

Best practices in sustainable resource extraction: knowledge exchange between universities in the European Union and Central Asia within the framework of the EMINReM project

Together eight universities from six countries are modernizing the master's degree programs by Erasmus EMINReM project in the field of mining. The partner universities of the project held a seminar at TU Bergakademie Freiberg from March 25 to 29.

The purpose of the meeting: to familiarize with best practices in the field of content and forms of teaching on the topic "Eco mining" from partners from the European Union to 7 partner universities in Ukraine, Kazakhstan and Uzbekistan. In particular, the master's degree programs "SINReM" and "Sustainable development in mining and reclamation" were presented as guidelines for the modernization of educational programs. SINReM is an international master's degree program in Sustainable and Innovative Natural Resource Management, which was developed and operates between three universities TU Bergakademie Freiberg (Germany), Ghent University (Belgium) and Uppsala University (Sweden).

Partner universities presented their master's degree programs in Mining and Surveying, then held a discussion on ways to modernize the presented curricula.

From Satbayev University, the discussion was attended by Associate Professor of the Department of Surveying and Geodesy Toktarov Ayan Askarovich and senior lecturer of the Department of Metallurgy and Mineral Processing Daruesh Galamat Sultanbekuly.

Teachers of Satbayev University presented reports on the content of OP 7M07203 – "Mining Engineering", 7M07227 – "Surveying" and 7M07226 – "Mineral processing", where they gave a detailed description of the list of teaching disciplines, the number of their ECTS credits and academic hours. The report was followed by a discussion of the presented educational programs and outlined ways to modernize them by including new modern disciplines in the curricula based on the experience of leading European partner universities of the program.

The seminar participants were also introduced to classrooms and laboratories, modern devices, equipment and software used in the educational process at Satbayev University for training students in the specialties "Mining Engineering", "Surveying", "Metallurgy and mineral processing". Colleagues from European partner universities highly rate the technical equipment of the Department of Surveying and Geodesy at Satbayev University, which uses all types of modern surveying and geodetic equipment and instruments, such as surface and underground laser scanners, unmanned aerial vehicles, equipment for global navigation satellite systems, electronic total stations, digital levels and theodolites.

At the end of the working visit, our teachers got acquainted with the laboratories of the digital learning environment of the TU Bergakademie Freiberg Mining Department, as well as with semi-industrial and industrial laboratory

research and testing centers, which will allow applying the experience gained in improving the laboratories of our university in the future.