Project title: TIMREX – T-Shaped Master Programme for Innovative Mineral Resource Exploration

Co-funded by the European Union

Duration of the project: 1.1.2022. – 31.12.2024.

Project leader: University of Miskolc, Hungary

Consortium:

University of Zagreb – Faculty of Mining, Geology and Petroleum Engineering (UNIZG-RGNF), Croatia
Boliden Mineral AB, Sweden
European Federation of Geologists (EFG), Belgium
GeoGold Kárpátia Kft., Hungary
Geological Survey of Slovenia, Slovenia
INESC TEC Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência, Portugal
KGHM Cuprum sp. z o.o. Centrum Badawczo-Rozwojowe, Poland
La Palma Research Centre, Spain
Luleå University of Technology (LTU), Sweden
UNEXMIN GeoRobotics, Hungary
Politechnika Wroclawska (Wroclaw University of Science and Technology, WUST), Poland

Web page: : https://timrexproject.eu/

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Project description

The TIMREX EIT-labelled MSc programme aims to train earth science specialists, primarily geologists and geological engineers, to help meet the mineral resource exploration demand of the EU. The geographical location of the four partnering universities – University of Miskolc, University of Zagreb – Faculty of Mining, Geology and Petroleum Engineering, Luleå University of Technology and Wroclaw University of Science and Technology – helps to improve the mineral exploration workforce supply for the EU, including geographically two of the major EU's mining and exploration hubs, Scandinavia and the ESEE region. The TIMREX programme will train T-shaped earth science specialists having a strong background in classical disciplines of

geology and geophysics complemented with modern 3D modelling as well as data processing and interpretation skills, while the boundary-crossing competences will cover skills in innovative mineral exploration techniques and technologies used in the field, in laboratories, in an underground and underwater environment. Students will also be trained in sustainability, social responsibility and social licence to operate. All modules of the programme are taught in English. T-shaped mineral explorers will use Industry derived tools and methods for mineral resource exploration, mentored by experts, which is a good precondition to become a competent person under CRIRSCO (Committee for Mineral Reserves International Reporting Standards) based on entrepreneurial competences.

TIMREX will offer student two-semester mobilities between the partnering universities and organize a strong fieldwork period between M1 and M2 academic years. These field activities will give practical skills to students in field-based observation, analytical and geophysical tools, mapping, mining geology as well as underwater (seabed, flooded mines) tools of exploration, which strongly contribute to their innovative and entrepreneurship competences. Non-academic partners form both industry and research institutes will strongly contribute to the whole training as fieldwork leaders and contributors, mentors, invited lecturers, and consultants for the curriculum development. In addition, the TIMREX project will take measures to increase the gender balance among the students of the joint education programme and among the participants of the summer schools at least up to one third. Students are welcome from all part of the EU but especially from Scandinavia and the ESEE region. Mobility of students is planned based on AVSA grants, ERASMUS+ and CEEPUS sources and as self-financed.

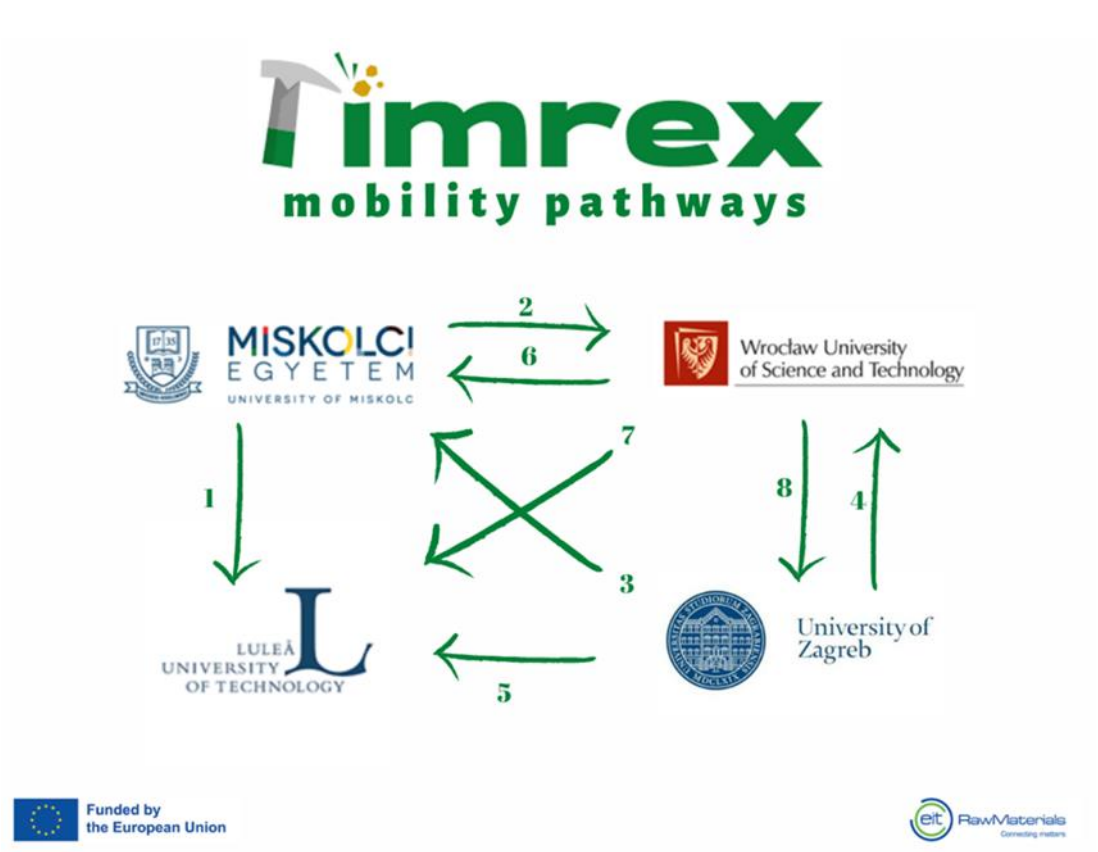

Figure 1. TIMREX mobility pathways between partnering universities

Project objectives and scopes

The objective of the TIMREX project is to provide an EIT-labelled joint master programme in the field of mineral resources exploration on the basis of existing four relevant master programmes led by University of Miskolc, University of Zagreb – Faculty of Mining, Geology and Petroleum Engineering, Luleå University of Technology and Wroclaw University of Science and Technology using structured mobility and double degree schemes.

The main goals of the TIMREX joint master programme are:
1.) strong fieldwork-based practical training to obtain innovative mineral exploration technologies applied in greenfield and brownfield mineral occurrences,
2.) solid theoretical background for completion and management of exploration campaigns,
3.) process and interpret the field- and laboratory-derived data with the industry-accepted software,
4.) development of entrepreneurial and socio-civic competences to join or establish junior exploration companies and service providers.

These goals will be achieved by three main competence-development pillars of the project.
Pillar 1: campus-based MSc programmes with at least one-semester mobility windows or double degree schemes between the university partners. The cohort starting in September 2022 will go along the mobility window scheme for all universities. Double degree schemes shall be established at universities and from September 2023, a hybrid mobility system, using double degree schemes in different relations will apply. The T-shaped curriculum at each partner will include mineral exploration focused core earth science disciplines. Innovation and entrepreneurship competences will follow a modular system, complementing the semester courses and partly given by intensive fieldwork modules of pillar 2.
Pillar 2: intensive fieldwork during the summer period between M1 and M2 academic years. This will be a specialty of the TIMREX programme and comprises a much more intensive joint education activity compared to other labelled programmes. 7-8 weeks of the summer period is scheduled as fieldwork for the students at exploration camps in Sweden and Hungary and as internship at companies.
Pillar 3: entrepreneurship, innovative and socio-civic skills will be developed by the third pillar, intensively using the EFG's mentoring programme and SME and RTO partners of the consortium.

The role of UNIZG-RGNF – Mobility scheme development

UNIZG-RGNF leads Work package 3. The main goal of the project as expected by the EIT RawMaterials is to commence a joint master programme in mineral resource exploration that fits to the EIT labelling criteria. WP3 serves to reach this goal, focusing on development and improvement of the curricula and to establishing mobility schemes between the participating raw materials-related master programs. The TIMREX master program is expected to commence in 2022 winter semester, however for the first cohort still on the structured mobility bases without double degree agreements, while for the later years the double/joint degree schemes shall work for most of mobility routes. The mobility schemes development will focus on

harmonization of mineral exploration-related host master programmes in order to set up the mobility pathways incorporating also the innovation and entrepreneurship modules set in the joint curricula. In addition, revision and update of course documentations is important precondition for the up-to-date mobility pathways also, so all course documentations should fit the standard quality required by the EIT Labelling Handbook. Therefore, a specific task will focus on the revision and update of course content and descriptions to reach this goal, concerning course-specific learning outcomes and revised teaching methods, as well as program-level learning outcomes.