the efforts exerted to prepare and implement projects aimed at promoting learning, quality research, linking education with practice or at equal access to education are worthwhile.

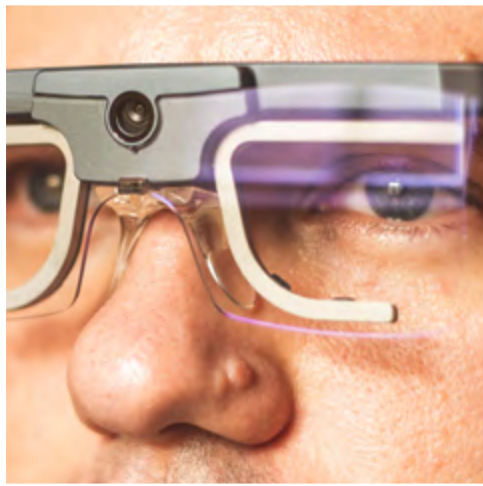
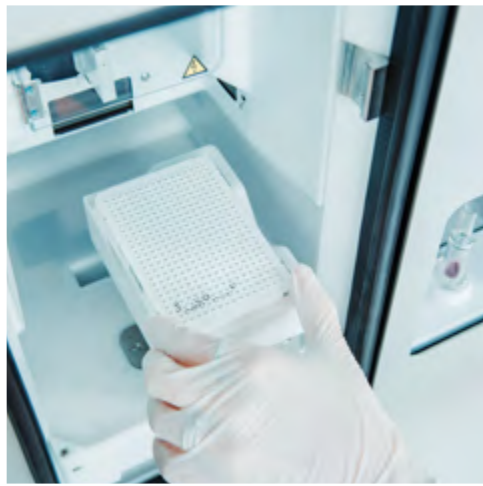
The Operational Programme Research, Development and Education is a multi-annual thematic programme managed by the Ministry of Education, Youth and Sports, through which funding from the European Structural and Investment Funds (ESIF) in the programming period 2014–2020 can be obtained. As of 31. 12. 2018, OP RDE supported more than 9 000 projects in the field of regional schools, higher education institutions as well as research and development for nearly CZK 68 billion.

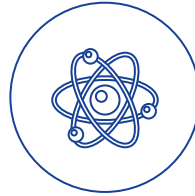
The following pages will show you thirty projects arranged in three thematic chapters by focus and by the area of support. The OP RDE has three priority axes under which it provides funding to Czech education and science:

Priority Axis 1 – Strengthening the Capacities for High-quality Research

Priority Axis 2 – Development of Universities and Human Resources for Research and Development

Priority Axis 3 – Equal Access to High-quality Preschool, Primary and Secondary Education





Priority Axis 1

Strengthening the Capacities for High-quality Research

This priority axis focuses on achieving international excellence in Czech research, enhancing research collaboration and improving the quality of infrastructure for the training of future researchers.



Improving the International Quality of Research of Global Climate Change Effects on Ecosystems

The project provides a wide range of users with a unique background for impact studies of global change effects on terrestrial and aquatic ecosystems. It also provides a unique background for research of greenhouse gas and energy flows, evaluation of metabolic processes of acclimation or adaptation of various parts of ecosystems to the global change effects but also for remote sensing of the Earth that can be used to evaluate spatial variability of global change effects.

Project title: Complementing the CzeCOS Research Infrastructure to Enhance the International Quality of Research of Global Climate Change Effects on Ecosystems
Registration number: CZ.02.1.01/0.0/0.0/16_013/0001609
Implemented by: Global Change Research Institute of the Czech Academy of Sciences
Call: Research infrastructures
Implementation period: 01. 07. 2016 – 31. 12. 2019

The project was supported with a grant of **CZK 22 181 539**, of which the EU contribution is **CZK 18 854 308**.



“By addressing the impact of global change, especially drought, we are strengthening competitiveness in agriculture, forestry and water management. We take part in ensuring energy and food security, environmental protection measures, pest control, enhancing ecosystem services in drawing up background information for decision-makers deciding on land consolidation as well as in technological development.”

prof. Michal V. Marek

Director of the Global Change Research Institute of the Czech Academy of Sciences





Healthy Aging in an Industrial Environment

The aim of the project which involves four science and research centres is to develop multidisciplinary research focusing on the effects of selected environmental factors, lifestyle and physical activity on the health and aging of the population. The results of the planned research applied in practice address the problem of population aging and quality of life in old age and will lead to the design of measures focused on health intervention aimed at changing the perception of health risks.

Project title: Healthy Aging in an Industrial Environment
Registration number: CZ.02.1.01/0.0/0.0/16_019/0000798
Implemented by: University of Ostrava
Call: Excellent research
Implementation period: 01. 02. 2018 – 30. 11. 2022

The project was supported with a grant of **CZK 250 870 826**, of which the EU contribution is **CZK 213 240 202**.



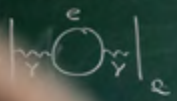
“During the research, we will monitor four cohorts - mothers and newborns, city policemen, the middle aged population and runners (active people). The research results have high potential of use in medicine, i.e. in measures preventing the emergence of significant diseases and injuries.”

MUDr. Radim Šrám, DrSc.
Principal investigator of the project

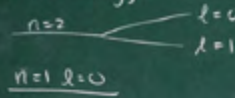


Do vacuum polarisations exist?

eg Lamb shift



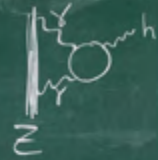
All the energy levels of atoms



Examples are not quite vacuum energy.

Loops exist... but do they gravitate?

Inertial mass/grav'l mass of heavy nuclei (Al, Pt)



$$|\Gamma_{Pt} - \Gamma_{Al}| < 10^{-12}$$

vac. polarisation affects energy levels of Pt, Al differently

$$\frac{\delta E_i}{E_i}_{Al} \sim 10^{-3} \quad \frac{\delta E_i}{E_i}_{Pt} \sim 3 \cdot 10^{-3}$$

$$r = E_g/E_i$$

$$\frac{\delta r}{r} = \frac{\delta E_g}{E_g} - \frac{\delta E_i}{E_i}$$

$$\left. \frac{\delta r}{r} \right|_{Pt} - \left. \frac{\delta r}{r} \right|_{Al} = \left. \frac{\delta E_g}{E_g} \right|_{Pt} - \left. \frac{\delta E_g}{E_g} \right|_{Al} - \left. \frac{\delta E_i}{E_i} \right|_{Pt} + \left. \frac{\delta E_i}{E_i} \right|_{Al}$$

$$\sim 10^{-12}$$

...mass

$$M_{pl} \sim 10^{19} \text{ GeV}$$

constant proton

$$\text{... to } M_{pl}^4 \sim 10^{76} \text{ GeV}^4$$

What is the CCP?

GFT

GR

∃ vacuum energy

Vacuum energy gravitates

$$\begin{aligned} \text{Loop} &\sim \frac{i}{2} \text{tr} \log \left(\frac{\delta^2 S}{\delta \phi(x) \delta \phi(y)} \right) \\ &= -\frac{1}{2} \int d^4x \int \frac{d^4k}{(2\pi)^4} \log(k^2 + m^2) \end{aligned}$$

$$-V_{vac} \int \sqrt{g} d^4x$$

dim reg ⇒

$$0 \sim -\frac{1}{2} \int d^4x \frac{M^4}{(4\pi)^2} \left[\frac{-2}{\epsilon} + \log \left(\frac{m^2}{(4\pi)^2} \right) + \gamma - \frac{3}{2} \right]$$

Add counterterm to remove divergence.

$$\rightarrow -V_{vac} \int d^4x \quad \text{where } V_{vac} \sim \sum_i \alpha_i$$

$$0 + \text{Loop} + \text{Loop} + \dots$$

cosmology

$$-V_{vac} \int \sqrt{g} d^4x$$

$$T_{\mu\nu} = -V_{vac} g_{\mu\nu}$$

Observations ⇒ $H \sim H_0$

$$\text{where } H_0^2 \sim \frac{(\text{meV})^4}{M_{pl}^2}$$

So unless $V_{vac} \sim (\text{meV})^4$ we are in trouble

Add an bare CC

$$\int d^4x \sqrt{g} \left(\frac{R}{16\pi G} - \Lambda \right)$$



Cosmology, Gravity and the Dark Sector of the Universe

The “Cosmology, Gravity and Dark Sector of the Universe (CoGraDS)” project focuses on research dedicated to key topics of cosmology, i.e. the nature of dark matter and dark energy and the validity of Einstein’s general theory of relativity with the use of latest observation technologies in the context of current and planned European and American space science missions. The research team of the project at the newly established CEICO scientific institute – Central European Institute for Cosmology and Fundamental Physics is currently composed of 16 scientists from 10 countries.



Project title: Cosmology, Gravity and the Dark Sector of the Universe
Registration number: CZ.02.1.01/0.0/0.0/15_003/0000437
Implemented by: Institute of Physics of the Czech Academy of Sciences
Call: Supporting excellent research teams
Implementation period: 01. 11. 2016 – 31. 10. 2022

The project was supported with a grant of **CZK 160 587 763**, of which the EU contribution is **CZK 114 579 369**.

“In September 2018 the Gravity@Prague 2018 summer school was organised within the project. The intensive programme divided into seven thematic units related to gravity was designed primarily for young scientists - postdocs and doctoral students. The school was attended by 100 participants from 21 countries, 3 continents and 7 top experts - lecturers from 5 countries (the USA, the Netherlands, the UK, Switzerland and Belgium).”



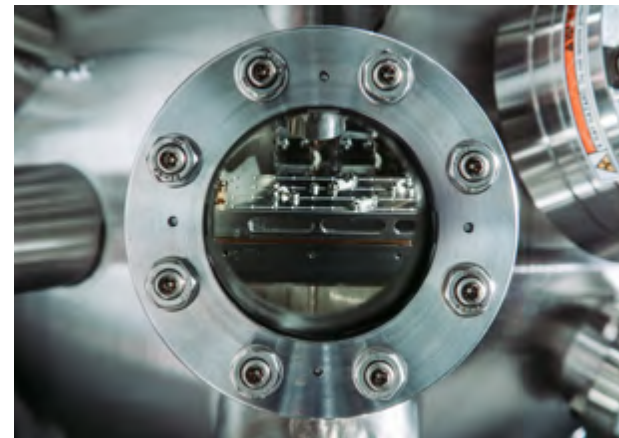
Mgr. Ilona Skordis Gottwaldová, B.Phil.

Manager of the grant office, CAS Institute of Physics



Modernization of the Centre of Materials and Nanotechnologies

The aim of the project is to improve the instrumental and technological equipment of the Centre of Materials and Nanotechnologies (CEMNAT) whose research is focused on nano and microstructures of chalcogenide and oxidic materials. The project will enhance the efficient use of the CEMNAT research infrastructure which is, at least until 2020, the part of the Czech Republic's Roadmap of Large Infrastructures for Research, Experimental Development and Innovation for 2016–2022.

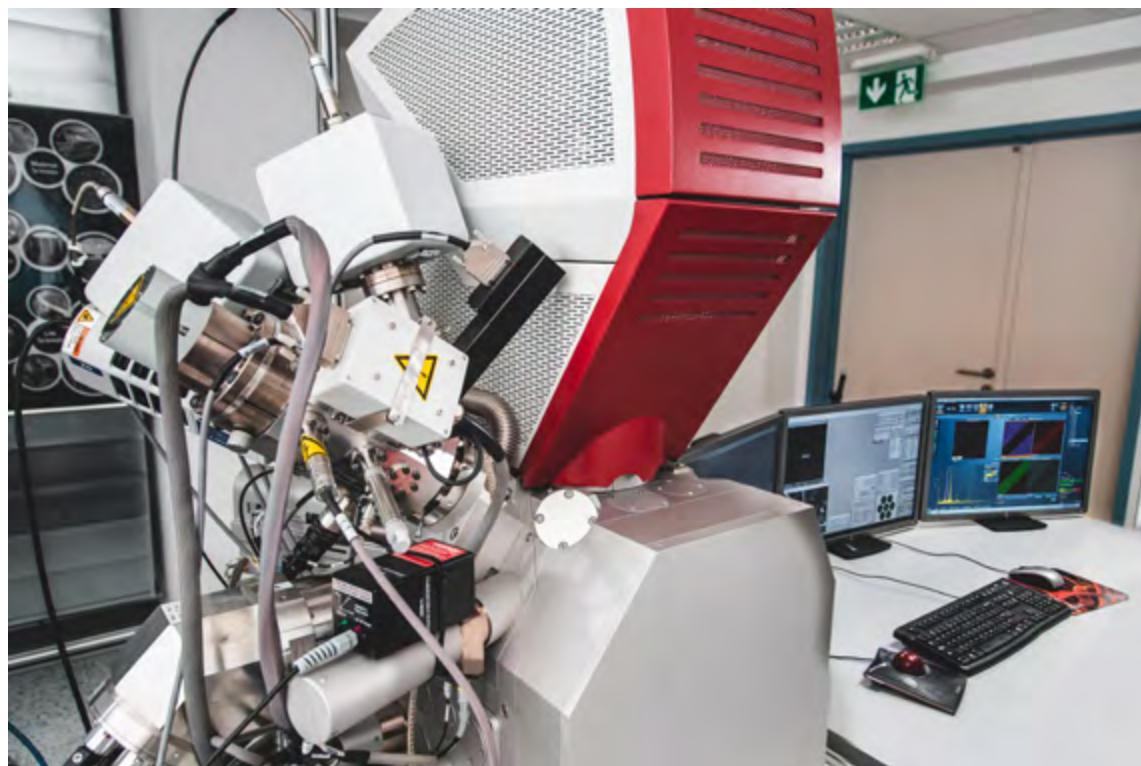


Project title: Modernisation and Upgrade of CEMNAT Infrastructure
Registration number: CZ.02.1.01/0.0/0.0/16_013/0001829
Implemented by: University of Pardubice
Call: Research infrastructures
Implementation period: 01. 04. 2017 – 31. 03. 2020

The project was supported with a grant of **CZK 61 807 137**, of which the EU contribution is **CZK 52 536 067**.

“The project opens up new possibilities for the synthesis and characterization of advanced materials suitable for industrial applications.”

prof. Ing. Miroslav Vlček, CSc.
Head of the Centre of Materials and Nanotechnologies





Robotics in the Fourth Industrial Revolution

The Czech Technical University in Prague (CTU) project in the field of mobile and industrial robotics responds to the current trend of the so-called fourth industrial revolution (Industry 4.0). It will contribute to the development of informatics, robotics and cybernetics research at CTU thanks to the acquisition of instrumentation, too, that will modernize the scientific infrastructure. The project involves the elite Technical University Delft of the Netherlands which inspires the project, for example, in the transfer of knowledge or good practice in research and development. Other partners of the project are Brno University of Technology and the University of West Bohemia in Pilsen whereby a window of opportunity is created for young talents in the Czech Republic.

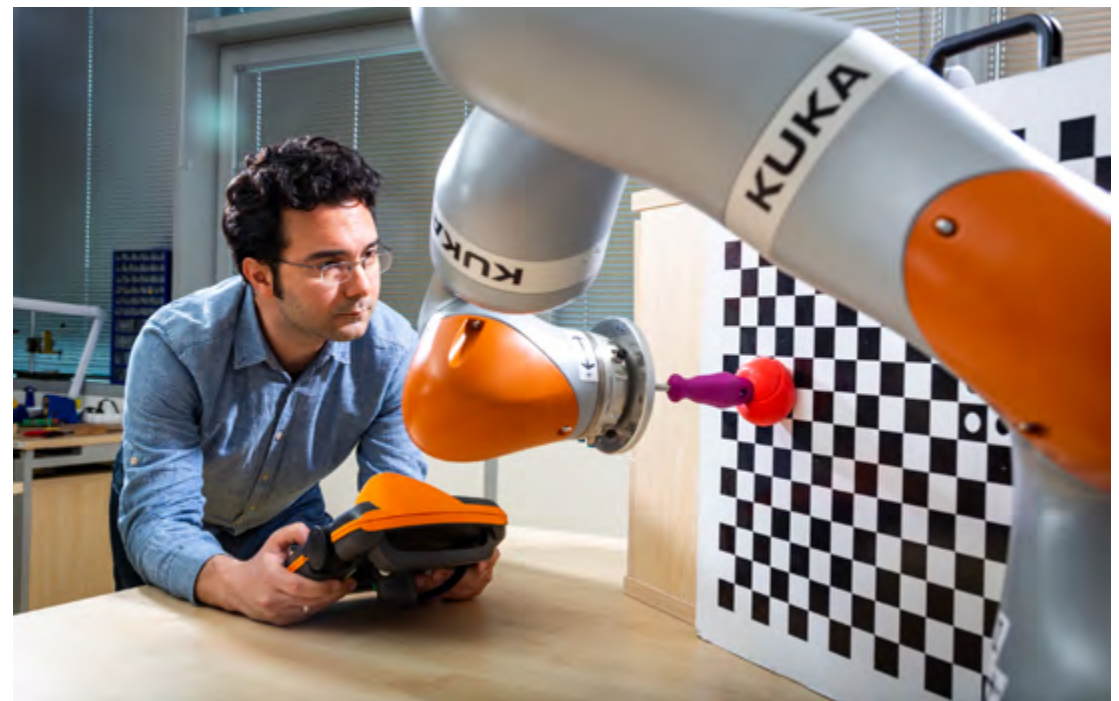
Project title: Robotics for Industry 4.0
Registration number: CZ.02.1.01/0.0/0.0/15_003/0000470
Implemented by: Czech Technical University in Prague
Call: Supporting excellent research teams
Implementation period: 01. 06. 2017 – 31. 10. 2022

The project was supported with a grant of **CZK 153 481 082**, of which the EU contribution is **CZK 109 508 752**.



“The project explores methods that allow robots to perceive the world through sensors, to work with people and to learn new tasks independently. It also deals with control systems for collaborative robot groups and with new mechanical solutions for compliant robots.”

prof. Dr. Ing. Robert Babuška
Principal investigator of the project





Development of Natural Science and Technical Doctoral Study Programmes

The project focuses on modernization of research infrastructure for education at Jan Evangelista Purkyně University in Ústí nad Labem. Within the complementary project called “Study, Research, Innovation – Development of Natural Science and Technical Doctoral Study Programmes at Jan Evangelista Purkyně University in Ústí nad Labem” innovations of already existing and development of new study doctoral programmes Applied Physics of Materials, Applied Nanotechnology, Environmental Analytical Chemistry and Landscape Restoration are planned.

Project title: Investments for Support of Doctoral Studies Development in Natural and Technical Sciences at J. E. Purkyně University in Ústí n. L.
Registration number: CZ.02.1.01/0.0/0.0/16_017/0002678
Implemented by: Jan Evangelista Purkyně University in Ústí nad Labem
Call: Research infrastructures for educational purposes – building or modernization
Implementation period: 01. 01. 2018 – 31. 07. 2022

The project was supported with a grant of **CZK 143 698 939**, of which the EU contribution is **CZK 122 144 098**.

“The aim of the project is to retrofit the laboratories of the Faculty of Science and the Faculty of Environment of Jan Evangelista Purkyně University in Ústí nad Labem. The project will also ensure the necessary infrastructure conditions to start the planned innovations of existing doctoral programmes and to accredit new ones.”

Mgr. Jan Malý, Ph.D.
Investigator of the project





Research in the Field of Occupational and Organizational Psychology

The main goal of the project is to build a research centre for a new doctoral study programme in the field of occupational and organizational psychology and traffic and transport psychology. In the research centre doctoral students will be able to work on individual and team projects using modern technology reflecting the needs of basic research or applied practice. This platform will enable students to create designs beyond the scope of the current master's degree courses and will also be attractive for teachers and researchers with international experience who will help to prepare new professionals.

Project title: Development of Research and Education Infrastructure for Occupational and Organizational Psychology
Registration number: CZ.02.1.01/0.0/0.0/16_017/0002425
Implemented by: Palacký University in Olomouc
Call: Research infrastructures for educational purposes - building or modernization
Implementation period: 01. 09. 2017 – 31. 08. 2022

The project was supported with a grant of **CZK 28 078 363**, of which the EU contribution is **CZK 23 866 608**.

“Graduates of the doctoral study programme will create a new type of professionals ready to deal with challenges in a wide range of areas of managerial, organizational, occupational and traffic and transport psychology.”

PhDr. Martin Seitl, Ph.D.
Project leader and deputy head of the Department of Psychology, Faculty of Arts,
Palacký University in Olomouc





Modernization and extension of the Power Laboratory of the Centre for Research and Utilization of Renewable Energy (CVVOZE)

The aim of the “CVVOZE Power Laboratory – Modernization of Research Infrastructure” project is to supplement the current research focus of CVVOZEPowerLab's research infrastructure with new activities and related expansion of instrumentation for the implementation of cutting-edge research and development in electroenergetics especially in the areas of high current shutdown, electromagnetic compatibility and precise diagnostics of insulation materials for high voltage.

Project title: CVVOZE Power Laboratories - Modernization of Research Infrastructure
Registration number: CZ.02.1.01/0.0/0.0/16_013/0001638
Implemented by: Brno University of Technology
Call: Research infrastructures
Implementation period: 01. 01. 2017 – 31. 12. 2019

The project was supported with a grant of **CZK 27 038 476**, of which the EU contribution is **CZK 22 982 705**.



“The project will contribute to enhancing the prestige of CVVOZEPowerLab's research infrastructure in the European Research Area and will bring new opportunities for involving the infrastructure and the host institution's researchers in international research projects such as the H2020 programme.”

doc. Ing. Petr Toman, Ph.D.
Investigator of the project





Research on Key Ecosystem Interactions between Soil and Water

The project focuses on a detailed study of processes and interactions between soil and aquatic ecosystems which include water runoff, flows of substances and nutrients, ecosystems and key biological processes. The project also aims to improve the equipment, to modernize and develop SoWa research infrastructure with unique and highly sophisticated laboratory and field apparatuses, including a set of mesocosms or an experimental river basin.

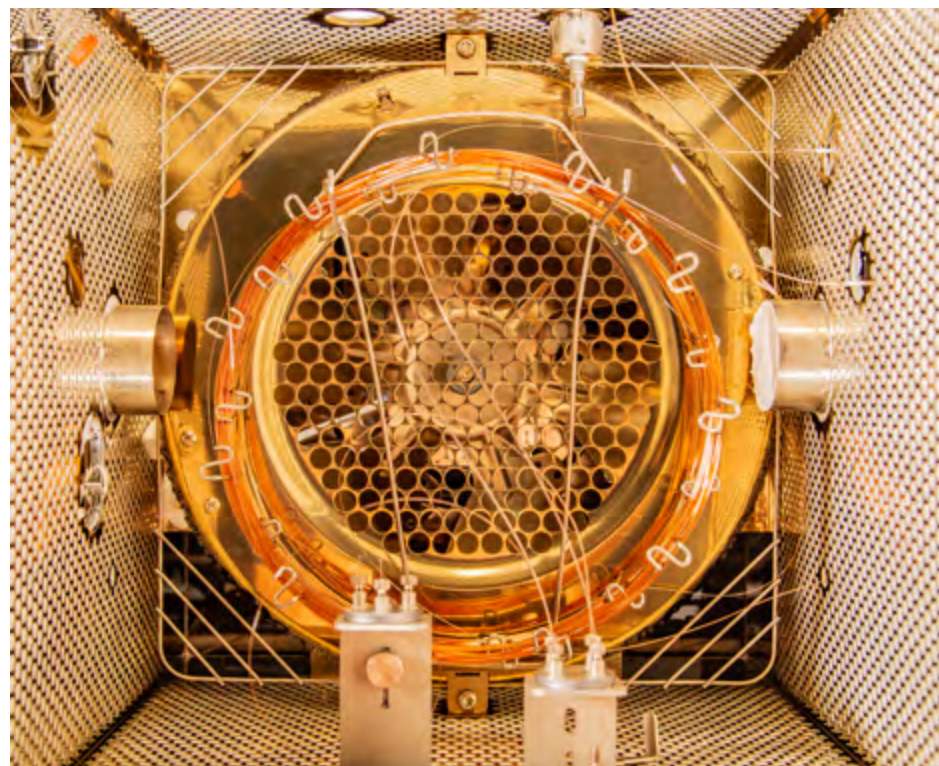


Project title: Research on Key Ecosystem Interactions between Soil and Water Using the SoWa Research Infrastructure
Registration number: CZ.02.1.01/0.0/0.0/16_013/0001782
Implemented by: Biology Centre of the Czech Academy of Sciences
Call: Research infrastructures
Implementation period: 01. 05. 2017 – 30. 04. 2020

The project was supported with a grant of **CZK 113 794 000**, of which the EU contribution is **CZK 96 724 900**.

“Our research has implications for the countryside and for how we should treat it. With this project the Czech Republic will acquire a new internationally respected research infrastructure for comprehensive monitoring of soil and aquatic ecosystems in the context of sustainable land use.”

prof. Ing. Mgr. Jan Frouz, CSc.
Director of the SoWa research infrastructure





Research of Pathogens Attacking Tree Roots

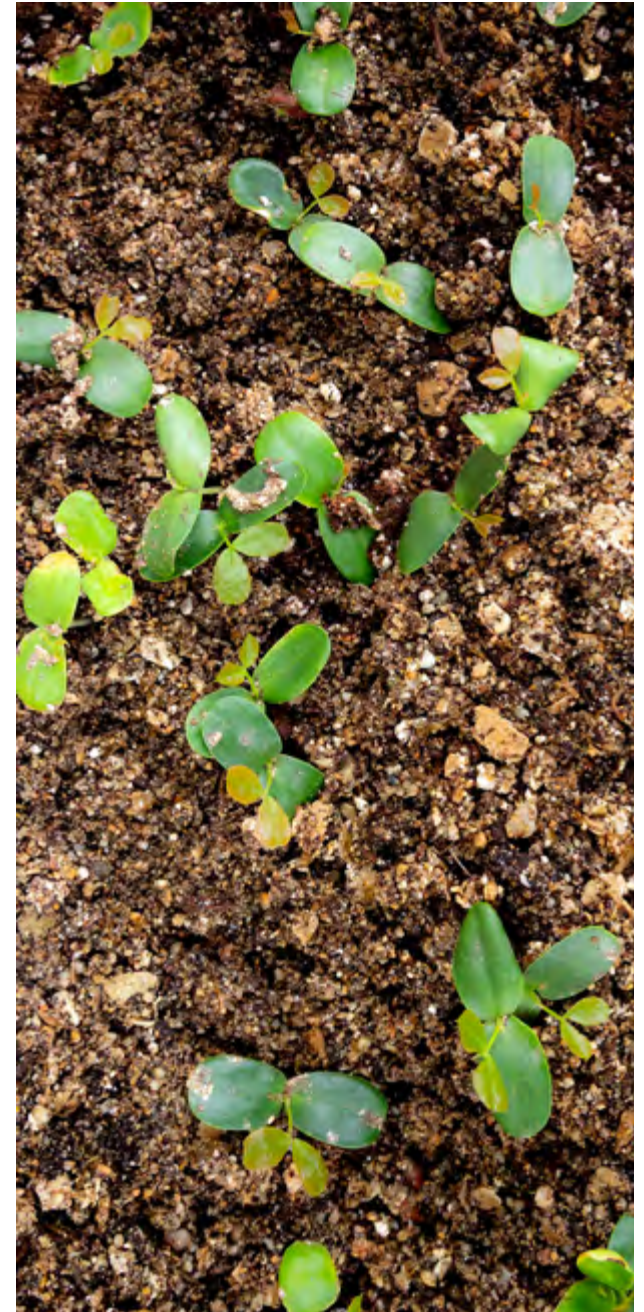
The aim of the project of the Faculty of Forestry and Wood Technology at Mendel University in Brno is to build an international team focused on the research of pathogens from the genus *Phytophthora*, which cause more than two thirds of root diseases in woody species worldwide. The research aims to deepen the knowledge of the diversity of pathogens, the mechanisms of crossbreeding and the factors affecting the resistance of woody plants. The acquired knowledge will then be used to prevent the spread of the pathogen and to protect woody species. At present, knowledge is already exchanged with growers and distributors of tree species (forest tree nurseries, etc.).

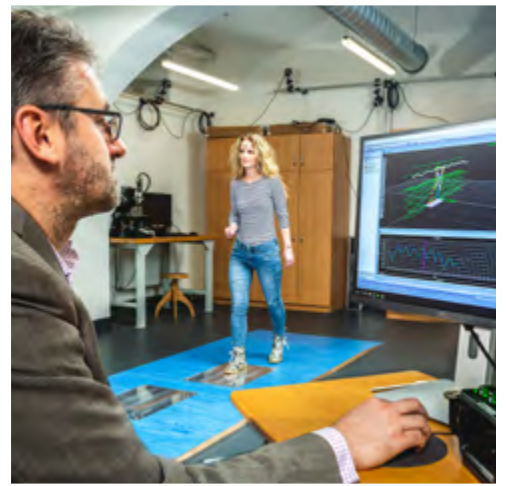
Project title: Phytophthora Research Centre
Registration number: CZ.02.1.01/0.0/0.0/15_003/0000453
Implemented by: Mendel University in Brno
Call: Supporting excellent research teams
Implementation period: 01. 12. 2016 – 31. 10. 2022

The project was supported with a grant of **CZK 223 736 312**, of which the EU contribution is **CZK 190 175 865**.

“The team led by Dr. Thomas Jung from Germany is undoubtedly the world leader in this issue. The project has substantially supported the completion of highly specialized research laboratories. For young scientists and students of Mendel University cooperation in the international team is a great opportunity and great experience that, combined with newly established foreign cooperation, further enhances the level and prestige of science.”

prof. Libor Jankovský
Dean of the Faculty of Forestry and Wood Technology and the project supervisor







Priority Axis 2

Development of Universities and Human Resources for Research and Development

This priority axis focuses on the improvement of quality and openness of education at higher education institutions together with the improvement of quality of strategic management of higher education institutions, the development of human resources for research and development including the support for education related to research or the improvement of higher education infrastructure.



Technology and Knowledge Transfer

The aim of the project of the Czech Academy of Sciences called Academic TTO is to prepare and implement a sustainable system of building expert capacities for the transfer of knowledge and technology. Its basic pillars are – informed scientists and transfer staff (more than 140 workers trained so far), support provided by not only legal experts (so far, thirty consultations provided) and mainly identification of the current barriers for the transfer and their removal.

Project title: Academic TTO
Registration number: CZ.02.2.69/0.0/0.0/16_014/0000626
Implemented by: Joint Activities Centre of the Czech Academy of Sciences
Call: Expert capacity building – technology transfer
Implementation period: 01. 01. 2017 – 31. 12. 2020

The project was supported with a grant of **CZK 38 692 654**, of which the EU contribution is **CZK 29 367 724**.



“Creating a functioning environment for knowledge and technology transfer is a long-distance run. The Academic TTO project allows us to have a good start.”

Ing. Lenka Scholzová
Head of the project





Top Level of Doctoral Education in Bioanalytical Technologies

The main benefit of the project will be the achievement of the top level of doctoral education in bioanalytical technologies. Thanks to the acquired infrastructure the study courses will respond better to the requirements of knowledge economy and labour market needs. The aim for graduates is to be able to integrate easily into international research teams and to increase the attractiveness for high-quality foreign students.

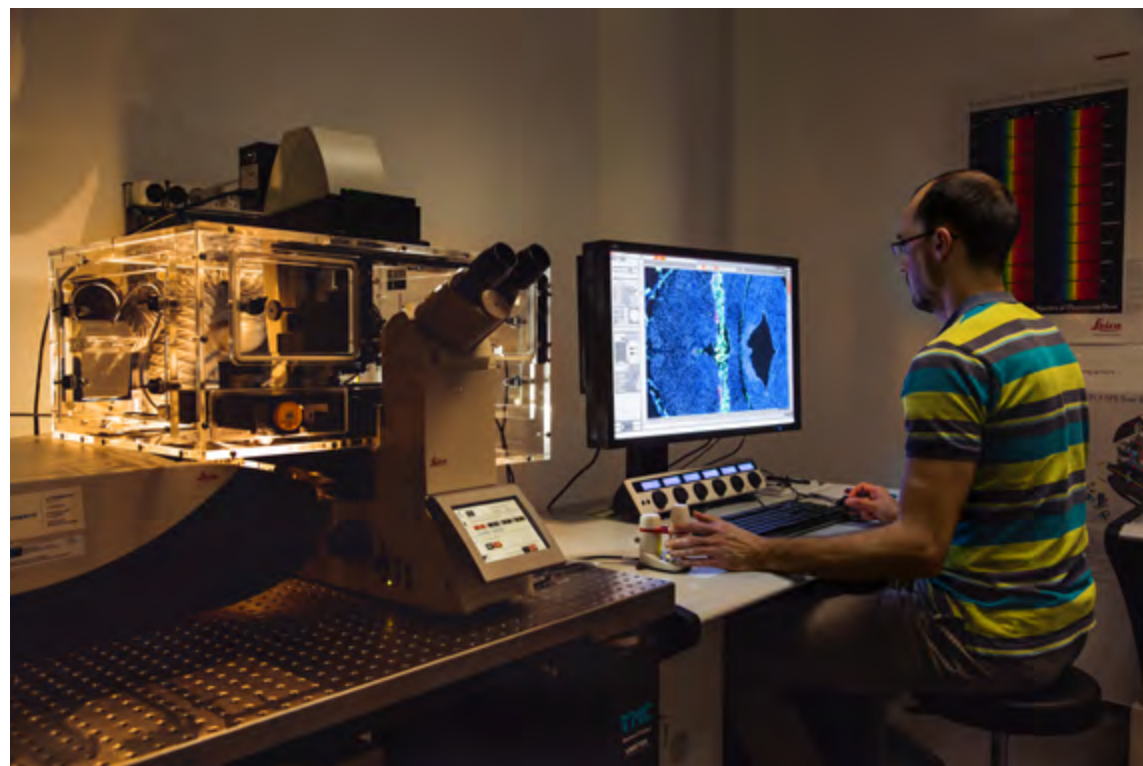
Project title: Bioanalytical Technologies in Research and Clinical Diagnostics
Registration number: CZ.02.2.69/0.0/0.0/16_018/0002605
Implemented by: Masaryk University
Call: Development of research-oriented study programmes
Implementation period: 01. 09. 2017 – 30. 09. 2022

The project was supported with a grant of **CZK 9 320 168**, of which the EU contribution is **CZK 7 922 142**.



“The project encourages the emergence of courses that will form excellent, creative scientists who will stand up to international comparisons.”

doc. RNDr. Martin Vácha, Ph.D.
Principal investigator of the project





Graduates Prepare for the Challenges of the 21st Century

The project “Infrastructure for Competitive Graduates of Mendel University in Brno (MENDELU)” will modernize classrooms, laboratories and computer equipment. MENDELU will also address access to information resources and acquire advanced instrumentation and equipment for teaching. It also focuses on students with specific needs and on the related removal of barriers for access to studying.

Project title: Infrastructure for Competitive Graduates of Mendel University in Brno
Registration number: CZ.02.2.67/0.0/0.0/16_016/0002366
Implemented by: Mendel University in Brno
Call: ERDF call for higher education institutions
Implementation period: 01. 06. 2017 – 28. 02. 2021

The project was supported with a grant of **CZK 349 322 929**, of which the EU contribution is **CZK 296 924 489**.



“By means of its unique infrastructure, Mendel University in Brno is preparing its graduates for the challenges of the 21st century, such as the global economy, advanced biotechnologies and efficient use of natural resources.”

prof. Ing. Robert Pokluda, Ph.D.
Dean of the Faculty of Horticulture





POČÍTEJTE
S NÁMI

STUDUJTE MATEMATIKU
V OSTRAVĚ

VYPOČETNÍ MATEMATIKA

Vysoká škola báňská

Infrastructure Support for Strategic Study Programmes

The project improves the educational infrastructure of the Faculty of Electrical Engineering and Informatics of the VSB - Technical University in Ostrava (VSB-TUO). The Faculty will acquire and put into operation the instrumentation necessary for implementing new and modernized bachelor's and master's degree programmes and the instruments will also find use in the activities of the complementary project 'Technology for the Future'. The teaching methods will better respond to modern trends and students will have the opportunity to gain practical experience.

Project title: Infrastructure Support for Strategic Study Programmes of the Faculty of Electrical Engineering and Computer Science of VSB-TUO
Registration number: CZ.02.2.67/0.0/0.0/16_016/0002497
Implemented by: VSB - Technical University of Ostrava
Call: ERDF call for higher education institutions
Implementation period: 01. 09. 2017 – 30. 06. 2021

The project was supported with a grant of **CZK 11 297 383**, of which the EU contribution is **CZK 9 602 775**.



“By means of implementing the project, students are given the opportunity to work with modern technologies used in practice. This skill substantially deepens their practical technical erudition in the studied field. As a consequence, the employability of graduates is increasing.”

Ing. Petr Šimoník, Ph. D.
Vice-dean for cooperation with industry





Research Fellowships Abroad

Thanks to this project the University of Pardubice welcomed the incoming foreign scientists and their know-how and experience with new methods or investigation of European projects. In return, five employees of the University of Pardubice travelled abroad for a six-month research fellowship and their new knowledge shall thus enrich not only their own research but also the expertise of their faculties. Establishing university cooperation with experts from international research centres is extremely valuable.

Project title: International Mobility of Researchers at the University of Pardubice
Registration number: CZ.02.2.69/0.0/0.0/16_027/0008008
Implemented by: University of Pardubice
Call: International mobility of researchers
Implementation period: 01. 01. 2018 – 30. 06. 2020

The project was supported with a grant of **CZK 19 987 926**, of which the EU contribution is **CZK 16 989 737**.



“Thanks to the project our staff can conduct research, for example, in one of the world's leading research institutions of its kind at the Wellcome Library in London or acquire advanced techniques in electron microscopy in a world-class research group at the University of Wisconsin-Madison, USA.”

Ing. Monika Vejchodová
Project investigator





Modern Technologies as a Key to Close Cooperation with Industry

Modern technologies and visualization aids are purchased for the newly established study course Environmental Geography and they already help to understand the complex natural processes. In combination with the newly introduced project-based teaching carried out in cooperation with physical geography experts, theory will be turned into practice. As a result university students become strong competitors in the labour market.



Project title: Modern Technologies in Environmental Geography – the Key to Close Cooperation with Businesses
Registration number: CZ.02.2.67/0.0/0.0/16_016/0002464
Implemented by: University of Ostrava
Call: ERDF call for higher education institutions
Implementation period: 01. 10. 2017 – 31. 07. 2021

The project was supported with a grant of **CZK 16 687 586**, of which the EU contribution is **CZK 14 184 448**.

“Our environmental geographers will not be lost in the world of science or industry. They use state-of-the-art technologies and methods for exploring natural hazards whereby they protect both society and natural systems.”

doc. RNDr. Karel Šilhán, Ph.D.

Head of the Department of Physical Geography and Geoecology





State-of-the-art Simulators for Future Physicians

The project deals with innovation and modernization of clinical and theoretical education and training at the Faculty of Medicine in Hradec Králové, Charles University, namely through the acquisition of simulators and phantoms enabling students to acquire the knowledge and skills necessary for future physicians. The newly acquired training simulators will serve for the training of basic examination and treatment techniques or medical decision-making under the true to life conditions.

Project title: Promoting Modern Forms of Education Focused on the Use of Simulators and Phantoms
Registration number: CZ.02.2.67/0.0/0.0/16_016/0002519
Implemented by: Charles University
Call: ERDF call for higher education institutions
Implementation period: 01. 07. 2017 – 30. 06. 2020

The project was supported with a grant of **CZK 47 566 025**, of which the EU contribution is **CZK 40 431 121**.



“As part of the project we purchase simulators and trainers to help students consolidate theoretical knowledge and master practical skills in a variety of disciplines. The acquired teaching aids will enable practicing not only basic examination and therapeutic procedures but also decision-making in various clinical situations.”

doc. MUDr. Miroslav Solař, Ph.D.
FANTOM project director





Human Resources Development in Industry 4.0 era

The aim of the project is primarily to strengthen the key competences of teaching staff and other employees of the Technical University of Liberec. Moreover, it is also aimed to introduce new study programmes increasing the relevance of university graduates in the labour market in information society, to improve the quality of assistance and consultancy services and to improve the conditions for students with special needs and students from disadvantaged socio-economic groups. An equally important goal is to foster the system of quality assurance and internal evaluation and strategic school management in the light of amendments to legislation.



Project title: The Educational Infrastructure of the TUL to Raise the Relevance, Quality and Advancement of Education in the Age of Industry 4.0
Registration number: CZ.02.2.69/0.0/0.0/16_015/0002329
Implemented by: Technical University of Liberec
Call: ESF call for higher education institutions
Implementation period: 01. 06. 2017 – 31. 12. 2022

The project was supported with a grant of **CZK 81 490 659**, of which the EU contribution is **CZK 69 267 060**.

“As part of the project, at our faculty we have accredited a new bachelor's degree programme Mechatronics. It has been called for by representatives of industrial companies from Liberec and the surrounding area for many years. Due to the high financial requirements for the acquisition of the necessary teaching equipment and the preparation of teaching, we would not be able to offer it in the needed scope and quality without the support of the Structural Funds.”

prof. Ing. Zdeněk Plíva, Ph.D.

Dean of the Faculty of Mechatronics, Informatics and Interdisciplinary Studies





Comprehensive Support for the Development of the University

The project provides comprehensive support for the development of the University of Economics in Prague in terms of staff training, it supports teaching focused on entrepreneurship and modern methods, teaching in foreign languages and internationalization. Based on the requirements of industry, it also focuses on re-accreditation of selected study programmes. The project also supports students with specific learning needs, develops cooperation with graduates and develops quality, effective and project management.



Project title: Development of Educational and Other Activities and Support of Quality at the University of Economics in Prague
Registration number: CZ.02.2.69/0.0/0.0/16_015/0002342
Implemented by: University of Economics, Prague
Call: ESF call for higher education institutions
Implementation period: 01. 06. 2017 – 31. 12. 2022

The project was supported with a grant of **CZK 131 563 025**, of which the EU contribution is **CZK 96 172 571**.

“The project has already demonstrated its benefits in several key areas – it has contributed to the setting of internal quality rules necessary for the institutional accreditation of the University of Economics and to the design and actual implementation of a staff training system that has already provided a number of training courses. Last but not least it has strengthened and deepened cooperation and synergies across faculties and workplaces of the university.”

Ing. Jiří Hájek, Ph.D.
Project manager





Laboratories for Practical Training

The project called “Technical Development of the College of Polytechnics Jihlava” aims to acquire the top-notch technical equipment and technology of laboratories to improve the quality and scope of practice-oriented instruction. The acquisition of new teaching infrastructure will make it possible to change the content of existing study programmes and to introduce new ones. The implementation of the project will help increase the quality and scope of practice-oriented instruction while increasing the number of practitioners involved in direct teaching of students.

Project title: Technical Development of the College of Polytechnics Jihlava (VŠPJ)
Registration number: CZ.02.2.67/0.0/0.0/16_016/0002403
Implemented by: College of Polytechnics Jihlava
Call: ERDF call for higher education institutions
Implementation period: 01. 09. 2017 – 31. 12. 2022

The project was supported with a grant of **CZK 67 405 660**, of which the EU contribution is **CZK 57 294 811**.

“One of VŠPJ's priorities is the development of technical courses, especially engineering, industrial automation and applied informatics. Thanks to the project “Technical Development of the College of Polytechnics Jihlava” it was possible to build a modern technical, instrumental, technological and software facility for technical courses which will meet the high standards for study programmes.”

doc. Ing. Zdeněk Horák, Ph.D.
Vice-rector for creative and design activities







Priority Axis 3

Equal Access to High-quality Preschool, Primary and Secondary Education

This priority axis focuses on education towards social integration of children and pupils with special educational needs, improving the quality of pre-school education including facilitating the transition of children to primary schools, improving the quality of education and outcomes in key competences, developing strategic management and quality assessment in education, improving the preparation of future and beginning teachers, improving the quality of education and training including enhancing their relevance for the labour market.



So That Learning Is Not Hurting!

The project enables teachers at the Vocational School and Practical School in Hlučín to continuously educate themselves and to increase their knowledge and to discover new and effective teaching methods. Pupils and teachers also try a new type of teaching – tandem teaching. Two teachers work together in lessons, they not only teach together in the class but also plan the lessons jointly. The aim is to deepen the cooperation of secondary school teachers in the area of inclusive education and development of basic literacies but also to improve the quality of teaching which will be positively reflected in the results of pupils.

Project title: So That Learning Is Not Hurting!
Registration number: CZ.02.3.68/0.0/0.0/16_035/0006142
Implemented by: Vocational School and Practical School, Hlučín
Call: Support for schools through projects with simplified cost options – Templates for secondary and post-secondary vocational schools I in less developed regions
Implementation period: 01. 09. 2017 – 31. 08. 2019

The project was supported with a grant of **CZK 602 094**, of which the EU contribution is **CZK 511 780**.



“Thanks to the project the school managed to prevent the professional burnout of many teachers, it gained the respect of parents, teachers' self-esteem increased and the learning achievements of the tutored pupils have improved.”

Mgr. Jindřich Honzík
Headmaster





Creative Partnership for Inclusive School

Creative partnership is a verified and tested programme originating in the UK, based on participation of artists in instruction. The main aim of the project is to develop key competences and functional literacy, to motivate pupils to learn, to improve the social climate in classrooms and also to support pupils from socially disadvantaged or culturally different backgrounds. In Czech schools this project has been implemented by the Society for Creativity in Education since 2013. In 2016 a new project called Creative Partnership for Inclusive School was launched in cooperation with Palacký University of Olomouc involving 56 classes not only from primary schools but also from secondary vocational schools without Maturita examination.

Project title: Creative Partnership for Inclusive School
Registration number: CZ.02.3.61/0.0/0.0/16_012/0000601
Implemented by: Palacký University in Olomouc, Společnost pro kreativitu ve vzdělávání, o.p.s.
Call: Literacies
Implementation period: 01. 10. 2016 – 30. 09. 2019

The project was supported with a grant of **CZK 44 563 360**, of which the EU contribution is **CZK 37 878 856**.



“As a creative person and an artist I activate and foster the potential of pupils in a healthy and natural way. I offer them a close, experiential and creative way to grasp the subject learnt. I believe that this way pupils learn much more about the content of the subject than just from frontal teaching.”

Jan Pražan
Creativity consultant





Maths Clubs at Primary Schools

At Maths Clubs, socially disadvantaged children have the opportunity to see that maths does not have to be boring and can be fun for all children, regardless of skin colour, mother tongue or background. Maths Clubs are groups conducted using Hejny's teaching method which places great emphasis on independent thinking of children, mutual cooperation and communication in summary on the development of all components of personality, not just mathematical literacy.

Project title: Maths Clubs - a Lab for Adapting to Teaching Focused on Building Schemes for the Needs of Pupils with Socio-economic and Cultural Disadvantages
Registration number: CZ.02.3.61/0.0/0.0/16_012/0000593
Implemented by: Nová škola, o. p. s.
Call: Literacies
Implementation period: 01. 01. 2017 – 31. 12. 2019

The project was supported with a grant of **CZK 15 947 624**, of which the EU contribution is **CZK 13 555 480**.

“We believe that with the help of the project we will break the stereotypical perception of the Hejny's method as a complicated way of teaching suitable only for gifted children. We want to prove that children who are linguistically, culturally or socially handicapped achieve the same results as the majority society when the right approach to maths is taken. And that they can also experience success at school and enjoy learning.”

Zuzana Bednářová
Project manager





Nanny as Personnel Support in Nursery School

Thanks to the possibility to apply for a subsidy for personnel support of the nursery school from the so-called “templates” call, specifically for the financing of nurses for the youngest children, the nursery school managed to provide care and quality education for two-year-old children. That facilitates above-standard individual approach and education. The result is not only a simpler, faster and gentler adaptation of children to collective education in a nursery school but it also ensures higher safety in the playroom and during outings.

Project title: Polytechnic Education in Nursery Schools Through Experience and Interaction
Registration number: CZ.02.3.68/0.0/0.0/16_022/0002583
Implemented by: Nursery School Bučovice, a contributory organization
Call: Support for schools through projects with simplified cost options – Templates for nursery and primary schools I in less developed regions
Implementation period: 01. 09. 2016 – 31. 08. 2018

The project was supported with a grant of **CZK 737 036**, of which the EU contribution is **CZK 626 481**.



“The project from the call Templates for Nursery Schools effectively supports the professional development of teachers and also helps to include children under the age of 2 in education. The Personnel Support Template for financing nurses in nursery schools strongly supports the sensitive adaptation of those children and better secures the basic childcare and provides more comfortable instruction for educators.”

Pavλίna Otrubová, DiS.
Deputy headmaster





School in Motion

The project called “School in Motion” made it possible to get better and more up-to-date ICT technology and also to provide the teachers with ICT training for Bohdíkov Nursery School. It also helped improve the quality of polytechnic and environmental education, extended the knowledge and experience of teachers and enabled their cooperation with a nanny and a school assistant. Bohdíkov Primary School was “set in motion” by educational events for teachers, parents and pupils, assistance provided by the school assistant, introduction of new teaching tools and modernisation of the outdated ICT hardware and software.



Project title: School in Motion
Registration number: CZ.02.3.X/0.0/0.0/16_022/0001691
Implemented by: Primary School and Nursery School in Bohdíkov
Call: Support for schools through projects with simplified cost options - Templates for nursery and primary schools I in less developed regions
Implementation period: 01. 09. 2016 – 31. 08. 2018

The project was supported with a grant of **CZK 634 573**, of which the EU contribution is **CZK 539 387**.



“The school has really moved forward, towards a more modern, friendly, educated and self-confident school.”

Mgr. Alena Vokurková
Headmaster



School Reading Clubs at Upper Primary Schools

The Reading Club is a safe place where children experience the joy of reading even though they are not encouraged to read at home or they find it difficult to work with a text. The Clubs are an opportunity for children to experience success. The project runs in collaboration with 27 primary schools and public libraries allowing pupils to explore the secrets of contemporary books for children and youth. The Clubs present reading as an activity that is worth spending time on. The acquired experience is also passed on to the centres of peer support for the development of children's reading and also to the general public through the website www.ctenarskekluby.cz.



Project title: School Reading Clubs at Upper Primary Schools
Registration number: CZ.02.3.61/0.0/0.0/16_012/0000589
Implemented by: Nová škola, o. p. s.
Call: Literacies
Implementation period: 01. 11. 2016 – 31. 10. 2019

The project was supported with a grant of **CZK 32 898 938**, of which the EU contribution is **CZK 27 964 097**.



“I read because if I couldn't read, I couldn't even speak well. I'm glad that they teach me something at school and I'm grateful to teachers for it...”

7th grade pupil
Primary School Švermova, Liberec



Tandem Teaching in Mathematics Lessons

The project called Tandem Teaching at Božena enabled teaching by two teachers working together in some mathematics lessons. It meant new experience both for the teachers who worked closely together and for the pupils who were taught in a non-traditional way. The teachers complemented each other, they could dedicate more time to talented children and to children struggling with maths. Tandem teaching, among other things, brings new skills to teachers and shows pupils a functioning cooperation between teachers.

Project title: Tandem Teaching at Božena
Registration number: CZ.02.3.68/0.0/0.0/16_022/0004930
Implemented by: Primary School in Litoměřice, Boženy Němcové 2
Call: Support for schools through projects with simplified cost options – Templates for nursery and primary schools I in less developed regions
Implementation period: 01. 09. 2017 – 31. 08. 2019

The project was supported with a grant of **CZK 1 244 470**, of which the EU contribution is **CZK 1 057 799**.



“The aim of the project was to increase the level of mathematics teaching at our school and to deepen the cooperation among the teachers of this subject and to improve the quality of mathematics lessons. After one year of successful implementation at the upper level of the school, we introduced tandem teaching of mathematics from the second to the ninth grade.”

PaedDr. Václav Hanč, Ph.D.
Headmaster





You Can Do This! Support for Pupils at Risk of School Failure

The project aims to support pupils at risk of (school) failure. The project encourages teachers and special educators to individualize the learning process and to seek and use new methods and forms of work. It helps children to find inner motivation to learn and the will to endure. In order to make the support as effective as possible, the school also cooperates with parents at thematic meetings where parents have the opportunity to discuss various aspects of education with teachers. The systematic, targeted support for parents, educators and pupils shows success already after the first year – not only in improving the children's performance at school but above all in working together and in the children's believing that they can do it!



Project title: You Can Do This! Support for Pupils at Risk of School Failure
Registration number: CZ.02.3.68/0.0/0.0/16_022/0006069
Implemented by: Navis Primary School
Call: Support for schools through projects with simplified cost options – Templates for nursery and primary schools I in less developed regions
Implementation period: 01. 09. 2017 – 23. 04. 2019

The project was supported with a grant of **CZK 401 091**, of which the EU contribution is **CZK 340 927**.



“As part of the project "You can do it!", we implemented a comprehensive support programme that aimed to give children the opportunity to experience success and joy in learning.”

Mgr. Jan Vepřek
Headmaster



Personnel Support for the University Nursery School

Thanks to the project the nursery school was able to reinforce its team and train the staff in the care for two-year-olds, in individualization of education and personal and social development. It is also beneficial to cooperate with a child psychologist and a special education teacher who are available to parents at various thematic meetings. The project included the acquisition of new didactic aids for thematic games.



Project title: University Nursery School of VSB-TUO
Registration number: CZ.02.3.68/0.0/0.0/16_022/0001407
Implemented by: University Nursery School of VSB-Technical University of Ostrava
Call: Support for schools through projects with simplified cost options – Templates for nursery and primary schools I in less developed regions
Implementation period: 01. 09. 2016 – 01. 09. 2018

The project was supported with a grant of **CZK 324 104**, of which the EU contribution is **CZK 275 488**.

“The project has helped us continue to realize our vision – to be a support service for the university staff and students in reconciling their personal and professional lives. The expansion of our team with nannies who care for two-year-olds is especially appreciated by women - mothers returning to work after a career break.”

Mgr. Vlasta Tobolíková
Headmaster





Life is Chemistry

The project facilitates more intensive cooperation with practitioners and enhances the interlinkage of teaching with the real work environment. The involvement of experts in teaching is mostly welcome and internships of teachers at the employers are also an integral part of the project. The newly created job position of the coordinator of cooperation with partner organisations is also of the benefit. Moreover, the project seeks to support pupils with learning difficulties, for example by tutoring.

Project title: Life is Chemistry
Registration number: CZ.02.3.68/0.0/0.0/16_035/0004761
Implemented by: Academic Heyrovsky Secondary School of Chemistry
Call: Support for schools through projects with simplified cost options – Templates for secondary and post-secondary vocational schools I in less developed regions
Implementation period: 01. 09. 2017 – 31. 08. 2019

The project was supported with a grant of **CZK 974 248**, of which the EU contribution is **CZK 828 111**.



“The project will allow us to break the school bubble.”

Ing. Radim Vajda
Deputy headmaster





opvvv.msmt.cz