Dubrovnik International ESEE Mining school
DIM 2018 – Deep intelligent mining

October 15th to 20th 2018

Inter University Centre Dubrovnik, Croatia

European Institute of Innovation and Technology (EIT) has granted financing of the educational project "**Dubrovnik International ESEE Mining school**" (acronym DIM ESEE) worth 0.5 M€ funded through the program KIC Raw Materials. The **project consortium** consists of **eight key higher education and research institutions** from the area of Eastern and Southeastern Europe (ESEE region) with the Faculty of Mining, Geology and Petroleum Engineering (University of Zagreb) as the lead partner.
The **main objective** of the project is **knowledge transfer**, as well as **strengthening innovation capacities** in the mining, recycling and waste management sectors. This is a lifelong learning project that will be implemented in close partnership with industry stakeholders in all project consortium countries. During the **four years of project implementation**, the following **key topics** will be analyzed:

- 2017 Zero waste management
- 2018 Deep intelligent mining
- 2019 Small mining sites
- 2020 Recycling

The **Dubrovnik International ESEE Mining school** brings together international experts in the field of raw materials in the heart of the ESEE Region. Within the thematic workshops and project work **the focus lies on direct knowledge transfer** from renowned experts to the participants, but also the creation of an **open dialogue** between graduate students, scholars, researchers, the industry and the wider society. The knowledge and skills gained at DIM aim at increasing the employability of mining engineers. Furthermore, wider general education on topics of mining and processing and especially the improvement of mining techniques, resulting in a lower environmental impact, help gain **wider societal acceptance of raw material extraction and processing**. In the long run, the program will lead to an **increase in sustainable mining and processing activities**, which will result in economic growth and the creation of employment in respective countries.

Consumption of mineral resources is closely interlinked with technological and population growth of the modern societies. Over the centuries, mining activities have been progressing to deeper levels of the Earth crust, facing more and more technically challenging environments, namely rockbursts, gas outbursts, high temperature and in situ stresses, large deformation, squeezing and creeping rocks. In order to satisfy consumption needs of the 21st century mineral markets, modern underground mines requires new innovative solutions and best practice. Specific environmental, health and safety standards has to be established and introduced ti deep mining community as well.

Under the **2018 topic Deep intelligent mining DIM ESEE** project partners will discuss several important questions and topics: What characterises a deep mine? What characterises an intelligent mine? What are the major problems in deep mines and how can we mitigate / solve them? How can we make a deep mine more "intelligent"?

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(1) Main challenges of deep mining including the lack of precise knowledge of the deposit and the geological aspects, the management of uncertainties, and the economic viability and funding for the development of deep mines.

(2) Management of rock pressure: Deep mines are characterised by complicated stress conditions leading to hard to control fragmentation and breakage of material, control of effects on surface, seismic events and associated safety and support measures.

(3) Health and safety and risk management in deep mining including occupational health & safety, process safety, increased ventilation demand and management of the high temperatures.

(4) Application of explosives under a technically specific challenges in deep mines, with link to health and safety management.

(5) Accessing and infrastructure in deep mines covers all aspects from quick and rapid development of the mine and choice of excavation method and equipment to the needs and deployment of infrastructure like water, air and power.

(6) Case studies of relevant examples in the sector will be provided by industry representatives and have to be solved by the participants throughout the week. Finally, the case studies are presented and will be evaluated by a jury.

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