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NEWSLETTER Nr. 5

EnhaNcing MEchanical Engineering EDUcation in Moldova for Industry 4.0

NeedEDU 4.0

FOR ENGINEERING EDUCATION

Summary:

- **Main Outputs**
- Activities

NEEDEDU4.0: WORK PERFORMED AND MAIN ACHIEVEMENTS DURING THE FIRST PHASE OF THE PROJECT

Work Package 1 – PREP: Refinement of Needs Assessment and Analysis

Key foundational activities were completed:

- Kick-Off Meeting: The project commenced with a high-level kick-off meeting attended by 49 participants from Moldova, Germany, and Romania. The meeting successfully established team cohesion, refined project objectives, approved the activity plan, management structures, and Management Handbook, appointed advisory members, and ratified the Terms of Reference for the external evaluator.
- Stakeholder Surveys: Two comprehensive surveys were conducted—one targeting business stakeholders and another academic staff. The aim was to assess industry needs in mechanical engineering and identify gaps in pedagogical capacity. The findings directly informed the development of relevant training modules for the new inter-university master's programme, ensuring alignment with labor market demands and digital education strategies.
- Consortium Formation: A formal inter-university consortium—NeedEDU—was established through a constitutive agreement between the Technical University of Moldova (TUM), Alecu Russo State University of Bălți (USARB), and the State University of Comrat (USC).
- Study Visits: Three strategic study visits were organized:
    1. RWTH Aachen University, Germany
    2. Fritz Dräxlmaier GmbH & Co. KG Study/Education Center, Germany
    3. Transilvania University of Brașov (UTBV), Romania
    These visits provided critical insights into labor market requirements and innovative educational practices. Resulting visit reports informed curriculum development.

Work Package 2 – DEVELOPMENT: Design of the NIMP Programme and Laboratory Equipping

Activities completed:

- Programme Design: Guided by stakeholder input and EU partner insights, the Moldovan consortium universities (TUM, USARB, USC) developed a 120-credit inter-university master's programme titled "Smart Industries and Digital Transformation".
- Capacity-Building Training: A "Training of Trainers" (ToT) initiative, hosted at TUM and delivered by experts from RWTH and UTBV, provided four weeks of advanced training. Topics included innovative teaching methods, assessment strategies, and blended learning techniques—skills previously underrepresented in Moldovan higher education.
- Blended Learning Framework: Based on EU partner experience, a blended learning implementation model was designed to support hybrid delivery of the master's programme.
- Institutional Approvals: The new programme received approvals from academic councils, CDSIs, and the Senates of all three partner universities. The Ministry of Education and Research (MEC) officially approved the curriculum to start interuniversity program.
    - Launch Timeline: The master's programme will launch in September 2025 at TUM. USARB. USC will join in September 2026, following graduation of its Mechanical Engineering undergraduate cohort.
- Laboratory Equipping: Equipment needs were identified at each Moldovan institution. Procurement is underway, with installations scheduled for the start of the academic year.

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Work Package 3 – Implementation of NIMP

Activities completed:

- Career Guidance Activities: Efforts to promote the programme to prospective students are in progress.
- Digital Platform Development: The content of the NIMP programme is being consolidated onto a joint Moodle platform accessible to all three Moldovan universities, in accordance with the project schedule.

Work Package 4 – Quality Assurance, Evaluation, and Sustainability

Activities completed:

- Governance Structures: A Quality Assurance Body, Advisory Group, and External Evaluator were officially established.
- Internal QA Workshop: A project-wide workshop addressed internal processes and the quality standards of each work package.
- Monitoring Meetings: Three online monitoring sessions were conducted by the Advisory Group, producing detailed evaluation reports on project outputs and adherence to quality criteria.
- External Evaluation: Three external evaluation reports were produced, reviewed, and discussed at management level. Recommended improvements were implemented accordingly.

Work Package 5 – Dissemination and Exploitation

Key communication and visibility actions include:

- Development of the Dissemination and Exploitation Plan
- Creation of the project logo and activation of social media channels
- Launch of the main project website

Ongoing dissemination activities continue in line with the project timeline.

Work Package 6 – Project Management

Activities completed:

- Administrative Infrastructure: Project management systems and internal communication protocols were established at the begining of the project.
- The Project Management Team ensures continuous monitoring, timely delivery of results, and efficient use of resources. It is also responsible for budget tracking and active risk management. This multi-tiered governance structure supports a coordinated, transparent, and goal-driven project implementation.
- To support project oversight, three Steering Committee meetings were held (one in person, two online), along with nine online management meetings. These gatherings helped track implementation, strengthen communication, and adjust activities as necessary. Additional project management activities are continuing as scheduled.

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1. EACEA MISSION HIGHLIGHTS NEEDEDU4.0 AS A KEY DRIVER OF ENGINEERING EDUCATION REFORM IN MOLDOVA

A recent mission to monitor Erasmus+ projects of the Republic of Moldova by **Paul Harris**, Project Adviser at the **European Education and Culture Executive Agency (EACEA)**, highlighted the tangible impact of Erasmus+ Capacity Building in Higher Education (CBHE) projects on the modernisation of the national higher education system.

During the visit, the EACEA representative reviewed seven ongoing CBHE projects and met with implementing higher education institutions in both Chișinău and Bălți. Particular attention was given to **NEEDEDU4.0**, which was recognised as a strong example of effective university cooperation, industry engagement, and skills-oriented education reform.

As highlighted during the mission, NEEDEDU4.0 has introduced an interuniversity Master's programme in Mechanical Engineering designed to respond directly to the needs of Moldova's industrial sector.

Paul Harris underlined that NEEDEDU4.0 effectively builds on the expertise of partner universities from Germany and Romania, ensuring knowledge transfer, curriculum modernisation, and alignment with European standards. The project was acknowledged for its clear focus on employability, applied learning, and long-term sustainability.

2. FUTURE ENGINEERS ENCOURAGED TO CONTINUE THEIR STUDIES THROUGH THE "SMART INDUSTRIES AND DIGITAL TRANSFORMATION" MASTER'S PROGRAM

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Chisinau, July 7, 2026 – The interuniversity master's program "Smart Industries and Digital Transformation (SI&DT)" was promoted during the Graduates' Gala of the Faculty of Mechanical, Industrial Engineering and Transportation (FIMIT) at the Technical University of Moldova (UTM), inspiring graduating engineers to continue their academic and professional development in one of the fastest-growing fields of engineering. The promotional event was organized by representatives of the NEEDEDU4.0 project, "Enhancing Mechanical Engineering Education in Moldova for Industry 4.0," which aims to modernize engineering education and align it with the needs of the digital economy and smart industries. During the event, Prof. Larisa Bugaian and Assoc. Prof. Rodion Ciupercă, members of the project's implementation team, presented the opportunities offered by the interuniversity master's program "Smart Industries and Digital Transformation." They highlighted its innovative curriculum, practical training opportunities, close cooperation with industry partners, and the advanced digital learning infrastructure developed through the Erasmus+ NEEDEDU4.0 project.

3.NEEDEDU4.0 IS PROMOTING THE MASTER'S PROGRAM "SMART INDUSTRIES AND DIGITAL TRANSFORMATION" AMONG GRADUATES IN CAHUL

Cahul, July 10, 2026 – The Erasmus+ NEEDEDU4.0 project team – Enhancing Mechanical Engineering Education in Moldova for Industry 4.0 organized an event to promote the interuniversity master's program "Smart Industries and Digital Transformation (IS&TD)," aimed at graduates of the Faculty of Economics and Engineering at the "Bogdan Petriceicu Hasdeu" University Center in Cahul, part of the Technical University of Moldova. The event is part of a series of information and outreach activities carried out within the NEEDEDU4.0 project, which aims to develop and implement an interuniversity master's program tailored to the requirements of Industry 4.0 and digital transformation, thereby contributing to the modernization of engineering education in the Republic of Moldova. During the meeting, Prof. Larisa Bugaian, Ph.D., and Assoc. Prof. Rodion Ciupercă, Ph.D., members of the project's implementation team, presented the objectives and results of the Erasmus+ NEEDEDU4.0 project, as well as the opportunities offered by the new master's program. They highlighted the program's interdisciplinary nature, modern teaching and learning methods, collaboration with industry partners, and the digital educational infrastructure developed as part of the project.

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4.PROMOTING THE INTERUNIVERSITY MASTER'S PROGRAM "SMART INDUSTRIES AND DIGITAL TRANSFORMATION" AT USARB

During June–July 2025, the NeedEDU4.0 project team at Alecu Russo State University of Bălți carried out a series of activities to promote the Interuniversity Master's Programme "Smart Industries and Digital Transformation" (IS&DT), targeting graduates of engineering and technology-related bachelor's programmes.
The activities took place during the bachelor's final examinations and the Graduation Gala of the Faculty of Exact, Economic and Environmental Sciences. They aimed to inform graduates about the programme structure, the competences to be developed, the modern infrastructure created within the project, and the professional opportunities offered in the context of Industry 4.0 and digital transformation.
Members of the NeedEDU4.0 team, together with representatives of Dräxlmaier Group, Gebauer & Griller, and Magnetec Components, contributed to the promotion activities and highlighted the importance of digital and engineering competences for graduates' successful integration into the labour market.
The activity contributed to increasing the visibility of the IS&DT Master's Programme, promoting the results of the NeedEDU4.0 project, and strengthening cooperation and dialogue between the university, graduates, and the industrial sector.

5. 5TH MONITORING AND QUALITY ASSURANCE ADVISORY GROUP VIRTUAL MEETING

On June 17, 2026, the fifth Monitoring and Quality Assurance Advisory Group virtual meeting within the ERASMUS+ project NEEDEDU4.0 – Enhancing Mechanical Engineering Education in Moldova for Industry 4.0 was successfully held via MS Teams. The meeting brought together members of the Quality Assurance Board, the Advisory Group, and the project management team. The discussions focused on the

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activities implemented during the first and second quarters of the third project year, as well as on the progress achieved in relation to the quality assurance and monitoring framework. During the meeting, the participants reviewed the current status of several key project activities, including the delivery of the NIMP master programme, the organization of co-teaching sessions with EU partner institutions, and the evaluation and refinement of training materials. It was noted that the teaching activities are progressing according to the established academic schedule, while the planned co-teaching sessions have been successfully completed.

NeedEDU

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