

# Chair of Technical Mining, Geotechnics, Geothermal and Urban Mining (CMGU)

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The Chair of Technical Mining, Geotechnics, Geothermal and Urban Mining is responsible for the teaching and development of basic thematic units, i.e. technical mining, geotechnics, geothermal, mechanical processing techniques, beneficiation of mineral raw materials and recycling. Within this frame, the main activities of the Chair focus mainly on the following technically technological fields:

- Rock mechanics and geotechnics, which cover a wide array of geotechnical work on and below the Earth's surface.
- Construction of various underground facilities, with special focus on building tunnels.
- Modern technologies of extracting mineral raw materials which encompass complete procedures of underground and surface excavations.
- Technical mining, which mainly focuses on drilling and blasting at underground and surface work, and on underground ventilation and draining of underground facilities.
- Economics and organisation, which comprise the basic knowledge of organising, planning and optimising technological processes in mining and geotechnology.
- Drilling technique which covers the technologies of rotary drilling at the research and extraction of oil, gases and layer water.
- Mining engineering and transport comprises all machines and devices used for mining and geotechnical work at surface and underground mining, geotechnical facilities, and various surface and underground constructions.
- Research methods of geothermal potentials and drilling at exploration and exploitation of geothermal resources.
- Exploitation of geothermal resources and technological processes for energy utilization of geothermal resources.
- Methods and means of processing extracted ore or waste material intended for re-use.
- Technological processes of processing and preparing ore or secondary raw materials with the crushing and grinding processes on the primary side of mechanical process technology and further processing for a more effective separation of valuable fraction from uneconomic fraction (gangue) of an ore.
- Technological separation processes, i.e. sifting, grading and phase separation (filtering, compressing, de-dusting), for final use in construction and elsewhere.
- Techniques of mineral raw materials beneficiation to increase the concentration of a beneficial substance.
- Returning mineral raw materials for re-use or recycling to decrease the environmental impact and energy consumption required for processing.

The mechanical process techniques or beneficiation techniques of mineral raw materials are practically included into all recycling procedures. The latter are specific with regard to the origin of waste material; however, the procedures are still relatively similar to those in primary processing or mineral raw materials

preparation, respectively.

The Chair of Technical Mining, Geotechnics, Geothermal and Urban Mining provides a constant connection with practice, thus ensuring the topicality of the study programme. In addition to the study process, basic and applied research takes place within the frame of the Chair and its laboratories, which is co-financed partly by the Ministry of Higher Education, Science and Technology, and by various corporations. Students of higher study years and especially graduates are included as well into the implementation of research work.

Moreover, the colleagues at the Chair are active at international professional organisations and regularly present their research achievements at world congresses and specialised international expert consultations and workshops.

### **HEAD OF CHAIR**

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