

TRAINEDSEE v.2 Communication paper 1

June 2020

Title of the project: TrainESEEv.2. Training trainers in East and Southeastern Europe

Duration of the project: 2020 - 2021

Lead Partner:



University of Zagreb



University of Zagreb
FACULTY OF MINING,
GEOLOGY AND PETROLEUM
ENGINEERING

Project partners:



TECHNICKÁ
UNIVERZITA
V KOŠIČIACH



MISKOLCI
EGYETEM
UNIVERSITY OF MISKOLC



AGH



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University of Athens

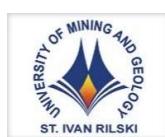


Aalto University

KGHM CUPRUM

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1899



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About the project

TrainESEE v.2 is a capacity building project targeted at the six universities of the East and South Eastern Europe (ESEE region), with a focus on improving specific generic skills, in line with the curricula insufficiencies identified through the implementation of the Train ESEE pilot (2017-2018). In TrainESEE v.2 four training modules will be developed, implemented and prepared as acceleration programmes: Teaching methodology, Project preparation and management, Innovation and entrepreneurial module and Science to Business module. Within the project, each of the six participating RIS* Universities will collaborate in the preparation of the acceleration programmes. In short term (during the project duration), it is estimated that about 240 students will benefit from 140 improved RawMaterials-related courses, increasing their level of innovation and entrepreneurial skills. In terms of benefits for the universities, it is expected that the number of the project submissions to the national/international funding schemes will increase, resulting in a gradual long-term increase of the participating universities' overall ranking.

TrainESEE Communication papers from six universities

Poland

AGH University of Science and Technology (AGH)

Four strategic documents (national and European) such as: Peer Review of Poland's Higher Education and Science System, AGH University Strategy and two Reports Professional fates of graduates of University and Faculty of Mining and Geoengineering were used to create SWOT analysis.

The prepared analysis was supplemented based on the questionnaires. Surveys for individual have been sent to academic staff for more accurate conclusions. Requests based on questionnaires accounted for around 20% of the entire analysis. Based on this, 4 SWOT analyses were created separately for each module.

- In **Teaching methodology module**, the most important conclusions relate to insufficient implementation of online teaching tools by academic staff, low implementation of PM tools, and need of additional support and training programs for teachers in pedagogical skills and tools.
- SWOT analysis of **Project Management module** shows that despite growing employee involvement in obtaining grants and research projects, the low percentage of academic staff acted as Project coordinator.
- In the case of the **Entrepreneurship module**, it is observed that Faculty provides an insufficient number of training or courses about the entrepreneurship and project management for academic staff. The need for training in the field of commercialization of research project results and actions towards increasing participation in international projects has been noticed.
- Low level of commercialization of research results, unsatisfactory use of the potential of projects financed by the European Union was highlighted among the weaknesses in the **Science to Business module**. As part of improving skills in this module, training of research personnel in the field of commercialization of research project results is most needed.

*The EIT Regional Innovation Scheme (EIT RIS) is designed for EU Member States and Horizon 2020 Associated Countries in Europe who are modest and moderate innovators (according to the European Innovation Scoreboard), and where Innovation Communities have few or no partners. More can be found at <https://eit.europa.eu/our-activities/eit-regional-innovation-scheme-ris>



Ukraine

Dnipro University of Technology ex. National Mining University (DUT)

The SWOT analysis of the Dnipro University of Technology was conducted using the operating data of the following departments of the University: Mining Engineering and Education; Surface Mining; Ecology and Technologies of Environmental Protection; General and Structural Geology; Chemistry; Construction Geotechnics and Geomechanics; Foreign Languages.

The main target of the research was to **identify the education needs in Teaching Methodology, Project Development and Management, Entrepreneurship and Science to Business modules**. The analysis specifies to requirements of the following normative documents: Law of Ukraine on Higher Education; Strategy of the Dnipro University of Technology until 2026; Strategic plan for the development of the Dnipro University of Technology until 2026; Strategic plan for the development of the Dnipro University of Technology until 2025; Internationalization Strategy Development of the Dnipro University of Technology.

The SWOT analysis was based on the results of the twelve questionnaires completed by the Units and Individual professors and associated professors. These questionnaires were generalized not only for the four mentioned above education needs but also for the bachelor, master and integrated master programs. It allows to justify the main challenges related to pedagogical aspects of the teachers work and students studying problems.

The following was achieved:

- for the surveying the “Project Development and Management Module” we had involved units and individuals from 28 to 50 years of age. Most of our personnel is using the mentioned PM principles “often”;
- chosen applicants have participated in National and International funded projects, including scientific collaboration with the industry business partners;
- surveying the “Science to Business module” have shown that inspite of a huge quantity of patents, DUT has the problem of commercializing the scientific results;
- unstable political situation in Ukraine has negative influence on training process, scientific and research activity.



Greece

National Technical University of Athens (NTUA) School of Mining and Metallurgical Engineering

The analysis is based on the following documents: Mission and structure of NTUA & SMME, General higher education policy and objectives, the Greek National Policy for the exploitation of Mineral Resources, the External evaluation report of NTUA (2016) and the relevant EIT Raw Materials documents, i.e. ESEE Education concept note. SWOT analysis and Education needs were also specified based on the results of the four questionnaires completed by the Units and Individual members of the SMME Community concerning the above competencies. Centralized Placement office, incubators, and Centralized Research Management office support the employment of graduates, the development of entrepreneurial skills of students, and the implementation of research projects, respectively.

The results indicated the following:

- *the application of digital tools in the **teaching process** is encouraged, especially during the Covid 19, and various teaching tools and information technologies are used;*
- *the application of inclusive **teaching techniques** during lectures needs to be enhanced;*
- *during the last decades NTUA & SMME present a significant record of **research projects** funded by international, EU and national fund, however it would be useful to further develop the project management competencies of younger academic staff and researchers;*
- *specific courses and seminars focused on **entrepreneurship** are available, however both students and research and academic staff could be supported to further develop these skills;*
- *the number of scientific publications and respective citations is high, indicating the significant amount of knowledge created through research projects;*
- *the support and promotion of innovation (transferring scientific research results into business cases) and the commercialization of research results could be improved, also through the **Science to Business** module.*



Slovakia

Technical University of Kosice, Faculty of Mining, Ecology, Control Process and Geotechnologies (TUKE)

SWOT analysis was prepared at Faculty of Mining, Ecology, Control Process and Geotechnologies, Technical university of Kosice, in cooperation with faculty Project Department and Regional HUB Center Kosice.

The prepared analysis was subsequently supplemented on the basis of questionnaires. Questionnaires were completed by directors of our institutes according given data by the relevant guarantors of the study programs related to raw materials. Based on this, 4 SWOT analyses were created separately for each module.

- In **Teaching methodology module** is potential to increase digitalization in teaching – online educational and e-learning trainings, teamwork during exercises, to improve digital, communication and collaborative skills and entrepreneurship competence of students as well as weak or missing English language skills of the students.
- **Project Management module** could focused to project-based learning, to introduce a more circular economy. There is also space to increase awareness of the importance of technical science, especially raw materials technologies.
- In the case of the **Entrepreneurship module** and the **Science to Business module** there are problems with transferring the new innovative technologies from research to industry and it is insufficient cooperation between industry and public sector (local government, stakeholders). Because it is high interest of enterprises to increase the production efficiency with experts from our faculty, there is a potential to form partnerships with local employers.

Hungary

University of Miskolc (UM)

The SWOT covers the position of two faculties – Faculty of Earth Science and Engineering as well as Faculty of Materials Science and Engineering to the four modules that will be developed by the project. Statements in the SWOT analysis were complemented by the summary of questionnaires completed by competent staff members from the two faculties and also from university level.

- Findings of the analysis show that **teaching methodology** can be developed, focusing on application of student-centered teaching methods and gamification elements. With staff teaching methodology trainings (new interactive methods, gamification opportunities, differences of Generation Z, online skills etc.) the involvement of students and efficiency of teaching can be increased. The collaboration of students with industry partners shall also be developed thus the students can learn up-to-date practical skills.
- Project activity of the UM is continuously growing, e.g. more than five H2020 and over ten EIT RawMaterials projects are running at the university. With the help of current national and international projects (e.g. EFOP), the number of young staff and students involved in projects has been increased. On the other hand, **project management** trainings and guidelines available for recent and future project managers are missing and project managers with accreditation have problems with using the PM tools in university environment due to the regulations. Lack of software background for project management and follow-up is also an important issue.
- Strategy for **science to business** planning and solutions for this are at the UM in early stage. The shifts between scientific research and business applications are not yet in a straightforward way. It requires additional skills that assumes some training for the academic staff. The main challenge is to lead academic research to be able to develop potential market products and find the right funds for this transform.
- Issues and challenges for the science to business topic are strongly interrelated with gaps and issues to develop the **innovation and entrepreneurship** potential.



Bulgaria

University of Mining and Geology "St. Ivan Rilski" (UMG)

The SWOT analysis is carried out for the UMG "St. Ivan Rilski" as a whole (Faculty of Mining Technology, Faculty of Geology and Exploration, Faculty of Mining Electromechanics and the Kardzhali branch).

Based on the expert evaluation of the strengths and weaknesses of UMG, as well as the external opportunities and threats, a SWOT-analysis methodology has been adapted for evaluation the effectiveness of the educational activities of higher education institutions. All the data, assumptions and conclusions are on the basis of Institutional Accreditations of University of mining and geology "St. Ivan Rilski" for 2012 and 2018, Guiding frameworks for Entrepreneurship Education - HEInnovate & Entrepreneurship360 and a business-to-science project BG051PO001-3.1.07-0031 "Analysis and development of curricula and programs of mining and geology, depending on the business needs and requirements of the labor market" 2013 –2015.

The prepared analysis is subsequently supplemented on the basis of questionnaires for individuals, filled by selected representatives of the four units, who are fluent to the targeted topics (modules). The whole information is generalized in an Integrated Questionnaire for the University.

Some of the major conclusions per modules are:

- **Teaching methodology module** – low implementation of online teaching and PM tools by academic staff, necessity of additional support and training programs for teachers in pedagogical skills, communication and language skills; need of access to e-platforms.
- **Project development and Management module** - demand of project-based learning, lack of softwares.
- **Science to Business module** – strong cooperation and good implementation of the ideas, need of curricula update in relevance with the technological development in RM sector.
- **Entrepreneurship module** – possibility for development of new specialties and curricula update, need of linking the development of the university with national and EU strategies for the utilization of natural resources, good potential to form partnerships with local employers in the private, non-profit and public sectors.

