

Development of a modern engineering education programme in the field of green intelligent manufacturing

Rozvoj moderného strojárskeho vzdelávacieho programu v oblasti zelenej inteligentnej výroby

BIN SGS02_2021_007



UNIVERSITY OF ŽILINA
Faculty of Mechanical
Engineering

Department of Machining
and Production Technologies



UiT The Arctic University
of Norway, Narvik



Secondary technical high school
Dubnica nad Váhom

Description of the place of project implementation

Project activities will take place in the Slovak Republic in Trenčín (Dubnica nad Váhom) and the Žilina Region (Žilina) and in Norway, Narvik. The project contributes to improving the access of students and teachers to modern vocational education in accordance with the requirements of green industry. The educational activities will include knowledge about new progressive technologies, measurement methods and ways of their use in practice, which will not have any negative effects on the environment in the Slovak Republic and Norway.

Expected timeline of the project implementation

1.9.2022 - 30.4.2024

Working together for a **green,**
competitive and **inclusive** Europe



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zelenej inteligentnej výroby

Budget / Výšku schváleného grantu
199 647, 95 €

ACTIVITIES

September 2022 - February 2024

Additive manufacturing - 3D printing
Virtual reality
Reverse engineering
Metrology



am.fstroj.uniza.sk



AKTIVITA 1

Introductory opening Conference

(september – november 2022)

- introductory seminar
 - conference schedule
 - web presentation of the project
 - publicity of the applicant and project partners
 - mutual presentation of project stakeholders
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- úvodný seminár
 - harmonogram konferencie
 - webová prezentácia projektu
 - publicita žiadateľa a partnerov projektu
 - vzájomná prezentácia zainteresovaných strán projektu



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Applicant
UNIVERSITY OF ŽILINA
Fakulty of Mechanical Engineering



Mário Drbúl
Main project coordinator



Vladimír Bechný
Project coordinator/UNIZA
PR manager



Miriam Tatranská
Finance Manager



Andrej Czán
Professional



Tatiana Czánová
Professional



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Michal Šajgalík
Professional



Jozef Holubják
Professional



Miroslav Cedzo
Professional

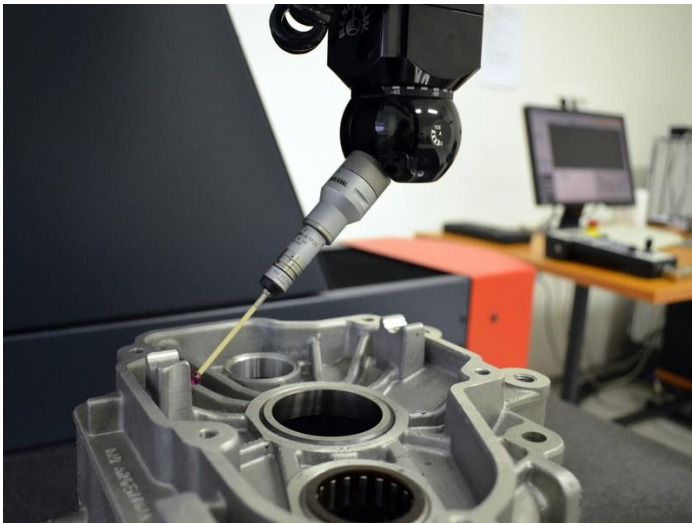


Richard Joch
Professional



UNIVERSITY OF ŽILINA Fakulty of Mechanical Engineering

University of Žilina (coordinating department is UNIZA Research Center) With more than 70 years of history, the university occupies a stable place in the Slovak educational area, not only by the number of students, offer accredited study programs, but especially significant research and foreign activities based on extensive cooperation with domestic and foreign institutions and companies.



In 2019, pedagogical staff, researchers and doctoral students took part in ensuring the scientific research activities of UNIZA, while the total research capacity was at the level of approximately 846,000 research hours. Over the last two decades, a total of 15 research centers have been established at the university, such as Centers of Excellence, Competence Centers, UNIZA University Science Park (UVP) and UNIZA Research Center (VC). for the needs of the solution specific laboratories, workplaces and researchers also from other faculties and



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Past projects:

- H2020 - SENSIBLE, SENSors and Intelligence in BuLt Environment • CZ.02.1.01 / 0.0 / 0.0 / 17_049 / 0008407, within the Operational Program Research, Development and Education - innovative and additive production technologies - new technological solutions for 3D printing of metal and composite materials¹¹
- SK-RO-0008-12 Resonance ultrasonic spectroscopy - application for nondestructive testing of biomedical prostheses SK-CZ-2013-0112 Optimization of mechanical and corrosive properties of magnesium alloys for medical applications
- SK-CZ-2013-0046 Corrosive degradation of magnesium alloys and their interaction with biological systems
- APVV-15-0405 - Complex use of X-ray diffractometry for identification and quantification of functional properties of dynamically stressed structural elements from important technical materials
- APVV-16-0129 Intelligent textiles and clothing for mobile monitoring of human vital functions
- 26220220101 - Intelligent system for non-destructive technologies for evaluation of functional properties of components by X-ray diffractometry
- 26220220121 - Modification and verification of surgical instruments
- 26220220154 - Competence Center for Light Metals and Composites
- 26220120007 - Center of Excellence in Informatics and Knowledge Systems
- 313011T420 - Synthesis of the latest knowledge from structural, technological and process engineering in order to increase the innovation potential of the engineering industry
- 313011T426 - Research and development activities of the University of Žilina in Žilina for 21st Century Industry in the field of materials and nanotechnologies



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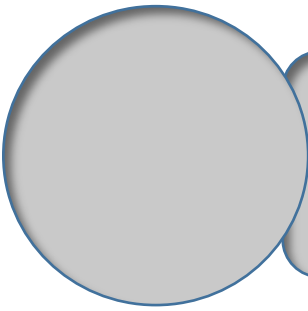
Donor project partner
UiT The Arctic University of Norway



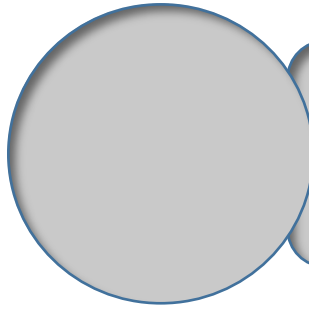
Diana S Thordarson
Coordinator



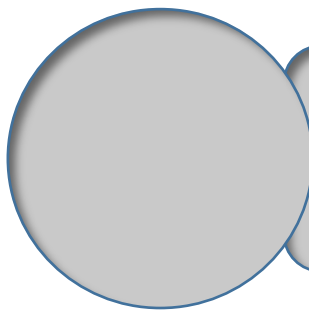
Wei Deng Solvang
Professor



Bjørn Solvang
Professor



Mathias Sæterbø
PhD student, researcher



Beibei Shu
Postdoc, researcher



UiT The Arctic University
of Norway, Narvik



Donor project partner UiT The Arctic University of Norway

UiT is a medium-sized research university that contributes to knowledge-based development at the regional, national and international level. It is the third largest in Norway and the northernmost university of the world. 15500 students and 3300 staff study and work at UiT The Arctic University of Norway.

Teaching is research based. UiT's six faculties offer, despite a dedication to Northern issues, a broad range of study programmes, among which the Faculty of Engineering Science and Technology has most extensive research activities in all fields of engineering in UiT and Northern Norway.



UiT The Arctic University
of Norway, Narvik

Donor project partner UiT The Arctic University of Norway

Past projects (selected financial mechanisms):

- HUNOROB–Norwegian research-based innovation for development of new, environmental friendly, competitive robot technology for selected target groups. EEA grants
- Cognitive Robotized Multi-pass Welding (CoRoWeld),
- Norwegian Research Council Intelligent Versatile Avatar Robot (iVAR),
- Eurostars Making Regional Manufacturing Globally Competitive and Innovative (TARGET), EU funding. Funded by InterReg-NPA Programme.
- Ongoing projects: TRINITY funded by Horizon 2020 research and innovation programme, I2P funded by Kolarctic CBC (Interreg).



Secondary technical high school
Dubnica nad Váhom

PARTNER 2
Stredná priemyselná škola v Dubnici nad Váhom



Daniela ŠPÁNIKOVÁ
Teacher of technical subjects



Pavol PUTIRKA
Teacher of technical subjects



Mária SMETANOVÁ
Teacher of technical subjects



Tomáš PECKO
Teacher of technical subjects



Darinka MÁČADOVÁ
English language teacher



Secondary technical high school
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PARTNER 2

Stredná priemyselná škola v Dubnici nad Váhom

The Secondary technical school in Dubnica nad Váhom is a vocational school providing students with complete secondary education and vocational qualifications. After four years of studying students take the school-leaving exam in vocational subjects, Slovak language and English language. The school supports students with special needs.

There are four fields of study: Mechanical Engineering, Electrical Engineering, Mechatronics and Technical and Information services.

Fields of study (ISCED 3A) - Department of Mechanical Engineering – is focused on engineering technologies, design, CNC machine programming, graphics systems and product measurement control.

The field of Mechatronics focuses on programming of production processes, programming of PLC systems, pneumatic and hydraulic systems, graphics systems.

The school is well equipped – there are workshops with CNC machine tools, control and measurement laboratories with 3D measuring equipment, electrical laboratories and mechanical engineering laboratories.