

# Erasmus+

## UNIVERSITEIT TWENTE

- Erasmus+
- National Agency Erasmus+
- Learning Mobility of Individuals
- Mobility of learners and staff
- Higher education student and staff mobility between Programme and Partner Countries
- Call 2020
- Round 1
- Grant Agreement Number 2020-1-NL01-KA107-064323
- Report Type Final
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Main content:	Report Form
Number of attachments:	4

## General Information

General information about the project

This report form generated from the Mobility Tool+ consists of the following main sections:

- General Information: General information about the project
- Context: this section resumes some general information about your project;
- Project Summary: this section summarises your project and the organisations involved as partners;
- Summary of Beneficiary and Partner Organisations: list of the beneficiary (or beneficiaries in case of a consortium) and organisations from Partner Countries;
- Description of the Project: in this section, you are asked to give information about the objectives and topics addressed by your project;
- Implementation of the Project
  - Activities
  - Participants' Profile
  - Participant Feedback on Erasmus Charter Provisions and General Issues
  - Compliance with the Erasmus Charter for Higher Education
  - Learning Outcomes and Impact
  - Dissemination of Project Results
  - Future Plans and Suggestions
  - Participant Reports
- Budget: detailed overview of the total budget and the budget per Partner Country;
- Annexes: additional documents that are mandatory for the completion of the report;

For your convenience, some parts of this report are prefilled with information from the Mobility Tool+

## 1. Context

this section resumes some general information about your project;

Programme	Erasmus+
Key Action	Learning Mobility of Individuals
Action	Mobility of learners and staff
Action Type	Higher education student and staff mobility between Programme and Partner Countries
Call	2020
Report Type	Final
Language used to fill in the form	EN

### 1.1. Project Identification

Grant Agreement Number	2020-1-NL01-KA107-064323
Project Start Date (dd-mm-yyyy)	01/08/2020
Project End Date (dd-mm-yyyy)	31/07/2023
Project Total Duration (months)	36
Beneficiary Organisation Full Legal Name (Latin characters)	UNIVERSITEIT TWENTE
Beneficiary Organisation Erasmus Code (where applicable)	NL ENSCHED01
Higher Education Mobility Consortium Accreditation Number (where applicable/if the project is managed by a mobility consortium):	

### 1.2. National Agency of the Beneficiary Organisation

Identification	National Agency Erasmus+
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For further details about the available Erasmus+ National Agencies, please consult the following page:

[https://ec.europa.eu/programmes/erasmus-plus/contact\\_en](https://ec.europa.eu/programmes/erasmus-plus/contact_en)

## 2. Project Summary

this section summarises your project and the organisations involved as partners;

Please provide short answers to the following questions, summarising the information you have provided in the rest of the report.

Please use full sentences and clear language. The summary you provided will be made public by the European Commission and the National Agencies.

### 2.1. Background and Objectives

What did you want to achieve by implementing the project?

Concretely, for this project we wanted to achieve the following:

Region 2 - Eastern Partnership Countries, Country - Moldova and Ukraine

With a 20 year relationships consisting of project-based scientific collaboration between academics in the field of Nanophysics and low-temperature physics, the objective for this Moldova project was to strengthen structural research collaboration between staff from Technical University of Chisinau (UTM), Moldova and the University of Twente (UT), the Netherlands. This project would serve to stimulate the outreach of the educational programs connected to the UT institutional focus on Nanoscience, to move towards creation of a sustainable mobility for courses and traineeships in Applied Physics and Nanoscience, and to increase UTM's education profile by modernization of its educational model by example of UT's Twente Education Model (TOM). We planned for 2 Erasmus+ student scholarships to the UT. We also planned for 4 Erasmus+ staff scholarships to the UT. Lastly, to broaden international networks of UT staff, we envisaged 3 scholarships for teaching activities at UTM.

For the collaboration between the Ukrainian State University of Science and Technologies (USUST) and the UT, the project aimed to facilitate structural mobility and collaboration between the 2 institutions in Electrical Engineering, focusing on power electronics, EMC and sustainable railway systems. The project would enhance education and research, addressing challenges in power systems, electromagnetic compatibility, and interoperability. Furthermore, the project aims to foster international interaction and create "global citizens" to meet Western European market's demand of Electrical Engineers. For the Ukraine project, 4 placement candidates (incl. doctoral) each way would be selected in the aforementioned field, 3 staff members from the UT would provide a teaching experience in Dnipro and 4 would follow a training trajectory in Enschede.

Region 4 Russian Federation, Country - Russia

To remain at a high level of quality in research and education, particularly in the fields of Mathematics, Physics and Control and Robotics Russian institution are required to modernize their educational models. Ongoing academic collaboration in aforementioned fields between Southern Federal and the UT saw opportunity to expand networks to the Saint Petersburg National Research University of Information Technologies, Mechanics and Optics (ITMO) and the Moscow Institute of Physics and Technology (MIPT). The UT's TOM would provide an example for Russian partner institutions for modernization. By facilitating individual mobilities through Erasmus+ each way, all institutions would not only further diversify the student population, they also would provide a gateway for development of a joint Master and PhD programmes, joint courses and models, and joint research. We planned for 2 traineeships and 2 coursework mobilities on Master levels each way. To propagate TOM in Russia, 2 staff members each way would deploy teaching activities and 2, each way, would enjoy training.

Region 8 Latin America, Country - Mexico

The project was meant to further exploit the relationship and exchange in-depth knowledge at graduate level between the Tecnológico de Monterrey (Mexico) and the UT and to work towards a new institutional agreement, mainly focusing on nanotechnology and optics for healthcare. These goals were reached way beyond expectation by UT staff members going to Tec for teaching and student exchange for training, which resulted in the co-creation of an educational program at master level, a Collaborative Online International Learning (COIL) course, which started in April 2022, and a new formal cooperation agreement elaborated and signed between the two universities.

Region 11 ACP - Country - Uganda, Ethiopia and Tanzania

At inception, the goal for this KA171 project was to strengthen cooperation for education and research between Jimma University (Ethiopia), Busitema University (Uganda) and Dar es Salaam University (Tanzania) and the UT. Within 3 UT faculties Maintenance Engineering and Healthcare Management are the two key-themes for the coming years. The KA107 project for these countries aimed to build on the successes of previous KA107 2019 Kenya project and enhancing operational reliability of capital assets throughout life cycles of manufacturing and medical equipment would be prevalent for this project phase. This objective would be realized through individual mobility, thus building critical mass in the coming years in knowledge and skills and by renewing Master programmes integrating these areas.

Moreover, the project was to strengthen the cooperation in a master in Humanitarian Engineering programme currently being developed at the UT. This project planned for 5 Master level students in mentioned fields, 4 incoming staff members for teaching and 6 outgoing staff for teaching activities at one of the 3 partner institutions.

## 2.2. Implementation

this section asks for information about all the stages of the project: implementation of main activities including practical arrangements, participants' profile, impact, dissemination of the results and future plans;

What activities did you implement?

In this project phase 2020-2023, we realized 49 mobilities, of which:

- 9 students mobilities, 5 for studies and 4 for placement
- 40 staff mobilities, 14 for teaching and 26 for training

The number of realized mobilities deviated from our planning. The Covid19 pandemic and the war on Ukraine played a massive part in chances of mobility plans. More deliberations on these out-of-scope developments can be found further along in this report, as well as in chapter 2.3 of this summary.

Per region we implemented the following:

Region 2 Eastern partnership countries, Country Moldova, with Technical University of Chisinau (UTM): Not all original objectives were met due to pandemic travel restrictions. In particular, student mobilities were impacted by halting of mobilities and therefore these were not realized. Staff mobilities in nature were easier to postpone. We increased staff mobilities, with additional funds used from the Region 4 project and transfer of student budget to staff in view of optimal utilization for this project with a total of 16 staff mobilities.

Region 2 Eastern partnership countries, Country Ukraine, with Ukrainian State University of Science and Technologies (USUST). In this project, objectives were not met for two reasons: Covid-19 and the war on Ukraine. Outgoing exchanges were no longer feasible, and incoming student exchanges became much more difficult, with male students no longer able to leave the Ukraine. Despite the restrictions imposed by the war for Ukrainian nationals, the exchange program facilitated 6 staff exchanges and considering the circumstances a significant student exchange involving 3 female students. We managed to maximize staff mobilities by redirecting outgoing (from UT perspective) mobilities for additional incoming staff exchanges.

Region 4 Russia Federation - Unfortunately, we were only able to conclude 1 mobility prior to the Invasion of Russia in Ukraine. For more details on the project for region 4 we encourage you to read on this summary or go to chapter 5.2 of this report.

Region 8 Latin America/ Country Mexico, with Tec de Monterrey (Tec)

A large UT delegation visited Tec in October 2022, including the President of the UT Executive Board, the Dean of UT's faculty Science & Technology, the director of the MESA+ Institute for Nanotechnology, and several support staff members and teachers/researchers of which 5 traveling with Erasmus+ funds. The latter individuals gave lectures and presented their research (physically and streamed live for students across all Tec campuses in Mexico) to Tec students. A formal joint Accelerated Master Program Nanotechnology, including the creation of a joint COIL course on Sustainable Nanotechnology, as well as the co-creation of a Double Degree PhD agreement for all science, engineering and technology related subjects were set up over the duration of the KA107 project and signed respectively in February 2023 and October 2022. One staff mobility for teaching Tec to UT was, next to teaching, also used to work on the COIL course creation at UT. The incoming student mobility for traineeship came for one year. This mobility involved educational courses where the student used new fabrication technologies to produce optical devices to be applied in the health field.

Region 11 ACP/ Countries Ethiopia, Tanzania and Uganda, with Jimma University (Ethiopia), Busitema (Uganda) and Dar es Salaam University (Tanzania):

In this project all objectives were met both quantitatively and qualitatively. The project did not experience adverse quality or management challenges. We supported 5 student exchange to the UT with students contributed towards education and research activities including designing an innovative learning classroom by applying design thinking, developing an advanced manufacturing laboratory for teaching manufacturing engineering courses. We supported staff exchange. One student mobility was converted to staff exchange (concerning Busitema University). This exchange involved guest lectures for master courses (maintenance engineering and manufacturing), development of joint funding proposals, joint Master supervision.

Through the UT dissemination plan for KA107 projects results stemming from this project were underpinned with structured promotion and spread of information aiming to reach a wide community of peers and prospective KA107

participants and incentivize engagement from and between internationalization staff and academic staff.

With all partner institutions in this project, where the basis for cooperation existed prior to this project or has been realized we plan to continue cooperation. Either by expanding into joint Master programming, Double degree PhD programming, Joint research or structural mobility windows, KA171 projects thus far have contributed substantially to laying groundwork of these ambitions.

## 2.3. Results

What were the outcomes and impact of your project?

Region 2 Eastern partnership countries, Country Moldova, with Technical University of Chisinau (UTM): We realized 13 trainings incoming and 3 teaching outgoing trajectories, which was more than envisaged for the project. Expectations were exceeded with high quality of obtained scientific output, number of joint event presentations and joint publications. The mobilities opportunities anchored a structured exchange of educational knowledge (i.e. 5 workshops which in turn also benefited the Joint EU Horizon 2020 Twinning program SPINTECH (2018)). In addition, the project created a broadening of the respective academic network through presentations to peers at summer schools and visit of lab facilities in Twente (i.e. BRAINS Centre for Brain-Inspired Nano System). The number of mobilities were of such mass, that they increased visibility of both institutions within the universities as well as trans-nationally through joint outputs such as a Chapter in Springer "Functional Nanostructures" and an article in a leading Moldovan news paper.

Region 2 Eastern partnership countries, Country Ukraine, with Ukrainian State University of Science and Technologies (USUST): We were able arrange 9 mobilities in total for this project. The long-term benefits of the cooperation include advancing sustainability in Electrical Engineering, fostering collaborative research, promoting global citizenship, establishing a framework for mobility, nurturing innovative thinking, developing a skilled engineering workforce, and strengthening the educational and research program between USUST and UT. The staff exchange within the project has led to the generation of additional ideas for European project proposals, specifically targeting the Marie Skłodowska-Curie Actions (MSCA), aiming to enable staff members to establish themselves as researchers/teachers in Ukraine with a robust Dutch/EU network.

Region 8 Latin America/ Country Mexico, with Tec de Monterrey (Tec): The project has had a tremendous impact. Not only did it incentivize the multi-day visit of a large UT delegation in Oct 2022 of 16 persons total, of which 5 persons were financially supported by Erasmus+. Impact increased further when Tec assured streaming of the 8 UT research presentations for all Tec students (>100.000 students over 30 different cities in Mexico). As a result, we are working on co-designing a strategic plan for future cooperation, more COIL courses are being created at UT after the example of Sustainable Nanotechnology (e.g. for the master's in nanotechnology). UT's Center for Education, Learning, and Teaching is discovering how they can cooperate with 2 institutes at Tec dedicated to (research of) innovative education and the bachelor/master program director of BioMedical Engineering is eager to meet Tec peers to start discussions on possibilities of initiating cooperation in education.

Region 11 ACP countries, Countries Ethiopia, Tanzania and Uganda, with Jimma University (Ethiopia), Busitema (Uganda) and Dar es Salaam University (Tanzania): Between each of the institutions, we were able to create strong education and research partnerships, and support for establishment of the humanitarian engineering action. We developed joint proposals for funding, including two Nuffic TMT+ proposal. The project added to preparing a KA-2 Erasmus plus project aiming to support technical vocational training in advanced manufacturing, rapid prototyping, and biomedical tech. 5 incoming students participated in courses and contributed substantially towards design and development of different projects (i.e. EDUBOX - innovative classroom from retrofitted containers), developing transversal- and intercultural skills through project-based work. Students also developed design concepts for appropriate building materials for low-income housing, and safety assessment protocols for welding cells. Incoming student and staff contributed towards new bachelor and master assignments, aligning with humanitarian engineering actions. Outgoing UT staff developed joint new research topics in advanced manufacturing, innovative technical educational curricula for vocational institutions.

Covid-19 pandemic - In Spring of 2020, the Dutch government by Ministry of Foreign Affairs imposed a guideline to halt all outbound mobilities. This decision affected all international mobilities. The decision was adopted by the UT subsequently for its outbound UT travelers. All partner institution halted their outbound mobilities soon after. Mobilities slowly resumed around Summer of 2021.

War on Ukraine - In the concluding phases of the pandemic, Russia invaded Ukraine. Ongoing relations with Russian universities were halted by decision of the UT Executive Board. This decision followed the National line of government for approach of transnational partnerships with Russian entities, also concerning conclusion of inter-institutional agreements and financial transactions between the two countries.

