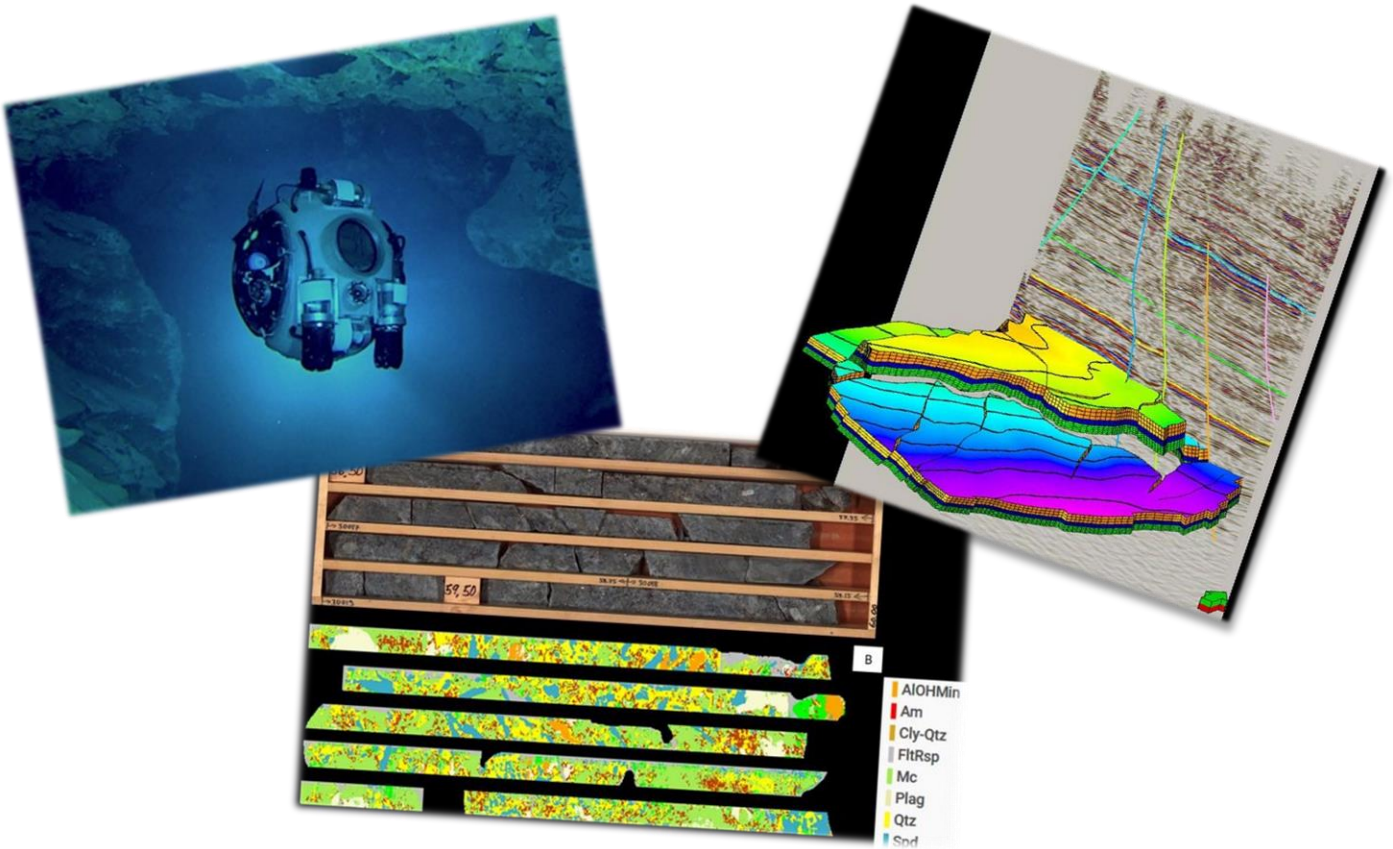
This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation

an EIT RawMaterials project

MOBI-US Online course in 2021!

Innovative resource exploration and extraction methods



This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation

WHY

This is a specific online course under the MOBI-US project given by professors at the Wroclaw University of Science and Technology, Babes-Bolyai University, and University of Miskolc, with the aim to give an overview of some latest methods developed and applied for mineral resource exploration and mining. The short course is recommended for master and PhD students first of all with mineral exploration and mining engineering specializations.



HOW

The course is organized in five units with 3-hours length, providing lectures and case studies. Each unit will finish with a short online test based on the content of the given topic. To avoid schedule overlap with regular university classes, these classes are organized in evenings starting from 5 PM and will go online. Participating students will receive a certificate about the completion of the short course.

This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation



WHAT

The schedule of the short course:

12 October 2021. 5 – 8 PM CET https://global.gotomeeting.com/join/480177213

- 5:00 – 6:15 PM: Definition of digital mine. Terminology (process, automation, robots, measurement devices, control systems). Prof. Radosław Zimroz, WUST
- 6:30 – 7:45 PM: Aims, benefits, drawbacks of automation. Industrial revolutions. Definition of industry 4.0. Overview of components of the 4th industrial revolution. Industry 4.0 and mining. Prof. Radosław Zimroz, WUST

14 October 2021. 5-8 PM CET https://global.gotomeeting.com/join/480177213

- 5:00 – 6:15 PM: Shallow geophysical investigations by combining seismic, geoelectric and direct-push logging methods. Near-surface structures. prof. Norbert Péter Szabó, University of Miskolc
- 6:30 – 7:45 PM: Inversion-based modelling for the interpretation of gravity, magnetic and geoelectric datasets. Endre Nádasi PhD, University of Miskolc

19 October 2021. 5-8 PM CET https://global.gotomeeting.com/join/480177213

- 5:00 – 6:15 PM: Review of new analytical methodologies in exploration geochemistry. István Márton PhD, Babes-Bolyai University

- 6:30 – 7:45 PM: Geochemical vectors in magmatic-hydrothermal systems: integration, and interpretation of high-precision multielement and spectral datasets. Case study: targeting for Cu-Au epithermal system in remote areas by using systematic sampling protocols, portable sensor-based devices, and remote sensing datasets. István Márton PhD, Babes-Bolyai University

26 October 2021. 5-8 PM CET https://global.gotomeeting.com/join/480177213

- Elements of technological process in mining. Automation of cyclic processes; Measuring technologies in industry 4.0. Sensors systems. Data transmission and data storage technologies. Analytics in industry 4.0. Industrial BigData, Cloud Computing. Prof. Radosław Zimroz, WUST
- Case study: underground mine (Rock Vader – Sandvik project, other use cases from Sandvik, Epiroc, MineMaster, Zanam, AOT from ZGPS KGHM, KIC project on shaft inspection, …etc). Prof. Radosław Zimroz, WUST

28 October 2021. 5-8 PM CET https://global.gotomeeting.com/join/480177213

- 5:00 – 6:15 PM: Innovative solutions for and challenges in underwater spaces exploration: sensor development and robotization. Richárd Papp, UNEXMIN Georobotics Ltd.
- 6:30 – 7:45 PM: Sea-floor exploration and exploration of flooded underground spaces, the case study of the UNEXMIN-UNEXUP projects . Norbert Zajzon PhD, University of Miskolc

This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation

PROFESSORS



Prof. Dr. Radosław Zimroz: Dean of Faculty of Geoengineering, Mining and Geology, Wroclaw University of Science and Technology. Professor Zimros is a mining engineer, his research field is connected with automation and digitalization of mining processes, including condition monitoring; signal processing; data analysis; time varying systems; pattern recognition; process monitoring and analysis; advanced analysis; industrial BigData, IoT; monitoring systems; automation, robotics; inspection robots. His lectures are based on his course Digital mining provided to master students of the WUST.



Prof. Dr. Norbert Péter Szabó obtained his M.Sc. degree in geophysical engineering in 1999 from Faculty of Mining Engineering, University of Miskolc. He has been continuously working from graduating at the University of Miskolc. He obtained his Ph.D. in 2005. Since 2019, he has been a full professor at the Department of Geophysics. He is currently the head of Geophysical Department and vice-dean for scientific affairs at the Faculty of Earth Science and Engineering. He conducts research on geophysical inversion and exploratory (multivariate) statistical methods and their applications in earth sciences (mainly water and hydrocarbon prospecting). He delivers lectures on well logging, gravitational and magnetic exploration methods, engineering and environmental geophysics and geostatistics.



Dr. Norbert Zajzon completed his MSc and PhD studies about mineralogy, geochemistry and solid mineral resources at the Eötvös Loránd University, Budapest. His research subject was instrumental mineralogy and geochemistry related to global environmental crises, mass extinctions. Until now he is dedicated to numerous analytical techniques in the geoscience field. He is an associate professor at the Institute of Mineralogy and Geology, and head of the Mineralogy – Petrology Department, University of Miskolc (Miskolc, Hungary), teaching instrumental mineralogy, ore deposits and astronomy and planetology and head of the microprobe laboratory and co-leader of the 3D laboratory. He has experience in numerous H2020 projects, like Robominers, or UNEXMIN where he was the coordinator. UNEXMIN project. The UNEXMIN results leaded to its continuation the EIT Raw Materials financed UNEXUP project where he also is the coordinator. He is also the scientific advisor of the UNEXMIN Georobotics Ltd, which was founded by the UNEXMIN consortium.

This activity has received funding from the European Institute of Innovation and Technology (EIT), a body of the European Union, under the Horizon 2020, the EU Framework Programme for Research and Innovation



István Márton PhD is an exploration geologist running his geo-consulting start-up firm, and is a visiting lecturer of the Babes-Bolyai University in Clus-Napoca, Romania. He has wide experience in precious and base metals exploration, with extensive fieldwork, detailed geologic mapping and project generation in hydrothermal altered zones, core logging and structural geology mapping in metamorphic and volcanic terranes. He has practical experience in geochemistry and ore petrology, with emphasis on Tethyan Neogene volcanism, epithermal and porphyry-Cu mineralization, sedimentary rock-hosted gold deposits and related hydrothermal processes, metamorphic core-complexes and Mesozoic alkali magmatism (with REE mineralization).

REGISTRATION

Students asked to register for the course **by 10 October 2021** at the https://forms.gle/5LFYQZR3Dr2qYH746 link.

MEETING LINK

The GoToMeeting link to the course (same link to all lectures) will be sent to the registered participants.