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CybPhys: Development of practically-oriented student-centred education in the field of modelling of Cyber-Physical Systems

PROJECT NUMBER: 609557-EPP-1-2019-1-LV-EPPKA2-CBHE-JP

Deliverable D 6

Dissemination and Exploitation Plan

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Report

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Executive Summary

A well designed and implemented dissemination and exploitation plan is imperative to ensure that the project initiatives and outcomes are promoted and generate the required impact. Both the short-term and long-term outcomes of the project such as the educational initiatives undertaken and the newly generated knowledge, the social and pedagogical implications, strengthening the academia – industry network are important for delivering high quality education, new training programs for the targeted stakeholders, the development of ICT-based teaching, and preparing Ukrainian students to compete in the declared field. Consequently, the dissemination and exploitation activities need to be further highlighted in a project Dissemination and Exploitation plan.

This document, which is entitled “Dissemination and Exploitation Plan”, is designed to report the current and planned dissemination and exploitation activities within CybPhys Project. This document has been structured to provide a general description of the dissemination and exploitation plan, a description of the project’s anticipated outcomes, a list of the participating organizations, and other related dissemination and exploitations tools that will be utilized to raise awareness about the project and its broader pedagogical and social impact for Ukrainian students, academic staff and the participating academic and non-academic institutions. The dissemination and exploitation plan also offers a synoptic view on the actions already undertaken and future actions that will be undertaken to complete the project implementation and to promote further the project and its outcomes.

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Introduction

This document presents the Dissemination and Exploitation Plan of the CybPhys project, which is devised when the project starting and will be revised throughout the duration of the project. The document will be used as a point of reference and a guide for the dissemination and exploitation activities undertaken by the consortium partners in order to promote the project goals and tasks, its outcomes, and ensure that quality results were delivered in time. This document is imperative in order to ensure that all actions are realized in a timely manner and the quality of the tasks are met according to the high standards set by the project coordinator and participating partners. This document is guided by the Dissemination and exploitation strategy developed in the G.2 part of the project.

The Belarusian universities have not been participating in the project since summer 2021. So, for the consolidated version of the plan information about the dissemination of the project results on the territory of Belarus was excluded.

The overall objectives of WP6 (Dissemination and Exploitation) are summarized as follows:

- To increase public awareness about CybPhys and its impact
- To motivate students and professionals to follow CybPhys offered courses and education programs
- To ensure sustainability of the project outcomes beyond the project
- The target groups: students, engineers, researchers, academic staff and students from other universities who are not involved in the project, professional associations and the companies that operate in the field of Cyber-Physical Systems (CPS), governmental agencies, national education accreditation agencies
- A Dissemination and exploitation plan was discussed and approved at the Kick-off meeting. The presented plan will be actualized during project running. The progress and impact will be presented by the leader of WP6 at different MC meetings.

According to G.2 issue of the Project application Form, the Dissemination and Exploitation Plan is directed on the following Target Groups:

- Academic and teaching staff as well as engineers and researchers of Ukrainian and EU universities involved in the project
- Bachelor and master students of participating PCs universities as future employees
- Employers (professional associations and the companies that operate in the field of CPS involved into CybPhys project as associated partners)
- Graduates of the secondary and technical schools as potential universities' entrants and their parents
- HEIs of Ukraine and EU, which do not directly participate in the project, as potential users of new developed courses, training programs, teaching/learning materials, e-learning system and Sharing Modelling and Simulation environment platform
- Enterprises of high-tech industries and research institutions that need specialists with the knowledge in the field of CPS modelling
- Institutions of the Ministries of Education and Science of Ukraine, which provide planning of specialists necessary for the industries, research institutions and other HEIs and accept new training programs (curricula).

To supply the approaching of the above-mentioned goals and objectives as well as successful implementation of the project as a whole, in accordance with the Dissemination and Exploitation Plan the Partners should resolve the following tasks:

- 6.1. Development of information and promotional materials
- 6.2. Information sessions for target groups
- 6.3. Project Web Portal and social media

- 6.4. Recommendations for new training programs for the targeted stakeholders beyond the project
- 6.5. Strengthening the academia – industry network
- 6.6. Hosting and maintenance of e-Learning and SMSE platform beyond the project.
- 6.7. Strengthening cooperation beyond the project to sustain the outcomes.

The above general objectives as well as methodology of the dissemination and exploitation plan will be discussed in more detail in the following subsections below.

1. Objectives of the dissemination and exploitation plan

The dissemination and exploitation activities within the CybPhys project have the following specific objectives:

- Clearly define and ensure the successful realization of the project objectives, outcomes and tangible results, as defined in the project
- Identify and reach the target groups both at the local and national level, such as HEIs, students of different levels in academic faculties, professional associations, the Ministry of Education and Science in Ukraine
- Set up a strategy and propose specific actions to promote awareness about the project and its expected outcomes to organizations at a local, national, and European level
- Set up a strategy and propose actions for building a clear understanding of the pedagogical, institutional, and social implications of the project to Ukraine and to the wider European community
- Set up a strategy and propose actions that will aim at engaging Ukrainian and European community in the activities of the project
- Set up a strategy and propose actions that will ensure a high impact, dissemination and exploitation, and sustainability of the project and its expected outcomes.

2. Methodology of the dissemination and exploitation plan

The dissemination/exploitation plan is coordinated by Kryvyi Rih National University, but all consortium partners and other associated partners are invited to contribute actively to the realization of all activities described in Dissemination and Exploitation Plan of the project. Multiple dissemination and exploitation activities are undertaken. Among these activities, the following are distinguished:

- Develop a **valorisation strategy** that includes **Dissemination and Exploitation Plan** (through the present document) and a **communication strategy** that will allow maximize project impact
- Identify **Key Stakeholders** in the field for targeted dissemination of project goals, objectives and outcomes
- Work with authorities and other HEIs, non-participating in the running project, to disseminate the project objectives and outcomes **at a national level**
- Stimulate **media interest and coverage** (local press, TV and radio broadcasts, social networking sites, etc.) to build the project's reputation: disseminate the project's goals, objectives and outcomes through planned 6 media publications and press releases, 6 TV and radio broadcasts, and 6 press conferences
- Design and display **posters at Ukrainian universities** where the equipment and software will be installed
- Design and produce **leaflets** for higher impact to promote the project objectives and outcomes among students and faculties at participating academic institutions
- Participate in **conferences and publish papers** in high impact journals

- Plan and Conduct **seminars for main stakeholders** (universities, NGOs, associated partners, non-participating institutions)
- Design a **project logo** for increase project visibility to promote the project goals, objectives and outcomes
- Plan and arrange **information sessions** to attract students and to inform stakeholders, authorities and other HEIs, non-participating in the running project: three sessions by Ukrainian university (3x3= 9)
- Disseminate and exploit the project activities and results **using virtual forums and other social networking sites**, such as Facebook, Instagram and LinkedIn
- Disseminate the development of **innovative ICT-based teaching and learning environments** at a local and national level
- Develop, create and maintain an **accessible project website** as key valorisation tool
- **Develop and disseminate 9 e-books** for training bachelor- and master-level students in the field of CPS modelling to enhance project visibility
- Organize a **final conference** to disseminate the project results and organize their evaluation by stakeholders, education authorities and the industry representatives

In addition, further actions will be undertaken to elaborate and sign Double-sided agreements for cooperation between project partners during the project implementation and beyond its completion. Consortium partners will agree that newly produced and modernized educational materials and tools will be freely accessible through the use of open licences. Elaboration of Study and Recommendation Documents for new training programs will also be introduced in order to ensure that practice-oriented, bachelor- and master-level programmes in Ukrainian universities will be in compliance with ECTS principles beyond the completion of the project. Based on these Study and Recommendation Documents, the preparation and adjustments of new bachelor- and master-level programs for the third year will continue to be tested beyond the end of the project.

3. Overview of CybPhys Aims and Objectives

The wide project goal is to upgrade bachelor/master-level curricula and study programs according to Bologna practices in Ukrainian universities in the area of Cyber-Physical Systems (CPS) modelling and simulation. These curricula are directed on innovative branches of physical, mathematical and engineering sciences and High-Tech industry topics.

This goal will allow to introduce an interdisciplinary curricular in the field of practical-oriented modelling and simulation CPS for physical, mathematical and engineering topics for High-Tech industries, based on analysis of labor market needs, in close cooperation with NGOs, High-Tech companies, research institutions and other non-involved universities. The developed Sharing Modelling and Simulation Environment platform, which enables access to e-learning components, and novel ICT based tools, will enhance new curricular implementation. The consortium members will strive to undertake actions that will enhance the quality and relevance of bachelor- and master-level education using newly created study programs, focusing on the use of ICT, and networking activities that will help students meet the challenges and needs for the labor market.

The specific project objectives consider further reformation of HEIs in Ukraine according to the ET2020 strategy of European Union:

- To modernize the bachelor/master-level curricula and study programs for the Physical/Mathematical /Engineering Faculties in 3 universities of Ukraine according to EU university's practices in the area of innovative modelling and simulation of CPS for High-Tech industry and scientific research institutions and Design Centres;

- To enhance the quality of education in the area of modelling and simulation of CPS, based on the modernized bachelor/master-level training programs, focusing on the use of innovative ICT environment to realize the declared targets;
- To supply relevance of higher education in the area of modelling and simulation of CPS in Ukraine to the main instruments and principles of Bologna process, and such European Higher Education Area (EHEA) documents as ISCED 2011, a Framework for Qualifications of the EHEA, ECTS, Standards for quality assurance in the EHEA, etc.;
- To develop/update lecture courses, virtual laboratory practices and teaching materials for bachelor/master-level training programs in the area of modelling and simulation of CPS;
- To implement modern technical infrastructure with innovative ICT based teaching/learning environment for improvement teachers' qualifications and skills in the area of modelling and simulation of CPS;
- To improve teachers, academic staff and students' skills in practical English;
- To implement and accredit the new programs according to Bologna requirements, the labor market needs, and to increase employability of the graduates;
- To strengthen the collaboration between business structures and universities in PCs countries;
- To supply the labour market in Ukraine by highly-educated bachelor/master level graduates in the engineering-oriented modelling and simulation of CPS topics directed on High-Tech industry and scientific research institution needs.

Cooperation between European and Ukrainian universities and industry will be imperative in order to define the particular industry needs and trends and ensure the industry's critical input in the development of training programs. The results of the project will promote further collaboration between EU and Ukrainian HEIs, NGOs and business and will equip students with the required skills and knowledge to compete in the field of CPS modelling and simulation.

More specifically, acquisition of practice-oriented curricula and modules in the field of CPS modelling and simulation will be supported by virtual laboratories and dedicated hardware/software platforms.

4. Description of Dissemination and Exploitation Plan

This section gives a synopsis of the dissemination and exploitation activities undertaken and plans for future dissemination and exploitation activities including in the period after the completion of the project. The dissemination and exploitation activities are adapted based on the project's needs to achieve the highest possible impact both at the national and European level. To facilitate the organisation and focus of the planned activities, they have been classified into four broad categories, capturing all stages of raising awareness. These categories are:

- **Building awareness:** This is the first set of actions that should be undertaken in all dissemination efforts, in order to make sure the project objectives and expected outcomes are known to interested educational and industry stakeholders and to Ukrainian societies in general.
- **Building understanding:** Further to awareness, the next general objective is to create real understanding of what the project is aiming to achieve. Again, this category of actions addresses not only the primary group of stakeholders, but also a broader group of interested stakeholders.
- **Achieving engagement:** The stakeholders of the project are expected to be involved in the whole process beyond understanding its objectives. This calls for actual engagement of interested stakeholders in both the education and industry sectors, either by participating in the reformation of Ukrainian higher educational systems according to the Bologna practices or by guiding consortium partners in identifying and meeting specific needs in the labour market in the field of CPS modelling and simulation.

- **Maximising impact and sustainability:** The ultimate objective of any project is to maximise the final impact to the academic faculties and departments of partner universities, students of different levels, and academic communities and the Ukrainian society in general. Therefore, throughout the duration of the project, activities should focus more on ensuring this impact and achieving sustainability of the results beyond the project implementation.

The following subsections analyse further the above categories of activities. The categorisation of the foreseen activities is not always clear in specific categories as many of them can be used to address more than one dimension of the dissemination and exploitation tasks. However, for simplicity, we list each activity only under one of the identified dimensions, usually the one in which the consortium believes the activity will impact more.

4.1. Building awareness

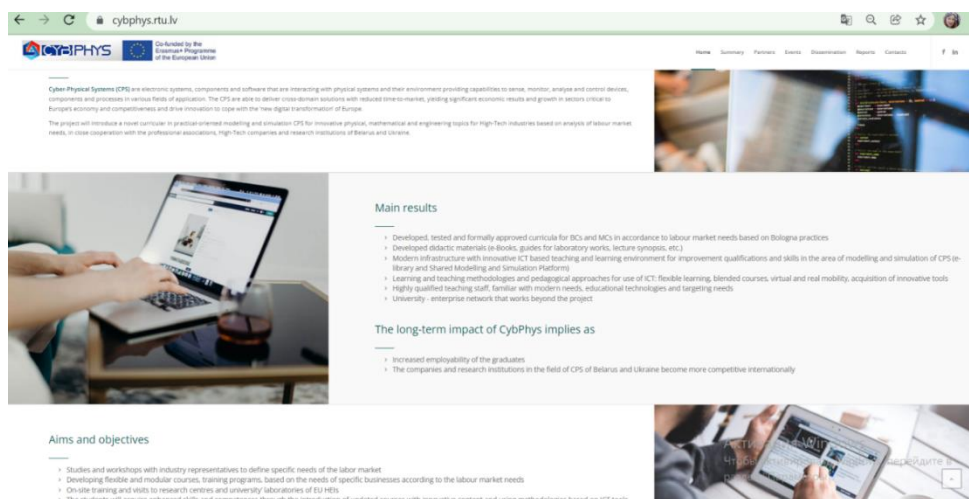
The following activities and tools have been categorised as main drivers for building awareness for the project goals, objectives and expected outcomes:

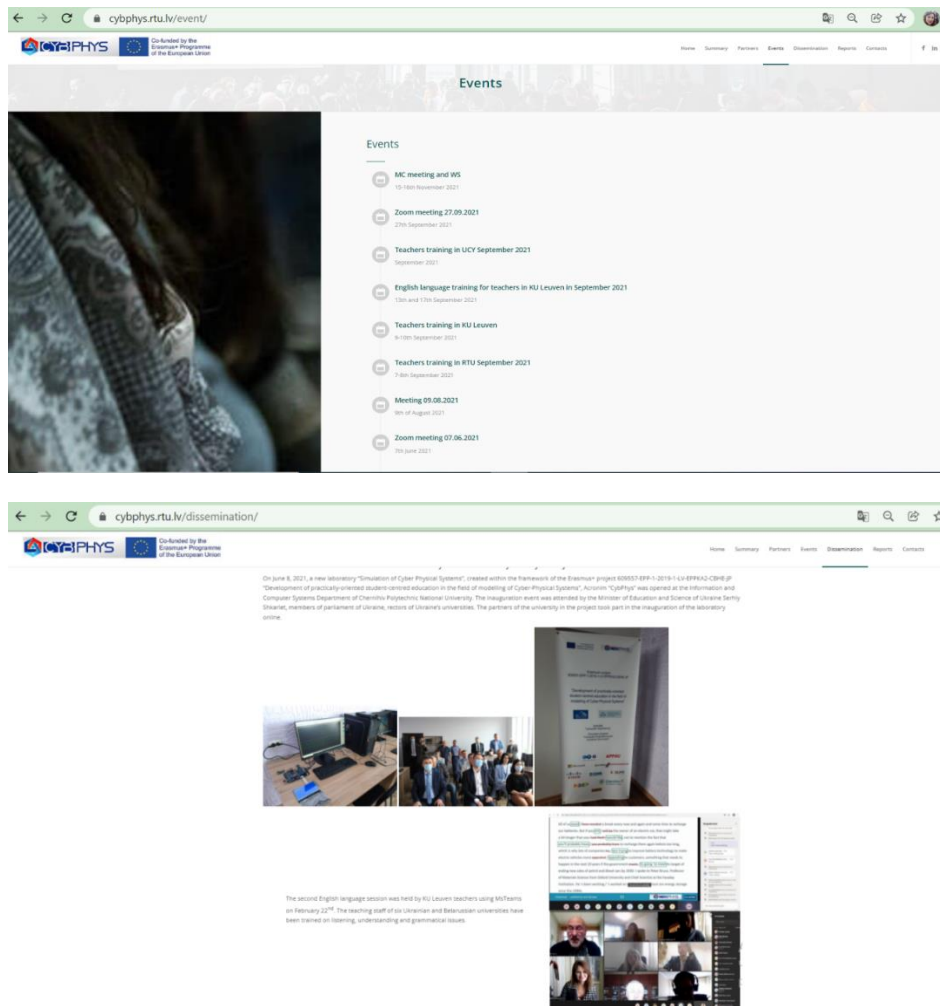
4.1.1. Internet Presence

4.1.1.1 Accessible and public project website

The Internet presence of CybPhys project is primarily realized through the project's website: <https://cybphys.rtu.lv/> and on the Moodle platform. From the beginning of the project, all materials were in the public domain of Belarusian State University (<https://eduphys.bsu.by/login/index.php>). Due to the participation stopping of Belarusian in the project, all materials were transferred on the project to the Moodle platform of Chernihiv Polytechnic National University <https://eln.stu.cn.ua/>. They are, in fact, main dissemination tools that provide important information related to the project. Consequently, the website <https://cybphys.rtu.lv/> needs to follow the project's evolution and it is updated constantly with all newly available information and outcomes. Moreover, it provides important background information on the project, objectives, accomplishments, news, and the partners' roles and description. The developed e-books, curricula and study programs, a description of the SMSE platform and project documentation were uploaded on the educational portal of the Chernihiv Polytechnic platform <https://eln.stu.cn.ua/>. They will be updated constantly with all newly available information and outcomes following the Communication Reports during project running and evolution.

The website <https://cybphys.rtu.lv/> is developed, maintained and hosted by Riga Technical University. However, all consortium partners contributed to the content of the website during the implementation of the project. The screenshots below present a few of the public access pages of the CybPhys project website.





The CybPhys publicly accessible website conveys general information about the project and enables visitors to understand its goals and potential outcomes. The following elements can be found on the website:

- General information about the CybPhys project (including texts of application forms, etc.);
- News about the progress of the project, including press releases, workshops and managing meetings documents (schedules, minutes, presentations, etc.), descriptions of student training sessions, sessions and workshops for stakeholders, etc.;
- A summary of the CybPhys project;
- Important background information on the project;
- Important documentation on the project, such as a demo on the e-environment and SMSE platform used in the project;
- Partner profiles and their contribution to the project;
- Contact information

Specifically, for the project’s website, internal tools for measuring impact will be adopted. This will create a good awareness for the consortium and help further target interested stakeholders.

All consortium partners have access to the Moodle platform hosted by the CPNU. They contributed to its content (folder Documentation) during the implementation of the project - e-books, curricula and study programs, project documentation (reports and minutes of managing meetings and workshops, Ex-Ante Report, other intermediate reports, etc.).

4.1.2. Promotional material

4.1.2.1. Project logo

The design of the CybPhys logo was accepted by partners at the MC meeting 2. Following several consortium partner suggestions and an iterative selection process, the following was the winning design offered by MSPU, which is used in all project dissemination and branding materials. The logo is also shown below at the end of this issue.



4.1.2.2. Project leaflet

During the first year of the project, an introductory leaflet offered by RTU was designed, aimed at promoting the project objectives, the participating consortium organizations, and the beneficiaries of the expected outcomes.

“Erasmus plus KA 2 project Development of practically-oriented student-centered education in the field of modelling of Cyber-Physical Systems – CybPhys” (project duration: 15.11.2019 – 14.11.2022.)
www.cybphys.rtu.lv

609557-EPP-1-2019-1-LV-EPPKA2-CBHE-JP – ERASMUS+ CBHE

THE TARGETS OF PROJECT:

- To develop modern bachelor/master-level curricula for universities of Belarus and Ukraine in the area of innovative modelling and simulation of CPS for High-Tech industry and scientific research institutions.
- To enhance the quality of education and to supply the labour market in Belarus and Ukraine by highly-educated bachelor/master level graduates in the practical-oriented modelling and simulation of CPS topics
- To develop lecture courses, virtual laboratory practices and teaching materials for bachelor/ master-level training programs in the area of modelling and simulation of CPS;
- To implement modern technical infrastructure with innovative ICT based teaching/learning environment for improvement teachers' qualifications and skills
- To accredit and implement the new programs according to Bologna requirements, the labour market needs, and to increase employability of the graduates.
- To strengthen the collaboration between business and universities in PCs countries.



COORDINATOR RIGA TECHNICAL UNIVERSITY
<https://apply.rtu.lv>

FACULTY OF POWER AND ELECTRICAL ENGINEERING,
RIGA <http://fsd.rtu.lv/masters-studies/computerised-control-of-electrical-technologies-masters/>

PARTNERS: www.cybphys.rtu.lv

1. KU Leuven - KATHOLIEKE UNIVERSITEIT LEUVEN
2. UCY - University of Cyprus, KIOS Research Centre
3. BSU - Belarusian State University
4. GSU, Gomel State University
5. MSPU - I.P. Shamyakin Mozyr State Pedagogical University
6. RANI - Republican Nanoindustry Association
7. CNUT - Chernihiv National Technological University
8. KNAHU - Kharkiv National Automobile and Highway University
9. KNU - National Technological University of Kryvyi Rih

ASSOCIATED PARTNERS:
Belarusian Physical Society Voluntary Association; Institute for Nuclear Problems of Belarusian State University; Kharkiv Enterprise of bus stations; "INTEGRAL" - Holding Managing Company; V.M. Glushkov Institute of Cybernetics of National Academy of Science of Ukraine

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4.1.2.3. Project posters

The thematic poster was designed by KU Leuven team and presented at the open day in KU Leuven Bruges Campus, 07.03.2020.



4.1.2.4. PR campaign

The consortium will undertake PR campaigns using a series of e-mail, Internet media and face-to-face promoting the project goals, objectives and expected outcomes. The significance of focusing on the necessity to address and prioritize the reform of Ukrainian higher education systems in line with the principles and practices established by the Bologna Process is emphasized.

More specifically, for the media channels, the consortium will proceed in identifying key press channels (printed, online, TV and radio) at the National and EU level. CybPhys project communication is therefore oriented also to:

Facebook: <https://www.facebook.com/groups/227194018274534/?ref=share>

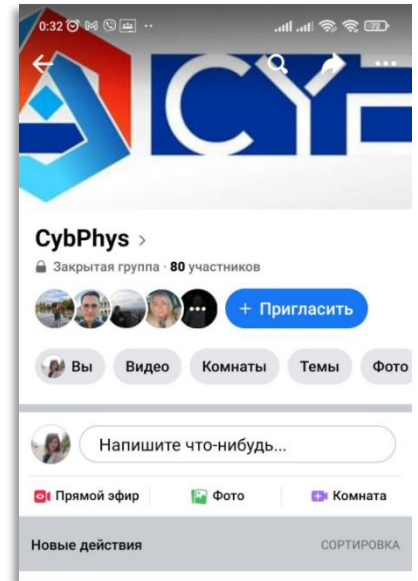
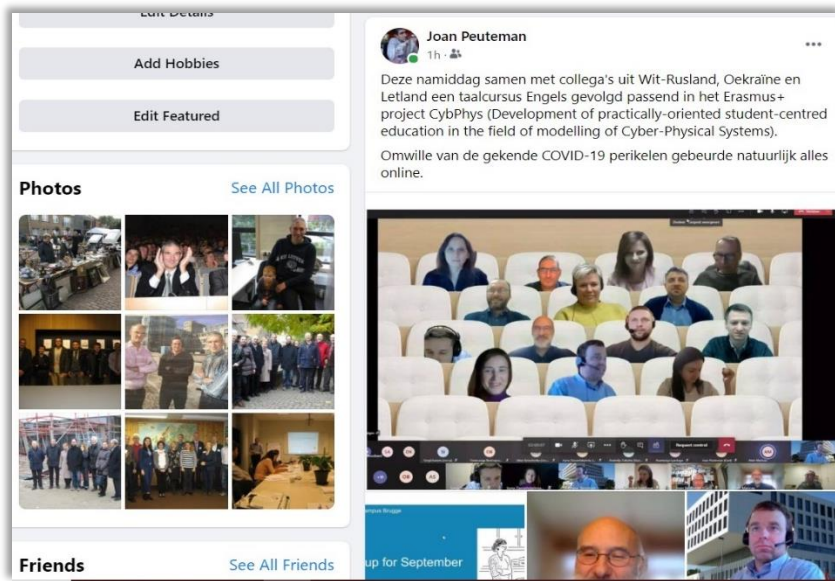
Linkedin: <https://www.linkedin.com/groups/12355821/>

Twitter https://twitter.com/Kafedra_AE

Instagram https://www.instagram.com/avto_elektron/

Youtube: <https://www.youtube.com/@cybphys/videos>

Like other initiatives, the consortium of CybPhys recognizes the remarkable importance that social media plays nowadays, being a pivotal tool towards impact and reach in communication and dissemination activities. As so, the project identified social media as very relevant channels to achieve the project's dissemination goals. Through Social media, the information about the progress of the project will be disseminated regularly and with reference to the CybPhys project website. Graphical and video information about the project's progress and outputs are preferable.



4.2. Building understanding

A second-level of planned activities are mainly targeting creating understanding about the content of the CybPhys project. Such activities include the described below issues.

4.2.1 Announcements/Presentations at workshops, seminars and conferences

Conferences, workshops and other scientific and similar events are considered as one of the most effective dissemination tools. For this reason, consortium partners have agreed to participate in carefully chosen conferences and to organize local workshops, round tables and sessions to promote the project. Consortium partners will make presentations and present papers and posters at various conferences.

The consortium will maintain and update the list of planned and attended conferences and other events and use a series of metrics to capture the impact of these events. For example, the location of the event, the number of attendees, the type of work presented, and other related information will be captured through the metrics.



Completed events:

1) English language course for teachers (online) (Belgium)

The first online session of the English language course which was scheduled within the CybPhys project and took place January 11, 2021.

English language course – Online Session 2 took place February 22, 2021.

English language course – Online Session 3 took place March 15, 2021.

2) English language course for teachers (Belgium)

September 12, 2021 - September 18, 2021

Location:

At the premises of KU Leuven – Bruges Campus, Spoorwegstraat 12, 8200 Bruges, Belgium.

Description of activity

Participation at the English language course - introductory session, structuring speech, referring to visuals, speech delivery, tutoring students: instructions and suggestions, improving spoken English, guided English tour in the old city centre of Bruges, Interacting with colleagues.



3) Training School for tutors (online) (Latvia), 7-8 September, 2021.

Description of activity

Laboratories of the Faculty of Electrical and Environmental Engineering Riga Technical University (EVIF) introduction: achievements, projects, labs, building Energy model for Management System efficiency increase, case study of faculty building in Azenes 12/1 using LoRa sensors, demonstration of remote laboratory, 420 off, FP7 AREUS project results and further research, large Robot, demonstration of control methods for critical infrastructure and Internet of Things (IoT): Industrial Safety, practical cases of bringing Innovations to the Market, methods, examples, demonstration of Modelling of Intelligent Transport Systems and Transportation travel demand models.

4) Training school for tutors (online) (Belgium), 9-10 September, 2021

Description of activity

The themes of the sessions were: Innovative teaching using a digital learning environment, Teaching in a multi-campus context: technological solutions, Distance learning: innovative interuniversity collaboration, Technical Innovations: Electromagnetic Compatibility, Technical innovations: development of an electric car. Discussion among Ukrainian partners: three breakout groups.

5) Training School for the Academics (TSA) (online) (Cyprus), 23-24 September, 2021

Description of activity

The themes of the sessions were: Overview of the MSc in Intelligent Critical Infrastructure Systems, Smart Water Networks, Educational and Research Tools for Modern Power and Energy Systems, Intelligent Transportation Systems, Autonomous Systems for Critical Infrastructure Safety and Security, 5G Technology for the Energy Vertical: Smart5Grid Project, KIOS Virtual City platform for the management of critical infrastructure systems, Smart Grids: EMPOWER Project paradigm, Leveraging AR technologies to create culturally and historically rich scenarios for intercultural exchange.

6) Training school for students in Riga, 17-28. 01.2022

Description of activity

Training was provided using laboratories of study programme “Computer control of electrical technologies” <http://fsd.rtu.lv/masters-studies/?lang=en#tab-id-7>, which is a research based educational programme. Every day research activities are an integral part of the routine work of the staff of the Institute of Industrial electronics and electrical engineering (IEEI).

The activities included short campus tour, practices in student’ laboratory, prototype development by students, solar energy, hydrogen energy research and labs, practical work in 3D laboratory: modelling and printing, practical and seminar-discussion on security of cyber-physical systems, scientific – on-line visit to one of the objects: smart city Jelgava, independent work in laboratory, partner’ lectures on new courses, presentation of prototype.



7) Training school for students in KU Leuven, 07-18. 02.2022

Description of activity

The 13 participants from KNU, KhNANU, CPNU participated at the student training at the premises of the KU Leuven Bruges Campus (Belgium). During ten working days, a broad range of scientific and technical topics have been considered.

Key relevant CybPhys target groups: students of CPNU, KhNAHU and KNU.



8) Student Mobility and Training Event in the University of Cyprus, 30.01-10.02.2023

Description of activity

The second training school in the KIOS Research and Innovation Center of Excellence was designed for the needs of Ukrainian students in the field of Cyber-Physical systems, offering them a chance to explore and experiment, under KIOS CoE researchers' supervision, with this type of infrastructure.

Key relevant CybPhys target groups: students of CPNU, KhNAHU and KNU.



4.2.2. Press releases

During the lifetime of the project and when important milestones have been met, the consortium prepared dedicated press releases to be disseminated to the press and in Internet.

The press releases were devoted to the first set of results become available, such as the sessions for stakeholders and other meetings that are shifted on the later time due to Corona-virus and the warship in Ukraine.

Contribution of the KIOS CoE to the development and modernization of curricula in Cyber-Physical Systems

May 12, 2021



The KIOS Research and Innovation Center of Excellence (CoE) research team is contributing to the development and modernization of curricula in Cyber-Physical Systems modelling and simulation in Belarus and Ukraine, within the framework of the Erasmus+ project "CybPhys." The KIOS CoE team is offering material, content, professional staff and student training, and guidance for the development of an innovative ICT environment.

The new curricula focus on multiple areas including physics, mathematics, engineering and technology. Particular emphasis is placed on the development and integration of ICT into the curricula to enhance the quality and relevance of education and to meet the labor market needs. The "CybPhys" project addresses, on one hand, the complex interrelation between high quality curricula that adhere to the Bologna process and the required competences and skills and, on the other hand, the labor market needs and students' employability.

4.2.3. Communication to other projects

The CybPhys consortium set up communication channels and links to relevant EU and National projects.

4.2.4. Final conference

A final conference was organized by Riga Technical University to disseminate the project and its outcomes. The objective was to engage a wide and varied audience comprising individuals with an interest in the project. The intention was to raise awareness about the initiatives undertaken within the CybPhys project, highlight its accomplishments, and suggest new avenues for advancing the modernization of education in the realm of cyber-physical systems modelling in Ukrainian universities.

The conference took place in a hybrid format, with both physical attendance at the RTU Faculty of Electrical and Environmental Engineering in Riga and online participation. Representatives from various Ukrainian universities in Harkiv and Kryvyj Rih, as well as delegates from KU Leuven University and the University of Cyprus, were present in Riga. Additionally, remote participation was facilitated for representatives from the Ministry of Education and Science of Ukraine, the State Education Development Agency, and project stakeholders such as "ELCARS" LLC, Avtodom Kharkiv LLC Pro-Mobility, State Polytechnical College, Chernihiv Polytechnic University, Ukrainian students actively involved in project activities, and others.

4.2.5. Publications

Due to the extensive educational and research implications of the CybPhys project, the partners actively engaged in dissemination and exploitation activities targeted at the scientific community. To achieve this, the consortium prepared and submitted articles for publication in reputable academic conference proceedings and journals. These efforts were undertaken to share the project's findings, insights, and achievements with the wider scientific community, thus contributing to the advancement of knowledge in the field.

In addition to presentations, the publications accompanied by demonstration scenarios and other visual materials promoting the project.



5. Achieving Engagement

The activities carried out during the CybPhys project had a primary focus on benefiting the Ukrainian higher education systems, participating universities, students, and master-level students. However, the project's engagement extended beyond these immediate beneficiaries to encompass a broader audience within Ukrainian society and the European Union community. By promoting the reform and improvement of Ukrainian higher education systems in alignment with Bologna practices and involving industry, educational institutions, and the Ukrainian Ministry of Education and Science, the project aimed to raise awareness and guide students at various levels in developing the necessary competences, skills, and knowledge to compete in a globally competitive labor market.

To achieve this, the project identified specific groups of stakeholders, including students at different levels, universities and faculties, and other educational and industry experts. These stakeholders were actively involved in discussions pertaining to the project's goals, objectives, and outcomes. Engagement was fostered through open dialogues and soliciting feedback from key stakeholders, introducing newly developed and modernized bachelor's and master's programs in the field of cyber-physical systems modelling, and updating courses and teaching materials/tools in the designated field.

Furthermore, the project sought the engagement of project stakeholders to administer surveys and questionnaires, gathering valuable insights and perspectives. Through these multifaceted engagement strategies, the CybPhys project aimed to create a collaborative environment that involved a wide range of

stakeholders, promoting knowledge sharing, mutual learning, and the development of a more robust and relevant educational framework.

To involve the labour market, consortium partners were undertaking the following steps:

- devise two sets of questionnaires: a curriculum questionnaire and a questionnaire for the evaluation of special courses and laboratory study programs.
- then a panel of experts who are also members of the Ukrainian consortiums was interviewed. For example, experts from Metinvest Holding, Arcelor Mittal Kryvyi Rih, as well as the heads of the departments of Ukrainian universities was interviewed. The experts were invited to share their views on the improvement of higher education systems in Ukraine and the importance of introducing new training programs, new/improved courses and laboratory works from CPS modelling field to help students build new competences and skill in this area. Consequently, the results of the project will engage further collaboration between HEIs, NGOs as well science and business in Ukraine and promote the availability of a high-skilled workforce in the domain of CPS modelling and simulation.

5.1. Maximize impact and sustainability

The last but not least by influence on the dissemination and exploitation activities is the maximisation of the impact and sustainability of project results. They are important to clearly identify all exploitable results and outcomes, such as the development of modern bachelor- and master-level programs in the field of CPS modelling, the development/modernization of courses and teaching materials/tools and ICT-based teaching/learning activities, and the preparation of students of different levels to compete in the labor market. Through this process, the reformation/improvement of the education institutions in Ukraine and the implications of this process for the Ukrainian educational systems as a whole was addressed to achieve a higher level of impact and sustainability for the project.

New curricula on CPS modelling were developed in KNU for specialties 275 – Transportation technologies (on-road transport), 151- Automation and Computer-Integrated Technologies. There were accredited by the National Agency for Quality Assurance in Higher Education (NAQA) in 2021, 2022. New Master’s Program – 151- “Cyber-Physical Systems in industry, business and transport” in KNU was approved by the NAQA during third year of the project. The CybPhys project also focused on the development of a Double Degree master's program in KNAHU in collaboration with RTU. This initiative involved designing and implementing a curriculum that adhered to the highest academic standards and met the needs of the labor market. The aim was to provide students with the opportunity to obtain a Master's degree from both partner institutions, enhancing their educational and professional prospects.

The training modules (standards) and curricula of the educational program “Electric Vehicles and Energy-Saving Technologies” in KNAHU also was developed.

In the second year of the project, study programs, as well as sets of curricula subjects (special courses and laboratory practices) for each of the universities were developed based on the approved model (standard) educational programs.

All these actions and initiatives are aimed to maximize the impact and sustainability of the project. Compatible standard study programmes (including lecture courses, laboratory classes and appropriated didactic materials and tools) were developed in Ukrainian. The teaching/learning materials described in study programs of courses and laboratory practices were distributed by 9 e-books. The overall objective of the exploitation strategy of the project was that the consortium partners (the participating academic

institutions) collaboratively exploit the results and outcomes and reach out to both the education and industrial sectors to ensure high impact and visibility of the project results.

6. Description of Partner Involvement in Dissemination and Exploitation Activities

Consortium partners have a rich and diverse experience in delivering EU projects and in building the effective dissemination and exploitation networks in order to reach the declared goals, objectives and outcomes be the interested education, industry and other related stakeholders. Consortium of all 6 partners will be involved in the multiple dissemination and exploitation activities that will be undertaken throughout the duration of the project and beyond. Kryvyi Rih National University will lead consortium partners in ensuring that all dissemination and exploitation activities are delivered on time and have a high impact within the Ukraine and broader EU community. Some of the activities that consortium partners will undertake include:

- Press conferences, press releases, leaflets, posters, information in TV, radio and social media, as well as project logo
- Project website design/development and its regular updating by information on dissemination and a course of the project implementation
- Seminars/workshops for stakeholders
- Information sessions
- Final conference
- Double-sided agreements
- Preparation for 2nd year bachelor- and master-level programs testing beyond the project
- Conference papers and presentations

Table 1 below provides a detailed plan of all dissemination and exploitation activities with each partner's involvement, responsibility and due dates as they appeared on the original proposal that was funded. The status of each dissemination activity is also indicated. This plan is leaned on the dissemination and exploitation goals described in WP6.

Table 1. Plan of dissemination and exploitation activities

<i>Item</i>	<i>Activity</i>	<i>Responsibility</i>	<i>Due Date</i>	<i>Status</i>
<i>WP6.1</i>	<i>Information/ promotional materials</i>	<i>All Consortium</i>	<i>By the end of the project</i>	<i>Permanently</i>
<i>M01 (WP6.1)</i>	<i>Press Releases</i>	<i>RTU</i>	<i>After student' school in February 2022 - Before the end of CybPhys May 2022</i>	<i>Issued: 20.05.22.</i>
		<i>KhNAHU</i>	<i>October 2021</i>	<i>Completed</i>
	<i>KIOS Activity Report 2021 "Competitive R & I funded projects"</i>	<i>UCY/KIOS</i>	<i>2021</i>	<i>Completed</i>
<i>M01 (WP6.1)</i>	<i>Project Leaflet</i>	<i>RTU</i>	<i>March 2020</i>	<i>Completed</i>

M01 (WP6.1)	Poster	KU Leuven	March 2020	Completed
M01(WP6.1)	Social Media: Facebook LinkedIn Instagram Twitter	All Consortium RTU, UCY KhNAHU, KNU KhNAHU	By the end of the project	Completed
	YouTube	All Consortium RTU, UCY KhNAHU, KNU KhNAHU	By the end of the project	Completed
M01 (WP6.1)	Conference Papers and Presentations			
	RTUCON 2020	RTU, KNU	November 2020	Completed
	e-Engineering'2021	RTU, KU Leuven	June 2021	Completed
	INTED 2022	RTU, KU Leuven	March 2022	Completed
	RTUCON 2022	RTU, KhNAHU	October 2022	Completed
	ET2022	RTU, KU Leuven	September 2022	Completed
	MODS 2022	CPNU in cooperation with RTU	November 2022	Completed
	ENERGYCON 2022	RTU, KhNAHU, CPNU	May 2022	Completed
	ICL 2022	All Consortium RTU, UCY KhNAHU, KNU KhNAHU	September 2022	Completed
WP6.2	Information sessions for target groups (Education), ENERGYCON 2022	RTU	May 2022	Completed
	Information sessions for target groups at Open Day	KU Leuven	2020 March 7 th	Completed
	Presentation of the CybPhys Project to EAC stakeholders	UCY	2022 December 4 th	Completed
	KIOS CoE-EAC annual workshop	UCY	2022 November 25 th	Completed
	Information sessions for target groups in KhNAHU	KhNAHU	2022 April 18-19 th	Completed
	Information sessions for target groups in CPNU	RTU, CPNU, KhNAHU, KNU	May 2022 (In the frame of fleshmob-erasmusplus 35years in Ukraine)	Completed
	Information session for stakeholders at KNU Open Day	KNU	2022 April 8 th	Completed

	<i>Information sessions for target groups (Education), VIII International Scientific and Technical Internet conference: «Vehicle and electronics. Innovative technologies»</i>	<i>KhNAHU</i>	<i>November 2022</i>	<i>Completed</i>
<i>M02 (WP6.2)</i>	<i>Seminars for stakeholders: professional associations, students, universities teaching staff Ministries of Education and national accreditation offices</i>	<i>KhNAHU</i>	<i>October -November 2022 (During the accreditation Professional Master Degree Program Electric Vehicles and Energy-Saving Technologies)</i>	<i>Completed</i>
	<i>Final Conference preparation</i>	<i>RTU</i>	<i>By April 2023</i>	<i>Completed</i>
	<i>Final Conference convening</i>	<i>RTU</i>	<i>April 27-29th, 2023</i>	<i>Completed</i>
	<i>Final Conference participation</i>	<i>RTU, KU Leuven, UCY, KNU, CPNU, KhNAHU</i>	<i>April 27-29th, 2023</i>	<i>Completed</i>
<i>M03 (WP6.3)</i>	<i>Use of project Web Portal, Moodle platform and social media</i>	<i>RTU, CPNU, KhNAHU, KNU</i>	<i>By the end of the project</i>	<i>Permanently</i>
	<i>Design of Web Portal platform (RTU and UCY) and regular updating portal information</i>			
	<i>Design of Web Portal platform (RTU and UCY) and regular updating portal information</i>			
	<i>Regular publications about the project and conducted studies and questionnaires at partners' websites</i>			
<i>M04 (WP6.4)</i>	<i>Elaborate recommendations for new training programs for the targeted stakeholders beyond the project</i>	<i>RTU with all partners</i>	<i>By the end of the project</i>	<i>Completed</i>
	<i>Analysis of feedback, gained during the first year of new courses/ programs testing.</i>	<i>RTU with all partners</i>	<i>By the end of the project</i>	<i>Completed</i>
	<i>Elaboration of recommendation obtained in the meetings and workshops with associated partners and other stakeholders</i>	<i>RTU with all partners</i>	<i>By the end of the project</i>	<i>Completed</i>

<i>M05 (WP6.5)</i>	<i>Strengthening the academia – industry network</i>	<i>All Consortium Universities and associated partners from Ukraine</i>	<i>By the end of the project</i>	<i>Completed</i>
	<i>Elaboration and signing Double-sided agreements for cooperation between project partners during the project running and beyond the project</i>	<i>RTU-CPNU RTU-KNAHU</i>	<i>By the end of the project</i>	<i>Completed</i>
	<i>Partners will agree that produced educational materials will be freely accessible through the use of open licenses</i>	<i>All Consortium Universities and associated partners from Ukraine</i>	<i>By the end and beyond of the project</i>	<i>Completed</i>
<i>M05 (WP6.5)</i>	<i>Double-sided Agreements between Partners and NGO from Ukraine</i>	<i>All Consortium Universities and associated partners from Ukraine</i>	<i>By the end of the project</i>	<i>Completed</i>
<i>M07 (WP6.7)</i>	<i>Strengthening cooperation beyond the project to sustain the outcomes/results</i>	<i>All Consortium Universities</i>	<i>By the end of the project</i>	<i>In progress</i>
	<i>To start preparation of new ERASMUS+ project proposal</i>	<i>RTU, CPNU, KHANU, KNU</i>	<i>Beyond the project</i>	<i>In progress</i>
	<i>The partner' universities will multiply didactic materials and allocate on university's websites for further free using by other HEIs. They will support the practical application of the developed didactic materials for lab. training of target student' groups from other HEIs in Ukraine.</i>	<i>All Consortium Universities and associated partners from Ukraine</i>	<i>Beyond the project</i>	<i>In progress</i>
	<i>PCs universities will pursue sign of Cooperation agreements with the companies and research institutions, which work in the field of CPS, to attract investment to labs and for internship of the students and young teachers/ researchers.</i>	<i>All Consortium Universities and associated partners from Ukraine</i>	<i>Beyond the project</i>	<i>In progress</i>
	<i>EU and HEIs of Ukraine will continue cooperation with research institutions,</i>	<i>All Consortium Universities and associated</i>	<i>Beyond the project</i>	<i>In progress</i>

	<i>companies, professional associations and NGOs beyond the project in order to continue to obtain regular feedback on the labour market needs: interviews, surveys, seminars.</i>	<i>partners from Ukraine</i>		
<i>M07 (WP6.7)</i>	<i>CybPhys Sustainability Plan beyond the project</i>	<i>RTU, all partners</i>	<i>March 2023</i>	<i>Completed</i>

The course of the CybPhys implementation will be controlled through Communication Reports in form of presented in **Attachment 1**, which was sent once every three months by every partner university to KNU.

7. Metrics and KPI

For all activities involving dissemination and communication, it is important to have tools to access the reach, success and status of each initiative. For these reasons, quantitative metrics should be used, so that the success of the initiative can be measured and, if necessary, adapted towards achieving project goals. Table 2 summarizes the KPI to be used, as well as their quantitative targets throughout the project.

Table 2. KPI and targets for each of the channels used for dissemination

Channel		Year 1	Year 2	Year 3
Web sites of partner University	Number of posts	17	15	12
Facebook	Number of posts	32	67	75
Instagram		1	8	10
Twitter		11	22	15
LinkedIn		2	7	3
YouTube				7
Press releases	Number of Press releases	2	3	5
Scientific publ.	Number of journal papers	3	2	5
Workshops	Number of Workshops	11	9	12
Events	Number of Events	1	6	3

8. Conclusion

Active and well-planned dissemination and exploitation of the project contributes to the enrichment of global knowledge in the identified target domain, to raise awareness in the scientific community and to exploit potential synergies with related research projects. This document summarises the current and planned state of dissemination and exploitation activities carried out as part of the CybPhys project. The CybPhys consortium has been active in all dissemination channels: conferences, meetings, workshops, and publications. Furthermore, a considerable repository of dissemination material, including press releases, posters and leaflets, was created and distributed.

The Internet presence of the project ranges from the CybPhys project's main website, which comprises a public means of communication and providing information to interested stakeholders, as well as to the Facebook and LinkedIn groups and YouTube channel.

Attachment

Table 3. The form of the report on dissemination and communication activities in CybPhys.

This table shows examples of dissemination activities undertaken by the project partners).*

Table 3.1. Report on implemented activities for Riga Technical University

Date	Partner, Presenter, Author	Title of document or activity	Type (doc, ppt, etc)	Link to document on slideshare, blogspot, website, etc
March of 2020	RTU	CybPhys homepage	Homepage	www.cybphys.rtu.lv
07.03.2020	N.Kunicina	CybPhys leaflet	PDF	www.cybphys.rtu.lv
Permanently	A.Zabašta, N.Kuņicina	Social Media, Facebook	Comments, photos	https://www.facebook.com/groups/227194018274534
6-7 November 2020	Zabašta, A. , Peuteman, J., Kuņicina, N., Kruhlenko, L., Kovalenko, D., Žiravecka,	“Approach for Cross-Domain Study Curricula in Cyber-Physical Systems for Belarusian and Ukrainian Universities”	Conference paper, 2020 IEEE 61st International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTU CON)	http://www.conference.rtu.lv/ DOI: 10.1109/RTU CON51174.2020.9316585 https://ortus.rtu.lv/science/lv/publications/31530
October 2020	A.Zabasta et al.	Research on Cross-Domain Study Curricula in Cyber-Physical Systems: A Case Study of Belarusian and Ukrainian Universities	Magazine paper	doi:10.3390/educsci10100282, https://www.mdpi.com/journal/education https://ortus.rtu.lv/science/lv/publications/31529
June 2021	Peuteman, J., Maricau, A., Zabašta, A. , Verslype, S., Espeel, L., Boydens, J., Pissoort, D.	Computer-mediated communication based English language teaching to academic staff of Belarus and Ukraine in a COVID-19 environment. In: Proceedings of the 2021 International e-Engineering Education Services Conference, e-	Conference paper, Jordan, Petra, 22-23 June, 2021. Jordan: IEEE, 2021, pp.37-42.	Available from: doi:10.1109/e-Engineering47629.2021.9470698. https://ortus.rtu.lv/science/lv/publications/32711

		Engineering, June 2021,		
12-13 March, 2020.	Semchenko, I., Zabašta, A. , Kovalenko, D., Samofalov, A.	Prospects for the participation of the Faculty of Physics and IT in the ERASMUS + program (acronym CybPhys).	Conference paper, Belarus, Gomel, 12-13 March, 2020. pp.506-509. ISBN 978-985-577-619-3. Ministry of Education of the Republic of Belarus.	https://ortus.rtu.lv/science/lv/publications/31814
5-6 March, 2020	Semchenko, I., Zabašta, A. , Fedotov, A., Kovalenko, D., Samofalov, A., Fedotov, A.	Prospects for participation of universities of Belarus in the ERASMUS + program (acronym CybPhys). In: Materials of the XII International Scientific and Practical Conference "Innovative teaching techniques in physics, mathematics, vocational and mechanical training",	Conference paper, Belarus, Mozyr, 5-6 March, 2020. Mozyr State Pedagogical University, 2020, pp.82-83.	ISBN 978-985-477-720-7. https://ortus.rtu.lv/science/lv/publications/31812
September, 2020.	Kazymyr, V., Shkarlet, S., Zabašta, A.	Practical-oriented Education in Modeling and Simulation for Cyber-Physical Systems. In: Proceeding of 10th International Conference on Advanced Computer Information Technologies (ACIT),	Conference paper: Germany, Deggendorf, 16-18 September, 2020. Germany: IEEE, 2020, pp.691-694. ISBN 978-1-7281-6759-6. e-ISBN 978-1-7281-6760-2.	doi:10.1109/ACIT49673.2020.9208876 https://ortus.rtu.lv/science/lv/publications/31808
27.01.2022.	Zabašta A.	"Ukrainas studenti RTU apgūst jaunas studiju prasmes" "Ukrainian students learn new study skills at RTU"	Press Release in RTU web ORTUS	https://ortus.rtu.lv/f/u1011s5/normal/render.uP?pCt=rtu-jaunumi.u1011n99&pCm=view&pP_action=article&pP_id=42727#Pluto_41_u1011n99_9338_container
17.01.2022	A.Zabašta	The students from three Ukrainian universities started their CybPhys School by visiting of laboratories of RTU on January 17th.	Social Media: Facebook: Post, comments, photos	https://www.facebook.com/groups/227194018274534/posts/678687823125149/

24.01.2022	A.Zabašta	We have started the second week of Student School.	Social Media: Facebook: Post, comments, photos	https://www.facebook.com/groups/227194018274534/posts/682717979388800/
25.01.2022	A.Zabašta	Today's training day was dedicated to the cultural program.	Social Media: Facebook: Post, comments, photos	https://www.facebook.com/groups/227194018274534/posts/682717979388800/
26.01.2022.	A.Zabašta	On Wednesday 26th the students were acquired with the Battery storage systems, Security of cyber-physical systems etc.	Social Media: Facebook: Post, comments, photos	https://www.facebook.com/groups/227194018274534/posts/682717979388800/
27.01.2022	A.Zabašta	"On January 27th after the Students School we started CybPhys MC and WS meeting".	Social Media: Facebook: Post, comments, photos.	https://www.facebook.com/groups/227194018274534/posts/682717979388800/
27.01.2022	A.Zabašta	"The rectors of RTU and CPNU have visited the CybPhys meeting".	Social Media: Facebook: Post, comments, photos.	https://www.facebook.com/groups/227194018274534/posts/684681825859082/
28.01.2022	A.Zabašta	"On the final day of the Students School: KNU team defends the prototype created in these two weeks".	Social Media: Facebook: Post, comments, photos.	https://www.facebook.com/groups/227194018274534/posts/685111465816118/
03.02.2022	Public Relations Department	RTU plans to develop cooperation with CPNU in Ukraine	Press Release in RTU web ORTUS	www.rtu.lv
12.05.2022	A.Zabašta	The ERASMUS + CybPhys project partners meet again on May 12	Social Media: Facebook: Post, comments, photos.	https://www.facebook.com/groups/227194018274534/posts/749048102755787/
04.07.2022	A.Zabašta, A.Žiravecka	The first day of the CybPhys project meeting in Brugge.	Social Media: Facebook: Post, comments, photos.	https://www.facebook.com/groups/227194018274534/posts/783809349279662/
20.05.2022	N.Kuņicina, A.Zabašta	"At the international conference ENERGYCON 2022, the performance of Ukrainian students is recognized"	Press Release in RTU web ORTUS	www.rtu.lv
28.09.2022	A.Zabašta et al.	Implementing the Practically-Oriented Curricular in the Field of Cyber-Physical Systems: A Case Study of the School	International Conference on Interactive Collaborative Learning ICL 2022	

		for Ukrainian Students		
28.02.2023.	RTU, CPNU, KhNADU	Digital transformation of HEIs education process in Ukraine and Moldova for sustainable engagement with enterprises, DIGITRANS, ERASMUS-EDU-2023-CBHE-STRAND-2, ID: 101127683.	ERASMUS+ project proposal	FTOP portal
28.02.2023	RTU, CPNU	Creating United Ukrainian Digital Education Ecosystem «UNItY –University to You», UNItY, ERASMUS-EDU-2023-CBHE-STRAND-3, ID: 101129365	ERASMUS+ project proposal	FTOP portal
19.03.2023	A.Zabašta et al.	Posting on FB: Workshop in RTU	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/954945918832670/
19.03.2023	A.Zabašta et al.	Posting on FB: Rector introduced the participants of the Workshop	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/954947688832493/
12.04.2023	A.Zabašta et al.	Posting on FB: photos from workshop at KU Leuven	jpg	https://www.facebook.com/groups/227194018274534/permalink/966954360965159/
May 2023	RTU	News story, which Latvian TV3 devoted to CybPhys project.	video	https://zinas.tv3.lv/latvija/starpvalstu-sadarbibas-projekta-nosleguma-riga-viesojas-harkivas-zinatnieki/
28.04.2023	RTU	Final conference organization	jpg & text	https://cybphys.rtu.lv/dissemination/
05.05.2023	A.Zabašta et al.	Posting on FB: photos from Final conference and Workshop	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/978823303111598/

Below you could see a couple of photos from the Final Conference. Due to the warship in Ukraine the stakeholders of CybPhys participated in the conference via Zoom.



Table 3.2. Report on implemented activities for KU Leuven

Date	Partner, Presenter, Author	Title of document or activity	Type (doc, ppt, etc)	Link to document on slideshare, blogspot, website, etc
10/12/2019	KU Leuven, Peuteman Joan + Van Nieuwenhuysse Elke	Posting on the Facebook page of KU Leuven Campus Bruges	jpg general information	https://www.facebook.com/KULeuvenCampusBrugge/
07/03/2020	KU Leuven, Peuteman Joan	Poster at open day in KU Leuven Bruges Campus	ppt, jpg general information	
03/08/2020	KU Leuven, Peuteman Joan	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/joan.peuteman
11/09/2020	KU Leuven, Peuteman Joan	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/joan.peuteman
06/10/2020	KU Leuven, Peuteman Joan + Vankeirsbilck Jens	Information about the project on the website of the M-group research group of KU Leuven, Campus Bruges	jpg	https://iiw.kuleuven.be/brugge/m-group/research-and-projects/research-projects https://iiw.kuleuven.be/brugge/m-group/research-and-projects/erasmus-cybphys
02/11/2020	KU Leuven, Joan Peuteman	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/joan.peuteman
10/12/2020	KU Leuven, Joan Peuteman	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/joan.peuteman
11/01/2021	KU Leuven, Joan Peuteman	Posting on Facebook page	jpg	https://www.facebook.com/joan.peuteman

			English language course	
09/02/2021	KU Leuven, Joan Peuteman	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/joan.peuteman/
22/02/2021	KU Leuven, Joan Peuteman	Posting on Facebook page	jpg English language course	https://www.facebook.com/joan.peuteman/
09/03/2021	KU Leuven, Joan Peuteman	Posting on LinkedIn	Jpg general information	https://www.linkedin.com/in/joan-peuteman-60a8054/detail/recent-activity/shares/
15/03/2021	KU Leuven, Joan Peuteman	Posting on Facebook page	jpg English language course	https://www.facebook.com/joan.peuteman/
12/04/2021	KU Leuven, Joan Peuteman	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/joan.peuteman/
24/04/2021	KU Leuven, Peuteman Joan	Poster at open day in KU Leuven Bruges Campus	ppt, jpg general information	
04/05/2021	KU Leuven, Joan Peuteman	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/joan.peuteman/
22/06/2021	KU Leuven, Sammy Verslype	Presentation of paper at e-Engineering'2012 conference	pdf version of paper presentation Youtube ppt presentation jpg of Youtube channel	https://www.youtube.com/watch?v=06sf9H7dI28
26/06/2021	KU Leuven, Peuteman Joan	Poster at open day in KU Leuven Bruges Campus	jpg general information	
29/06/2021	KU Leuven, Sammy Verslype	Dissemination to Erasmus+ project e-LIVES (prof. A. Benachenhou at University Abdelhamid Ibn Badis de Mostaganem UMAB: Algeria)	ppt presentation of the e-Engineering 2021 conference	
09/08/2021	KU Leuven, Peuteman Joan	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/joan.peuteman/
11/09/2021	KU Leuven, Peuteman Joan	Posting on Facebook page	jpg Teacher training using MS Teams	https://www.facebook.com/joan.peuteman/

13/09/2021	KULeuven, Peuteman Joan	Posting on Facebook page	jpg English language course	https://www.facebook.com/ joan.peuteman/
30/09/2021	KULeuven, Peuteman Joan Taelman Laure	Campus newsletter with link to website	e-mail + website (3 jpg files) English language course	https://www.kuleuven.be/ campussen/campus- brugge/nieuws/cursus- engels-voor-wit-russische- en-oekraïense-academici
21/10/2021	KULeuven, Peuteman Joan Taelman Laure	Campus newsletter with link to website	e-mail + website (3 jpg files) teacher training	https://admin.kuleuven.be/ mykuleuven/kanaal/mk241/ nieuws/teacher-training- voor-oekraïense- academici?utm_source=flex mail&utm_medium=e- mail&utm_campaign=campu snieuwsstaff21oktober&utm _content=benieuwd+welke+ educatieve+topics+aan+bod +kwamen
17/12/2021	KULeuven, Peuteman Joan	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/ joan.peuteman/
27/01/2022	KULeuven, Peuteman Joan	Posting on Facebook page	jpg management meeting and workshop	https://www.facebook.com/ joan.peuteman/
07/02/2022	KULeuven, Peuteman Joan	Posting on Facebook page	jpg student training in Belgium	https://www.facebook.com/ joan.peuteman/
07/03/2022	KULeuven, Peuteman Joan	Dissemination at the educational conference INTED2022: paper in the proceedings & presentation	Virtual ppt presentation at INTED2022 conference paper in pdf ppt presentation in pdf movie of presentation	https://iated.org/inted/
11/03/2022	KULeuven, Peuteman Joan	Poster at open day in KULeuven Bruges Campus	jpg general information	
12/05/2022	KULeuven, Peuteman Joan	Posting on Facebook page	jpg ZOOM meeting	https://www.facebook.com/ joan.peuteman/
13/05/2022	KU Leuven, Joan Peuteman	Posting on LinkedIn	jpg, pdf document with the text	13/05/2022
04/07/2022	KULeuven, Peuteman Joan	Posting on Facebook page	jpg management meeting & workshop	https://www.facebook.com/ joan.peuteman/

13-15/09/2022	KULeuven, Pang Bozheng	Dissemination at the conference ET2022: paper in the proceedings & presentation	ppt presentation at the ET2022 conference paper in pdf ppt presentation in pdf	https://e-university.tu-sofia.bg/e-conf/?konf=24
22/09/2022	KULeuven, Peuteman Joan	Posting on Facebook page	jpg management meeting & workshop	https://www.facebook.com/joan.peuteman/
27-30/09/2022		Dissemination at the conference ICL2022: paper in the proceedings & presentation	paper in pdf	https://www.icl-conference.org/current/index.php
25/11/2022	KULeuven, Peuteman Joan	Posting on Facebook page	jpg management meeting & workshop	https://www.facebook.com/joan.peuteman/
24/01/2023	KULeuven, Peuteman Joan	Posting on Facebook page	jpg management meeting & workshop	https://www.facebook.com/joan.peuteman/
11/03/2023	KULeuven, Peuteman Joan	Poster at open day in KULeuven Bruges Campus	jpg general information	
18/03/2023	KULeuven, Peuteman Joan	Posting on facebook page	jpg management meeting & workshop	https://www.facebook.com/joan.peuteman/
18/03/2023	KULeuven, Peuteman Joan	Posting on LinkedIn	jpg, word document with the text management meeting & workshop	https://www.linkedin.com/feed/update/urn:li:activity:7042852902851268608/
12/04/2023	KULeuven Peuteman Joan	Posting on Facebook page	jpg management meeting & workshop	https://www.facebook.com/joan.peuteman/
30/04/2023	KULeuven Peuteman Joan	Posting on Facebook page	jpg final conference	https://www.facebook.com/joan.peuteman/

Dissemination output: papers together with partners

Zabasta, A., Peuteman, J., Kunicina, N., Kazymyr, V., Hvesenya, S., Hnatov, A., Paliyeva, T., Ribickis, L. (2020). Research on Cross-Domain Study Curricula in Cyber-Physical Systems: A Case Study of Belarusian and Ukrainian Universities. *EDUCATION SCIENCES*, 10 (10), Art.No. ARTN 282. doi: 10.3390/educsci10100282

Zabasta, A., Kunicina, N., Nikiforova, O., Peuteman, J., Fedotov, A.K., Fedotov, A.S., Hnatov, A. (2020). Development of industry oriented cross-domain study programs in cyber-physical systems for Belarusian and Ukrainian universities. In: *Multi-paradigm modelling approaches for cyber-Physical systems*, Chapt. 11, (271-292). London: Elsevier - Academic Press. ISBN: 978-0-12-819105-7.

Zabasta, A., Peuteman, J., Kunicina, N., Kruhlenko, L., Kovalenko, D., Zhiravetska, A. (2020). Approach for Cross-Domain Study Curricula in Cyber-Physical Systems for Belarusian and Ukrainian Universities. In: *2020 IEEE 61th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON)*. Presented at the RTUCON2020, Riga, Latvia, 05 Nov 2020-06 Nov 2020. ISBN: 978-1-7281-9510-0. doi: [10.1109/RTUCON51174.2020.9316585](https://doi.org/10.1109/RTUCON51174.2020.9316585)

Peuteman J., Maricau A., Zabasta A., Verslype S., Espeel L., Boydens J., Pissoort D. (2021). Computer-mediated communication based English language teaching to academic staff of Belarus and Ukraine in a COVID-19 environment, In: *Proceedings of the International e-Engineering Education Services Conference (e-Engineering'2021)*, Presented at e-Engineering'2021, Jordan, 22 June – 23 June 2021, pp. 37- 42, ISBN 978-1-7281-3470-3.

Peuteman J., Boydens J., Pang. B., Pissoort D., Stroobant S., Zabasta A. (2022). Realizing a pedagogical, technical, cultural and linguistic immersion course for Ukrainian professors, Presented at the 16th Annual International Technology, Education and Development Conference INTED2022, 7 March – 8 March 2022, pp. 407-414, ISBN 978-84-09-37758-9.

Peuteman J., Zabasta A., Pang B., Pissoort D., Stroobant S., Boydens J. (2022). Realizing a Cyber-Physical Systems Oriented Student Training for Ukrainian Students, Presented at the XXXI International Scientific Conference Electronics – ET2022, 13 September – 15 September 2022, Sozopol, Bulgaria.

Zabasta A., Peuteman J., Kunicina N., Kazymyr V., Hnatov A., Sistuk V., Bisenieks M. (2022). Implementing the Practically-Oriented Curricular in the Field of Cyber-Physical Systems: A Case Study of the School for Ukrainian Students, Presented at the 25th International Conference on Interactive Collaborative Learning ICL2022, 27 September – 30 September 2022, Vienna, Austria. DOI: [10.1007/978-3-031-26190-9_88](https://doi.org/10.1007/978-3-031-26190-9_88)

Table 3.3. Report on implemented activities for the University of Cyprus

Date	Partner, Presenter, Author	Title of document or activity	Type (doc, ppt, etc)	Link to document on slideshare, blogspot, website, etc
22/01/2020	Stella Hadjistassou	Creation of FB page	Text	https://www.facebook.com/groups/227194018274534
22/01/2020	Stella Hadjistassou	Creation of LinkedIn page	Text	https://www.linkedin.com/groups/12355821/
22/01/2020	Stella Hadjistassou	FB: Project Kick-off meeting	jpg & text	https://www.facebook.com/groups/227194018274534
12/03/2020	Stella Hadjistassou	FB: Meeting in Minsk	jpg & text	https://www.facebook.com/groups/227194018274534
12/03/2020	Stella Hadjistassou	Posting on LinkedIn: Meeting in Minsk	jpg & text	https://www.linkedin.com/groups/12355821/
15/05/2021	UCY – KIOS Research Team	<i>KIOS Activity Report 2021</i> “Competitive R & I funded projects”	PDF & hard copy	https://www.kios.ucy.ac.cy/index.php/news-a-events/activity-report.html
15/09/2020	Nikolas Flourentzou, Stella Hadjistassou	Posting on KIOS CoE website: The CybPhys project: Development of practically -oriented student-centered education in the area of Cyber-Physical Systems	doc & project logo	https://www.kios.ucy.ac.cy/index.php/research/research-projects/active.html
09/12/2020	Stella Hadjistassou	FB: Virtual meeting	jpg & text	https://www.facebook.com/groups/227194018274534
12/01/2020	Stella Hadjistassou	Posting on FB page: Workshop at KU Leven	jpg	https://www.facebook.com/groups/227194018274534
13/01/2021	Stella Hadjistassou	Posting on FB: Project Meeting	jpg & text	https://www.facebook.com/groups/227194018274534
13/01/2021	Stella Hadjistassou	Posting on LinkedIn: Project Meeting	jpg & text	https://www.linkedin.com/groups/12355821/
19/10/2021	UCY team	Conference paper	pdf	https://easychair.org/smart-program/ISGT-

		“A behavioral model to detect data manipulation attacks of synchrophasor measurement”		Europe2021/2021-10-19.html#talk:183571
21/05/2021	UCY team	Press release: KIOS is contributing to the development of programmes in Cyber-Physical Systems.” [“Το Κόιός Π.Κ. συνεισφέρει στην ανάπτυξη προγραμμάτων σπουδών στα Κυβερνο-Φυσικά Συστήματα”] Paideia news	Pdf	https://www.kios.ucy.ac.cy/images/Documents/Press/2021/Cybphys_project_01-06-2021.pdf
05/06/2021	UCY team	Posting on FB: CybPhys meeting	jpg & text	https://www.facebook.com/groups/227194018274534
07/06/2021	UCY team	Posting on FB: CybPhys Meeting	jpg & text	https://www.facebook.com/groups/227194018274534
14/06/2021	UCY team	Posting on FB: a new laboratory “Simulation of Cyber Physical Systems”	jpg & text	https://www.facebook.com/groups/227194018274534
16/06/2021	UCY team	KIOS eNews: “Contribution of the KIOS CoE to the development and modernization of curricula in Cyber-Physical Systems” Newsletter	pdf	https://www.kios.ucy.ac.cy/contribution-of-the-kios-coe-to-the-development-and-modernization-of-curricula-in-cyber-physical-systems/
10/09/2021	L. Stylianos, L. Hadjidemetriou, M. Asprou, L. Zacharia, M. Michael.	“A behavioral model to detect data manipulation attacks of synchrophasor measurements,” in <i>Proc. IEEE ISGT-EUROPE</i> , Espoo, 2021, pp. 1-6.	text	https://iee-isgt-europe.org/venue/
23/09/2021	UCY team	Posting on FB: The UCY training school	jpg & text	https://www.facebook.com/groups/227194018274534
23/09/2021	UCY team	Posting on LinkedIn: The UCY training school	jpg & text	https://www.linkedin.com/groups/12355821/
23/09/2021	UCY team	Posting on FB: Presentations offered during the training school	jpg & text	https://www.facebook.com/groups/227194018274534
23/09/2021	UCY team	Posting on LinkedIn: Presentations offered during the training school	jpg & text	https://www.linkedin.com/groups/12355821/
24/09/2021	UCY team	Posting on FB: Training School	jpg & text	https://www.facebook.com/groups/227194018274534

27/09/2021	UCY team	Posting on FB: Project Meeting	jpg & text	https://www.facebook.com/groups/227194018274534
27/09/2021	UCY team	Posting on LinkedIn: Project Meeting	jpg & text	https://www.linkedin.com/groups/12355821/
15/11/2021	UCY Team	Posting on FB: Project Meeting	jpg & text	https://www.facebook.com/groups/227194018274534
15/11/2021	UCY Team	Posting on LinkedIn: Project Meeting	jpg & text	https://www.linkedin.com/groups/12355821/
16/11/2021	UCY Team	Posting on FB: Second Day of Project Meeting	jpg & text	https://www.facebook.com/groups/227194018274534
16/11/2021	UCY Team	Posting on LinkedIn: Second Day of Project Meeting	jpg & text	https://www.linkedin.com/groups/12355821/
8/12/2021	UCY Team	Posting on FB: QA Meeting on CybPhys	jpg & text	https://www.facebook.com/groups/227194018274534
8/12/2021	UCY Team	Posting on LinkedIn: QA Meeting on CybPhys	jpg & text	https://www.linkedin.com/groups/12355821/
17/12/2021	UCY Team	Posting on FB: Project Meeting	jpg & text	https://www.facebook.com/groups/227194018274534
17/12/2021	UCY Team	Posting on LinkedIn: Project Meeting	jpg & text	https://www.linkedin.com/groups/12355821/
27/01/2022	UCY Team	Posting on FB: Project meeting	jpg & text	https://www.facebook.com/photo/?fbid=10223506066934702&set=pcb.684739389186659
28/01/2022	UCY Team	Posting on LinkedIn: Project meeting QA	jpg & text	https://www.linkedin.com/groups/12355821/
28/01/2022	UCY Team	Posting on FB: Project meeting QA	jpg & text	https://www.facebook.com/photo/?fbid=10223510088835247&set=gm.685222732471658&idovanity=227194018274534
08/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=10223563695895390&set=pcb.692064888454109
08/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=10223563670214748&set=pcb.692062905120974
09/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=10223566460124494&set=pcb.692413365085928
10/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=10223570339661480&set=pcb.692945995032665
11/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=102235703481

				81693&set=pcb.692947185032546
13/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=10223586161777023&set=pcb.694998481494083
15/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=10223595591292755&set=pcb.696232348037363
15/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=10223595673254804&set=pcb.696238278036770
18/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=10223608921986014&set=pcb.697795974547667
18/02/2022	UCY Team	Posting on LinkedIn: Training School at KU Leuven	jpg & text	https://www.linkedin.com/groups/12355821/
18/02/2022	UCY Team	Posting on FB: Training School at KU Leuven	jpg & text	https://www.facebook.com/photo/?fbid=10223608934146318&set=pcb.697798577880740
21/02/2022	UCY Team	Posting on LinkedIn: Training School at KU Leuven	jpg & text	https://www.linkedin.com/groups/12355821/
21/03/2022	UCY Team	Posting on FB: Project meeting to discuss our future course of action.	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/717069729286958
11/05/2022	UCY Team	Posting on FB: Project meeting	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/748584926135438/
18/05/2022	UCY Team	Posting on FB: News Ukrainian students prepared videos for the training school at RTU	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/753037985690132/
04/07/2022	UCY Team	Posting on FB: CybPhys project meeting in Brugge	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/783809349279662/
05/07/2022	UCY Team	Posting on FB: Second day of the meeting in Brugge	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/784215805905683/
05/07/2022	UCY Team	Posting on FB: Management Meeting	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/784268879233709/

19/09/2022	UCY Team	Posting on FB: Project Management meeting at the KIOS CoE	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/833306054329991/
20/09/2022	UCY Team	Posting on FB: Second day of our Project Management and Workshop at the KIOS CoE	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/833868300940433/
20/09/2022	UCY Team	Posting on FB: Partners no EU and Ukrainian universities visited the library of UCY.	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/834155604245036/
25/11/2022	UCY Team	Posting on FB: Monitoring visit from an EU Project Officer.	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/881497212844208/
25/11/2022	UCY Team	KIOS CoE-EAC annual workshop		https://www.kios.ucy.ac.cy/kios-and-eac-are-collaborating-towards-the-modernization-of-the-cyprus-power-system/
04/12/2022	UCY Team	Presentation of the CybPhys Project to EAC stakeholders	jpg & text	https://www.kios.ucy.ac.cy/presentation-of-the-cybphys-project-to-eac-stakeholders/
10/12/2022	UCY Team	Posting on FB: The Kios CoE-EAC annual workshop	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/892221128438483/
23/01/2023	UCY Team	Posting on FB: course on acquisition of SEMSE platform	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/922138562113406/
23/01/2023	UCY Team	Posting on FB: Meeting with an External Expert on QA	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/922273602099902/
31/01/2023	UCY Team	Posting on FB: CybPhys mobility and training event	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/927521494908446/
02/02/2023	UCY Team	Posting on FB: Fourth day of the CybPhys mobility event & training school at UCY	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/928524208141508/
04/02/2023	UCY Team	Posting on FB: students visit the old part of Nicosia	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/929792091348053/

16/03/2023	UCY Team	Posting on FB: Project Meeting at Riga Technical University	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/953355642325031/
17/03/2023	UCY Team	Posting on FB: Second day of the Project Management Meeting	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/953784108948851/
27/04/2023	UCY Team	CybPhys project meeting & workshop in Riga	jpg & text	https://www.facebook.com/groups/227194018274534/permalink/974463590214236/

The paper is available on the internal SharePoint of the project - at KIOS CoE (the camera-ready version - green access version of the author, before final acceptance and on Zenodo open access repository).

https://ucy.sharepoint.com/:b:/s/CybPhys/EZWUD4qEsfBKISiwHPkreJ0BadhOwjC8gSxROzWA_T6_PQ?e=b6TVem

Dissemination Output:

Conference Presentation:

L. Stylianou, L. Hadjidemetriou, M. Asprou, L. Zacharia, M. Michael.(2021). A behavioral model to detect data manipulation attacks of synchrophasor measurements," *IEEE ISGT-EUROPE*, Espoo, 2021.

Conference Proceeding:

L. Stylianou, L. Hadjidemetriou, M. Asprou, L. Zacharia, M. Michael.(2021). "A behavioral model to detect data manipulation attacks of synchrophasor measurements," in *Proc. IEEE ISGT-EUROPE*, Espoo, 2021, pp. 1-6. <https://iee-isgt-europe.org/venue/>

Press release:

Hadjistassou, S., & Cornei, I. (2021). "KIOS is contributing to the development of programmes in Cyber-Physical Systems." *Paideia News*

Greek Version

[“Το Κόιός Π.Κ. συνεισφέρει στην ανάπτυξη προγραμμάτων σπουδών στα Κυβερνο- Φυσικά Συστήματα”]*Paideia ne*

Table 3.4. Report on implemented activities for Chernihiv Polytechnic National University

Date	Partner, Presenter, Author	Title of document or activity	Type (doc, ppt, etc)	Link to document on slideshare, blogspot, website, etc
February of 2020	CPNU	CybPhys homepage	Homepage	https://stu.cn.ua/mizhnarodna-diyalnist/mizhnarodni-programy-ta-proekty/proyekt-cyophys/
07.03.2020	V. Kazymyr	CybPhys page ICS department	html Page	https://cs.stu.cn.ua/proekt-erazmus-cyophys/#1636102609575-b15d624c-3b0f
Permanently	V. Kazymyr, D. Sysa	Social Media, Facebook	Comments, photos	https://www.facebook.com/chepolytech/
September, 2020	Kazymyr, V., Shkarlet, S., Zabašta, A.	Practical-oriented Education in Modeling and Simulation for Cyber-Physical Systems. In: Proceeding of 10th International Conference on Advanced Computer Information Technologies (ACIT),	Conference paper: Germany, Deggendorf, 16-18 September, 2020. Germany: IEEE, 2020, pp.691-694. ISBN 978-1-7281-6759-6. e-ISBN 978-1-7281-6760-2.	doi:10.1109/ACIT49673.2020.9208876 https://ortus.rtu.lv/science/lv/publications/31808
October 2020	A.Zabasta et al.	Research on Cross-Domain Study Curricula in Cyber-Physical Systems: A Case Study of Belarusian and Ukrainian Universities	Magazine paper	doi:10.3390/educsci10100282 , https://www.mdpi.com/journal/education https://ortus.rtu.lv/science/lv/publications/31529
October 2020	V. Kazymyr	Information Day of the project CybPhys	Erasmus days portal	http://erasmusdays.eu/event/chernihiv-polytechnic-moves-industry-4-0-with-erasmus
January, 27 2022	CPNU, RTU	Cooperation agreement RTU - CPNU	Project html page	https://stu.cn.ua/en/international-activity/international-programs-and-projects/project-cyophys/
February, 2022	CPNU V. Kazymyr	CybPhys homepage After student' school in RTU and KU Leuven	Project html page	https://stu.cn.ua/en/international-activity/international-programs-and-projects/project-cyophys/

March, 2022	V. Kazymyr	Shared modelling and simulation environment (SMSE) presentation	Project Page pdf	https://stu.cn.ua/wp-content/uploads/2021/11/smse-proposal.pdf
March, 2022	V. Kazymyr, A. Drozd	Shared modelling and simulation environment (SMSE) presentation	Project Page pdf	https://cybphys.rtu.lv/wp-content/uploads/sites/33/2022/05/smse_start_user_server.pdf
May, 2022	V. Kazymyr	Information about CybPhys project on fleshmob-erasmusplus 35years in Ukraine	Project Page pdf Erasmus+ 35 years portal	https://stu.cn.ua/wp-content/uploads/2023/05/erasmusplus35_cpnu_new.pdf https://erasmusplus.org.ua/news/fleshmob-erasmusplus35yearsukraine-v-mezhah-dniv-yevropy-2022-v-ukrayini-9-05-2022/
May, 2022	V. Kazymyr, A. Drozd	Shared modelling and simulation environment (SMSE) presentation	Project Page pdf	https://cybphys.rtu.lv/zoom-meeting-on-11-05-22/
May, 2022	CPNU, RTU Kazymyr, V., Prystupa, A, Zabašta, A.	Autonomous Power Supply Development for Hydrometeorological Monitoring Station	Conference paper ENERGYCON 2022 - IEEE 7th International Energy Conference, Proceedings, 2022	DOI: 10.1109/ENERGYCON53164.2022.9830499 https://ieeexplore.ieee.org/document/9830499
July, 2022	V. Kazymyr, A. Drozd	Shared modelling and simulation environment (SMSE) presentation	Project Page pdf	https://cybphys.rtu.lv/wp-content/uploads/sites/33/2022/07/SMSE-implementation-Brugge-May-2022.pdf
August, 2022	CPNU in collaboration with all Consortium Universities	Elaborate recommendations for new training programs for the targeted stakeholders beyond the project	A report with recommendations, Project documentation pdf	https://eln.stu.cn.ua/mod/older/view.php?id=198170
August, 2022	CPNU in cooperation with RTU	Shared Modeling and Simulation Environment for online learning with Moodle and Jupyter	Conference paper MODS 2022	https://easychair.org/conferences/overview?a=29468868
November, 2022	V. Kazymyr	CybPhys project activities in modelling and simulation of systems	MODS 2022 Conference Plenary session speech	https://mods.stu.cn.ua/index.php/conference-program https://us02web.zoom.us/j/86281519064?pwd=eZFWW5FRlI3YjJlQS94eEk1TDZQT09

January, 2023	V. Kazymyr	Using of SMSE in teacher's practice	SMSE manual pdf	https://stu.cn.ua/wp-content/uploads/2023/05/smse-manual_15-1.pdf
February, 2023	CPNU, V. Kazymyr	CybPhys project purchase of equipment for new CPNU research laboratory	ICS department site page	https://cs.stu.cn.ua/zakupivlya-obladnannya-po-proyektu-cybbphys/
April, 2023	CPNU, V. Kazymyr	Opening of new research laboratory	CPNU CYbPhys project page	https://stu.cn.ua/en/international-activity/international-programs-and-projects/project-cybbphys/new-research-laboratory/
May 12, 2023	V. Kazymyr	methodical lesson on the use of the SMSE in the educational process	CPNU site page	https://stu.cn.ua/events/zaproshuyemo-na-instruktyvno-metodychne-zanyattya/
Permanently	V. Kazymyr, D. Sysa	Social Media, Facebook	Comments, photos	https://www.facebook.com/chepolytech/

Table 3.5. Report on implemented activities for Kharkiv National Automobile and Highway University

Date	Partner, Presenter, Author	Title of document or activity	Type (doc, ppt, etc)	Link to document on slideshare, blogspot, website, etc
March of 2020	KhNAHU team	Web page for the project	Homepage	https://www.khadi.kharkov.ua/en/erasmus/ka2/development-of-practically-oriented-student-centred-education-in-the-field-of-modelling-of-cyber-physical-systems-cybphys/
Permanently	KhNAHU team	CybPhys e-library	folder	https://eduphys.bsu.by/mod/folder/view.php?id=2257
Permanently	KhNAHU team	Facebook	Comments, photos	https://www.facebook.com/profile.php?id=100054382817344
Permanently	KhNAHU team	LinkedIn	Comments, photos	https://www.linkedin.com/groups/12355821/
Permanently	KhNAHU team	Twitter	Comments, photos	https://twitter.com/Kafedra_AE
Permanently	KhNAHU team	Instagram	Comments, photos	https://www.instagram.com/avto_elektron/
2021	Zabasta, A., Kunicina, N., Nikiforova, O., Peuteman, J., Fedotov, A. K., Fedotov, A. S., & Hnatov	Development of industry oriented cross-domain study programs in cyber-physical systems for Belarusian and Ukrainian universities. Multi-Paradigm Modelling Approaches for Cyber-Physical Systems	Pages 271-292.	https://doi.org/10.1016/B978-0-12-819105-7.00016-7
2020	Аргун Щ.В., Гнатів А. В., Гнатова Г.А.	Проблеми, що виникли у ВНЗ у зв'язку з Covid-19 на прикладі магістерської програми подвійних дипломів	Автомобільний транспорт. – 2020. – № 47. – С. 6-16.	http://at.khadi.kharkov.ua/article/view/220660

2020	Zabasta A., Peuteman J., Kunicina N., Kazymyr V., Hvesenya S., Hnatov A., Paliyeva T., Ribickis L.	Research on Cross-Domain Study Curricula in Cyber-Physical Systems: A Case Study of Belarusian and Ukrainian Universities	Education Sciences. – 2020. – Т. 10. – №. 10. – P. 1-17.	https://doi.org/10.3390/educsci10100282
2020	Arhun, S., Hnatov, A., Hnatova, H., Patlins, A., & Kunicina, N.	Problems that have arisen in universities in connection with COVID-19 on the example of the Double Degree Master's Program "Electric Vehicles and Energy-Saving Technologies"	In 2020 IEEE 61th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON) (pp. 1-6). IEEE.	https://ieeexplore.ieee.org/document/9316601
16/11/2021	Hnatov, A., Arhun, S., Hnatova H., Bagach R., Patlins A. and Zabasta A.	Implementation of the double degree master's program on the example of the Erasmus project CybPhys.	2021 IEEE 62nd International Scientific Conference on Power and Electrical Engineering of Riga Technical University, Latvia, Riga, 16 Nov., 2021. Riga, Latvia: Riga Technical University, 2021. (pp. 1-6).	
22/10/2020	Гнатов А. В.	Фундамент майбутнього автомобільної промисловості	Press release Автодорожник, № 10, 22 жовтня 2020р	https://www.khadi.kharkov.ua/fileadmin/Avtodorozhnik/2020/2020_Avto_10.pdf
9/09/2020	Гнатов А. В.	Факультет – ювіляр.	Press release Автодорожник, № 8-9, 17 вересня 2020 р.	https://www.khadi.kharkov.ua/fileadmin/Avtodorozhnik/2020/Avto_2020_08-09.pdf
28/10/2021	Гнатов А. В.,	Проект Еразмус «CybPhys» розширює кордони.	Press release Автодорожник, № 10, 28 жовтня 2021 р.	https://www.khadi.kharkov.ua/fileadmin/Avtodorozhnik/2021/Avto_2021_10.pdf
28/10/2021	Гнатов А. В.,	Вектор оновлення	Press release Автодорожник, № 10, 28 жовтня 2021 р.	https://www.khadi.kharkov.ua/fileadmin/Avtodorozhnik/2021/Avto_2021_10.pdf
08.12.2021	A.Hnatov, S.Arhun, O. Dziubenko	Social Media: Facebook, Twitter	Post, comments, photo	https://twitter.com/Kafedra_AE/status/1468620391727915009 https://www.facebook.com/photo/?fbid=4547769108594291&set=a.838924249478814

14.12.2022	A.Hnatov, S.Arhun, O. Dziubenko	Social Media: Facebook, Twitter (As part of the implementation of the Erasmus + project "Development of practically oriented student-oriented education in the direction of modeling of cyber-physical systems" #CybPhys, Kharkiv National Automobile and Road University and KU Leuven (Belgium) signed an agreement on cooperation in the educational and scientific sphere.)	Post, comments, photo	https://www.facebook.com/photo/?fbid=4567048959999639&set=pcb.4567056106665591 https://twitter.com/KafedraAE/status/1470791748427386889
20.12.2021	A.Hnatov, S.Arhun, O. Dziubenko	Social Media: Facebook, Twitter	Post, comments, photo	https://www.facebook.com/photo/?fbid=4595179850519883&set=pcb.4595180443853157 https://twitter.com/KafedraAE/status/1473036493732171787
17.01.2022	A.Hnatov, S.Arhun, O. Dziubenko	Social Media: Facebook, Instagram, Twitter	Post, comments, photo	https://twitter.com/KafedraAE/status/1483110162491662343 https://www.facebook.com/photo/?fbid=4698530556851478&set=pcb.4695080393863161 https://www.instagram.com/p/CY3u5aqluIT/?hl=uk
				https://www.facebook.com/kalifus https://www.instagram.com/p/CZH2iRPKbzn/?hl=uk https://www.instagram.com/p/CZMaMV3Kp83/?hl=uk

07-08.02.2022	A.Hnatov, S.Arhun, O. Dziubenko	Social Media: Facebook, Instagram, Twitter	Post, comments, photo	https://www.facebook.com/photo/?fbid=4777004729004060&set=pcb.4777006862337180 https://www.instagram.com/p/CZuZF6sojsu/?hl=uk https://twitter.com/Kafedra_AE/status/1490712054457643010
21.03.2022	A.Hnatov, S.Arhun, O. Dziubenko	Social Media: Facebook, Twitter	Post, comments, photo	https://www.facebook.com/photo/?fbid=4897231443648054&set=pcb.4897231746981357 https://twitter.com/Kafedra_AE/status/1505962586176737291 https://twitter.com/Kafedra_AE/status/1505962829286985728 https://twitter.com/Kafedra_AE/status/1505963232309227522
22.04.2022	A.Hnatov	БРЕМЯ newspaper. (Interview with the head of the automotive electronics department A.V. Hnatov "To the future - with an electric car!")	Article, post	https://timeua.info/aktualnoe-segodnya/u-majbutn%d1%94-elektromobilem/ https://www.khadi.kharkov.ua/details/article/intervju-zav-kaf-avtomobilnoji-elektroniki-gnatova-av/?fbclid=IwAR0WEWUuXmJ0MnUwCXRR50Eedl7vuDSDNkW7j4_VUBDeICWOrMHroar1fw https://twitter.com/Kafedra_AE/status/1517458419631935490
11.05.2022	A.Hnatov, S.Arhun, O. Dziubenko	Social Media: Facebook, Twitter	Post, comments, photo	https://www.facebook.com/photo/?fbid=5032334696804394&set=pcb.5032337900137407 https://twitter.com/Kafedra_AE/status/1524420510225944576

	Y. Borodenko, S. Arhun, A. Hnatov, H. Hnatova, N. Kunicina and A. Patlins, "Features of training an electrical engineer in the context of distance learning," <i>2022 IEEE 63th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON)</i> , Riga, Latvia, 2022, pp. 1-6, doi: 10.1109/RTUCON56726.2022.9978859.			https://ieeexplore.ieee.org/document/9978859
05-06.06.2022	A.Hnatov, S.Arhun, O. Dziubenko	Social Media: Facebook, Twitter	Post, comments, photo	https://www.facebook.com/photo/?fbid=5190077227696806&set=pcb.5190080124363183 https://twitter.com/Kafedra_AE/status/1544666559486038016
01-31.08.2022	A.Hnatov, S.Arhun, O. Ulianets	Arrange a survey of stakeholders	Testing report_KhNAHU	https://www.khadi.kharkov.ua/erasmus/ka-2/rozvitok-praktichno-orijentovanoji-studentskoji-osviti-v-oblasti-modeljuvannja-kiber-fizichnikh-sistem-cybphys/zviti/

Publications

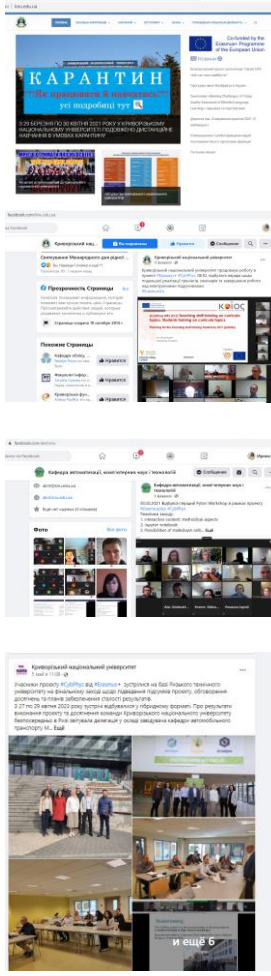
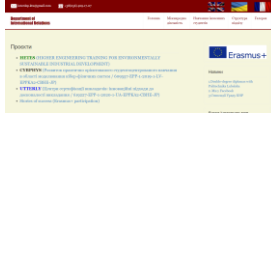
1. Zabasta, A., Kunicina, N., Nikiforovab, O., Peuteman, J., Fedotovd, A. K., Fedotovd, A. S., & Hnatove, A.: **підручник/монографія** / Development of industry oriented cross-domain study programs in cyber-physical systems for Belarusian and Ukrainian universities. Multi-Paradigm Modelling Approaches for Cyber-Physical Systems, 2021, Pages 271-292. <https://doi.org/10.1016/B978-0-12-819105-7.00016-7>
2. Cyber-Physical Systems for Clean Transportation: **підручник** / [Nadezhda Kunicina, Anatolijs Zabasta, Jeļena Pečerska, Andrej Romanov, Andrii Hnatov, Arhun Shchasiāna Dziubenko Oleksandr, Kateryna Danylenko, Joan Peuteman, Natalia Morkun, Iryna Zavsiehdashnia, Vladimir Sistuk, Yurii Monastyrskiy, Sergey Ruban, Vitaliy Tron]. – Рига.: ПТУ, 2021 – 370 с.
<https://www.khadi.kharkov.ua/erasmus/ka-2/rozvitok-praktichno-orijentovanoji-studentskoji-osviti-v-oblasti-modeljuvannja-kiber-fizichnikh-sistem-cybphys/e-book/>
3. Аргун Щ.В., Гнатов А. В., Гнатова Г.А. Проблеми, що виникли у ВНЗ у зв'язку з Covid-19 на прикладі магістерської програми подвійних дипломів. Автомобільний транспорт. – 2020. – № 47. – С. 6-16. <http://at.khadi.kharkov.ua/article/view/220660>
4. Zabasta A., Peuteman J., Kunicina N., Kazymyr V., Hvesenya S., Hnatov A., Paliyeva T., Ribickis L. Research on Cross-Domain Study Curricula in Cyber-Physical Systems: A Case Study of Belarusian and Ukrainian Universities //Education Sciences. – 2020. – Т. 10. – №. 10. – P. 1-17. <https://doi.org/10.3390/educsci10100282>
5. Arhun, S., Hnatov, A., Hnatova, H., Patlins, A., & Kunicina, N. (2020, November). Problems that have arisen in universities in connection with COVID-19 on the example of the Double Degree Master's Program "Electric Vehicles and Energy-Saving Technologies". In 2020 IEEE 61th International Scientific Conference on Power and Electrical Engineering of Riga Technical University (RTUCON) (pp. 1-6). IEEE. <https://ieeexplore.ieee.org/document/9316601>
6. Hnatov, A., Arhun, S., Hnatova H., Bagach R., Patlins A. and Zabasta A. "Implementation of the double degree master's program on the example of the Erasmus project CybPhys. In: 2021 IEEE 62nd International Scientific Conference on Power and Electrical Engineering of Riga Technical University, Latvia, Riga, 16 Nov., 2021. Riga, Latvia: Riga Technical University, 2021. (pp. 1-6). IEEE.
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8. Гнатов А.В. Важливість володіння англійською мовою для викладачів технічних спеціальностей в українських вишах. / II Міжнародна науково-методична конференція. - Харків: ХНАДУ. 2023. С. 145-146.
9. Zabasta, A., Peuteman, J., Kunicina, N., Kazymyr, V., Hnatov, A., Sistuk, V., & Bisenieks, M. (2023, February). Implementing the Practically-Oriented Curricular in the Field of Cyber-Physical Systems: A Case Study of the School for Ukrainian Students. In Learning in the Age of Digital and Green Transition: Proceedings of the 25th International Conference on Interactive Collaborative Learning (ICL2022), Volume 2 (pp. 861-872). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-031-26190-9_88
10. Інтеграція кібер-фізичних систем у навчальний процес для спеціальностей транспортного спрямування. Комп'ютерні технології і мехатроніка. [Збірка матеріалів IV Міжнародної науково-методичної конференції «КОМП'ЮТЕРНІ ТЕХНОЛОГІЇ І МЕХАТРОНІКА»] (26 травня 2022 р., м. Харків) / Гнатов А.В., Аргун Щ.В., Гнатова Г.А., Сохін П.С. – Харків : ХНАДУ, 2022. – 119 с. – С. 22 – 26. https://dl2022.khadi.kharkov.ua/pluginfile.php/266630/mod_resource/content/0/%D0%97%D0%B1%D1%96%D1%80%D0%BD%D0%B8%D0%BA%20%D1%82%D0%B5%D0%B7_2022.pdf

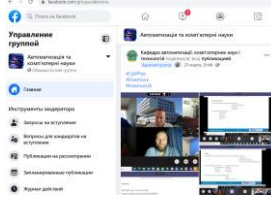
Press releases

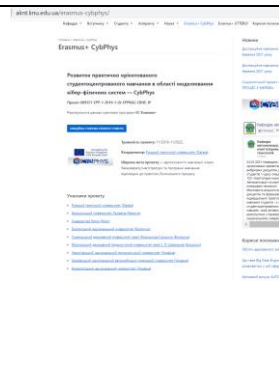

1. Фундамент майбутнього автомобільної промисловості. Автодорожник, № 10, 22 жовтня 2020р. https://www.khadi.kharkov.ua/fileadmin/Avtodorozhnik/2020/2020_Avto_10.pdf

2. Факультет – ювіляр. Автодорожник, № 8-9, 17 вересня 2020 р.
https://www.khadi.kharkov.ua/fileadmin/Avtodorozhnik/2020/Avto_2020_08-09.pdf
3. Проект Еразмус «СybPhys» розширює кордони. Автодорожник, № 10, 28 жовтня 2021 р.
https://www.khadi.kharkov.ua/fileadmin/Avtodorozhnik/2021/Avto_2021_10.pdf
4. Вектор оновлення. Автодорожник, № 10, 28 жовтня 2021 р.
https://www.khadi.kharkov.ua/fileadmin/Avtodorozhnik/2021/Avto_2021_10.pdf
5. Стажування студентів в Ризькому Технічному Університеті :
<https://af.khadi.kharkov.ua/chairs/avtomobilnoji-elektroniki/news/details/article/stazhuvannja-studentiv-v-rizkomu-tehnichnomu-universiteti/>
6. Студенти кафедри автомобільної електроніки поїхали на стажування у Бельгію:
<https://af.khadi.kharkov.ua/chairs/avtomobilnoji-elektroniki/news/details/article/studenti-kafedri-avtomobilnoji-elektroniki-poikhali-na-stazhuvannja-u-belgiju/>
7. Кафедра автомобільної електроніки отримала СЕРТИФІКАТ ПРО АКРЕДИТАЦІЮ ОСВІТНЬОЇ ПРОГРАМИ:
<https://af.khadi.kharkov.ua/chairs/avtomobilnoji-elektroniki/news/details/article/kafedra-avtomobilnoji-elektroniki-otrimala-sertifikat-pro-akreditaciju-osvitnoji-programi/>

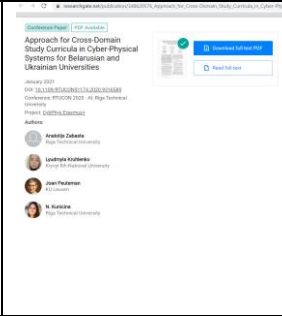

Table 3.5. Report on implemented activities for Kryvyi Rih National University

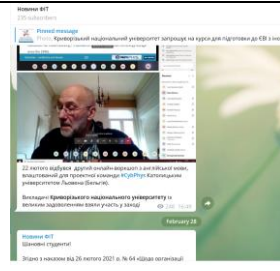
Date	Partner, Presenter, Author	Title of document or activity	Type (doc, ppt, etc)	Link to document on slideshare, blogspot, website, etc
<p>07/09/19 09/12/19 12/03/20 03/08/20 07/09/20 05/10/20 29/10/20 30/10/20 10/11/20 15/12/20 18/01/21 03/02/21 09/02/21 25/02/21 11/03/21 21/03/21 13/04/21 18/05/21 11/07/21 15/07/21 7/09/21 15/09/21 20/09/21 16/11/21 17/01/21 20/01/21 07/09/21 16/11/21 11/05.22 19/01/22 18/05/22 07/07/22 09/08/22 02/03/23 18/04/23 05/05/23</p>	<p>Mykola Stupnik, Liydmila Kruhlenko, Natalia Morkun, Iryna Zavsiehdashnia, Sehii Ruban</p>	<p>News about CybPhys events (zoom meetings, Pyton workshops, English language workshops) on FB pages of - KNU; International Relations Department of KNU; Automation, Computer Science and Technologies Department KNU, KNU official page on Facebook</p>		<p>https://www.facebook.com/knu.edu.ua</p> <p>https://www.facebook.com/groups/1414976482086783</p> <p>https://www.facebook.com/aknt.knu</p>
<p>Since Dec 2019</p>	<p>Liydmila Kruhlenko</p>	<p>Current information about Erasmus + projects on KNU Dept of International Relationships</p>		<p>http://doir.knu.edu.ua/%d0%bf%d1%80%d0%be%d0%b5%d0%ba%d1%82%d0%b8/</p>


<p>07/09/20 05/10/20 29/10/20 30/10/20 10/11/20 15/12/20 18/01/21 03/02/21 09/02/21 25/02/21 11/03/21 21/03/21 13/04/21 18/05/21 11/07/21 15/07/21 7/09/21 15/09/21 20/09/21 16/11/21 17/01/21 20/01/21 20/09/21 16/11/21 11/05.22 19/01/22 18/05/22 07/07/22 20/09/22 02/03/23 18/04/23</p>	<p>Natalia Morkun, Iryna Zavsiehdashnia</p>	<p>Topical news about CybPhys in thematic FB group «Automation and computer sciences»</p>		<p>https://www.facebook.com/groups/aknt.knu</p>
<p>15/10/19</p>	<p>Volodymyr Sistuk, Yurii Monastyrskyi</p>	<p>Signing Partner Agreement to DataFromSky Academy Program between KNU and R.C.E. Systems (Czech Rep.). KNU is Ukraine's first HEI to participate in DataFromSky Academy Program. Thanks to this program, students and teachers have access to fully automated traffic data analysis provided by DataFromSky platform that is used by traffic engineers' companies worldwide. Participation in the program fully meets the objectives of the CybPhys project, as the DataFromSky platform supplements the project's set of equipment at KNU.</p>	<p>https://datafromsky.com/academy/</p>	
<p>04/12/19</p>	<p>Volodymyr Sistuk</p>	<p>Digital Summit organized by the Kryvyi Rih City Council's Executive Committee. Speaker Volodymyr Sistuk emphasized the CybPhys project in his report, stating that the study of cyber-</p>	<p>https://kr.gov.ua/ua/news/pg/41219578201347_n/</p>	

		physical systems in transportation should provide the region with enough specialists in this field.	
Since 04/01/20	Natalia Morkun, Vitalii Tron Iryna Zavsiehdashnia	Information about CybPhys project and new curricula on the site of Automation, Computer Science and Technologies Dpt, KNU	 http://aknt.knu.edu.ua/erasmus-cybphys/
Since January 2020	Yurii Monastyrskiy, Volodymyr Potapenko, Volodymyr Sistuk	Information about CybPhys project and new curricula on the site of Transport Technologies Dpt, KNU	 https://at.knu.edu.ua/%D0%B5%D1%80%D0%B0%D0%B7%D0%BC%D1%83%D1%81-erasmus
12/09/20	Natalia Morkun	Memorandums and agreements were signed between the Department of Automation, Computer Science and Technology KNU And Kryvyi Rih industrial enterprises "Belaz SMTC", "Krivbasproekt", "Transmash KR"	aknt.knu.edu.ua
		<p>МЕМОРАНДУМ ПРО ТВОРЧУ ТА НАУКОВУ СПІВПРАЦЮ "01" жовтня 2020 р.</p> <p>Шляхом підписання цього Меморандуму про творчу та наукову співпрацю, кожною із Сторін, а саме:</p> <p>Кафедрою автоматизації, комп'ютерних наук і технологій Криворізького національного університету (КНУ) в особі завідувача кафедри Моркун Наталі Володимирівни, та</p> <p>Товариством з обмеженою відповідальністю «СЕРВІСНИЙ ТОРГОВО – ЛОГІСТИЧНИЙ ЦЕНТР БЕЛАЗ УКРАЇНА» (надалі – Товариство), у особі директора Бондаря Ігоря Вікторовича який діє на підставі Статуту,</p> <p>за взаємною згодою досягнуто наступних домовленостей:</p> <p>ДОГОВІР № 2/2020 ПРО ТВОРЧУ ТА НАУКОВУ СПІВПРАЦЮ "01" жовтня 2020 р.</p> <p>між кафедрою автоматизації, комп'ютерних наук і технологій Криворізького національного університету в особі завідувача кафедри Моркун Наталі Володимирівни, та ДП «ДПІ «Кривбаспроєкт» в особі заступника директора з економіки та перспективного розвитку Григор'єва Ігоря Євгенійовича.</p> <p>ДОГОВІР № 1/2020 про творчу співпрацю м. Кривий Ріг "01" жовтня 2020 р.</p> <p>Договір укладений між кафедрою Автоматизації комп'ютерних наук і технологій Криворізького національного університету (надалі Кафедра) в особі завідувача кафедри Моркун Наталі Володимирівни і ТОВ «Тансмаш КР» в особі директора Нежигая Олега Олександровича з іншого боку та регламентує наступні положення:</p>	
12/10/20	Volodymyr Sistuk, Yurii Monastyrskiy	Partner Agreement to DataFromSky Academy Program was extended.	https://datafromsky.com/academy/

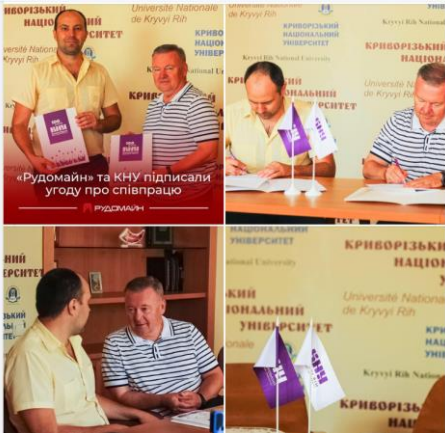
October December 2020	Natalia Morkun	<p>In October and December 2020, Kryvyi Rih National University was accredited by the National Agency for Quality Assurance in Higher Education of the specialties 122-Computer Science and 151- Automation and Computer-Integrated Technologies.</p> <p>The report mentions the #CybPhys project many times. In the process of passing accreditation, experts (representatives of Lviv Polytechnic, Central Ukrainian National University, Khmelnytsky National University, National Metallurgical Academy, Vinnytsia National Technical University) were familiarized with CybPhys project and project documentation, were told about the experience of the project. Reports were published on the KNU website</p>	<p>https://cutt.ly/qYBiRVX</p> <p>https://cutt.ly/sYBiLyl</p>
October 2020	Natalia Morkun, Iryna Zavsiehdashnia Vitalii Tron, Serhii Ruban	<p>International Conference on Science, Engineering & Technological Innovation (24 - 25 October, 2020)</p> <p>Report on the topic «International grant activity: Erasmus+ Modelling CybPhys 609557»</p>	<p>https://researchculturesociety.org/icseti-oct-2020/</p>
October December 2020	Natalia Morkun	<p>In October and December 2020, Kryvyi Rih National University was accredited by the National Agency for Quality Assurance in Higher Education of the specialties 122-Computer Science and 151- Automation and Computer-Integrated Technologies.</p> <p>The report mentions the #CybPhys project many times. In the process of passing accreditation, experts (representatives of Lviv Polytechnic, Central Ukrainian National University, Khmelnytsky National University, National Metallurgical Academy, Vinnytsia National Technical University) were familiarized with CybPhys project and project documentation, were told about the experience of the project. Reports were published on the KNU website</p>	<p>https://cutt.ly/qYBiRVX</p> <p>https://cutt.ly/sYBiLyl</p>




January 2021	Liydmila Kruhlenko	Publication in RTUCON2020 international conference		https://www.researchgate.net/publication/348620576 Approach for Cross-Domain Study Curricula in Cyber-Physical Systems for Belarusian and Ukrainian Universities
2021	Natalia Morkun	The Cyber-Physical System for Increasing the Efficiency of the Iron Ore Desliming Process – scientific publication in the field of implementation cyber-physical systems		http://elibrary.kdpu.edu.ua/xmlui/handle/123456789/4373?show=full
16/02/21	Natalia Morkun	On February 16, 2021, during the presentation of the KNU Erasmus + (KA2) UTTERLY project team, information about the CybPhys project, its goals, results, implementation experience was also provided		https://www.instagram.com/p/CLZ4Ox3p6w9/?igshid=8af4o6ap4bt1 https://www.facebook.com/aknt.knu https://www.facebook.com/knu.edu.ua
24/02/21	Volodymyr Sistuk	Regional scientific and practical seminar of young scientists and graduate students «International and state grants and research projects from idea to implementation: practice, experience, prospects». Participation with a report on the CybPhys project.		https://kdpu.edu.ua/nauka/rada-molodykh-uchenykh/novyny/14557-rehionalnyi-naukovo-praktychnyi-seminar-molodykh-uchenykh-ta-aspirantiv-mizhnarodni-ta-derzhavni-hranty-i-doslidnytski-proekty-vid-idei-do-realizatsii-praktyka-dosvid-perspektyvy.html
April 2021	Yurii Monastyrskyi, Volodymyr Sistuk	In April 2021, accreditation of the bachelor's study Program in speciality 275 – Transportation technologies (on-road transport), Kryvyi Rih National University, was provided by the National Agency for Quality Assurance in Higher Education. The study		https://cutt.ly/oISUd18

		program was developed following the CybPhys Project's tasks. It includes the newly elaborated course "Open Pit Transport Cyber-Physical Systems" and the updated course "Modern Information Technologies in Transport." Evaluation reports were published on the KNU website.	
18/01/21 03/02/21 09/02/21 25/02/21 11/03/21 21/03/21 29/09/21	Natalia Morkun Iryna Zavsiehdashnia Vitalii Tron	The official news Telegram channel of the Faculty of Information Technologies of KNU	 https://t.me/fitknu
26/05/21	Natalia Morkun Iryna Zavsiehdashnia	International meeting “Days of EU career in KNU”. Tutoring for students and postgraduates “Prospects of grant programs, partnership opportunities and special aspects of application filling”.	https://www.facebook.com/100057209629097/posts/266144718635847/
10-11/07/21	Natalia Morkun Iryna Zavsiehdashnia	International Conference ISCETI-2021. The results of CybPhys project implementation were reported.	https://www.facebook.com/100057209629097/posts/297788548804797/
14/07/21	Lyidmila Kruhlenko KNU FB page	Announcement about KU Leven seminar on the KNU FB page	https://www.facebook.com/groups/1414976482086783/search/?q=%23CybPhys
July 2021	Natalia Morkun, Iryna Zavsiehdashnia Vitalii Tron, Serhii Ruban	ICSETI – 2021 International Conference on Science, Engineering & Technological Innovations. Date: 10 - 11 July, 2021. Report on the topic «Modelling CybPhys 609557 – outcomes and perspectives»	https://www.ijirmf.com/icseti-july-2021/
07/09/21	Lyidmila Kruhlenko, department of international relationships KNU	News about online-seminars, organized by EU partners by department of international relationships	https://www.facebook.com/groups/1414976482086783/search/?q=%23CybPhys
20/09/21	Lyidmila Kruhlenko, Natalia Morkun	News and reports about KNU’ teachers visit to KU Leuven campus	https://www.facebook.com/groups/1414976482086783/search/?q=%23CybPhys

			
17/11/21	Lyidmila Kruhlenko, department of international relationships KNU	News about project activities	https://www.facebook.com/groups/1414976482086783/search/?q=%23CybPhys
November 2021	Natalia Morkun, Iryna Zavsiehdashnia Vitalii Tron, Serhii Ruban	Eurasian Conference on Science, Engineering & Technological Innovations. Date: - 20 & 21 November, 2021 Report on the topic: «Modelling CybPhys 609557 – application of the best European practices of student-centered learning »	https://researchculturesociety.org/ecseti-2021/
17-28/01/22	Natalia Morkun Mykola Stupnik	Students of the Department of Automation, Computer Sciences and Technologies of Kryvyi Rih National University: - Nazar Lyashok and Violetta Dmitrieva (masters students of OPP 151 – Cyberphysical systems in industry, business and transport) - Olga Kravchenko (postgraduate student of ONP 151 – Automation and computer-integrated technologies) received a unique opportunity to complete an internship at the Riga Technical University (Latvia) in the period January 17-28, 2022.	https://www.facebook.com/aknt.knu
07-19/02/22	Natalia Morkun Volodymyr Sistuk Mykola Stupnik	Students of Kryvyi Rih National University received a unique opportunity to complete an internship at the KU Leuven (Belgium) in the period February 07-19, 2022.	https://www.facebook.com/aknt.knu

			
09-11/05/22	Natalia Morkun Serhii Ruban	<p>May 9-11, 2022, a team of students from specialty 151 - Automation and computer-integrated technologies of KNU took part in the international conference ENERGYCON 2022 (Riga, Latvia)</p>  <p>Certificate of Appreciation</p> <p>For participation in Latvenergo prototyping contest</p> <p><i>Violetta Dmytriieva, Nazar Liashok and Olya Kravchenko</i></p> <p>Remote Monitoring of Indoor Station</p>	https://easychair.org/cfp/ENERGYCON2022
07/07/22	Mykola Stupnik, Volodymyr Sistuk, KNU FB page	<p>News about KNU CybPhys internal team meetings</p> 	https://www.facebook.com/groups/1414976482086783/post/s/3268128783438201/?_cft__[0]=AZXGP4imp9tg7Qhi0ZefkQwgVf3vkU3IMeGiN5FNhij6QhG94q0WjxRF86lZOwAuV9BubgIOkopHgsxnVa9C20Otr3fll0A2H6ECyel6ijtFbE-jMJnFRxw2Ls73wh HTmU-cQz608dqNlJBruPXeybAou tg2vwSMVKo1eBJMOBrklvLiOTBpYy9128LQ4jhg0bNbdGwGq4SdzLw8Zqnt5&_tn=-UK-R

August 2022	Mykola Stupnik	<p>KNU signed a partnership agreement with “Rudomine” company. As part of the agreement, student internships and joint training programs in the field of mining are planned, including considering the specifics of the use of IT technologies and modern transport technologies.</p> 	https://gmk.center/ua/news/ru-domain-domovivsvya-z-knu-pro-pidgotovku-specialistiv/
27-30/09/23	Volodymyr Sistuk	<p>Zabasta A., Peuteman J., Kunicina N., Kazymyr V., Hnatov A., Bisenieks M. (2022). Implementing the Practically-Oriented Curricular in the Field of Cyber-Physical Systems: A Case Study of the School for Ukrainian Students, Presented at the 25th International Conference on Interactive Collaborative Learning ICL2022, 27 September – 30 September 2022, Vienna, Austria. DOI: 10.1007/978-3-031-26190-9_88</p>	https://icl-conference.org/icl2022/
03-05/10/22	Serhii Ruban	<p>Accreditation examination of the educational program "Cyber-physical systems in industry, business and transport" at the second (master's) level</p>	http://www.knu.edu.ua/novini/akredytaciyna-ekspertyza-osvitn-oi-prohramy-kiberfizychni-systemy-v-promyslovosti-biznesi-ta-transporti-za-druhym-mahisters-kym-rivnem
03/10/2022	Serhii Ruban	<p>Open meeting with representatives of the expert commission for accreditation of the educational program “Cyber-physical systems in industry, business and transport”</p>	http://www.knu.edu.ua/novini/vidkryta-zustrich-z-predstavnykamy-ekspertnoi-komisii-akredytacii-osvitn-oi-prohramy-kiberfizychni-systemy-v-promyslovosti-biznesi-ta-transporti

<p>February 2023</p>	<p>Kostiuk Svitlana</p>	<p>University students completed internships at the KIOS Research and Innovation Center of the University of Cyprus</p> <p>Студенти університету пройшли стажування на базі Дослідницького та інноваційного центру KIOS Кіпрського університету</p> <p>З 31 січня по 10 лютого 2023 р. у рамках гранту «Розвиток практичних освітньо-наукових зв'язків в області освітнього інформатичного сектору (DIPRIU)» грантової програми ЄС Erasmus здійснені виїзди Українських національних університетів разом з колегами з Національного університету «Львівська політехніка» та Харківського національного автомобільно-дорожнього університету (ХНАДУ) пройшли стажування на базі Дослідницького та інноваційного центру KIOS (https://www.kios.ucy.ac.cy/). Український університет (UOS) (https://www.kios.ucy.ac.cy/ukr/).  <p>Управління адмін-технічними ресурсами мають можливість використовувати спеціальні послуги з технічного моделювання, розробки та прототипування об'єктів системи, навчання в інноваційних розробках науковців Дослідницького та інноваційного центру KIOS, оптимізації алгоритмів з комп'ютерним моделюванням систем управління транспортними засобами. Програма візиту покликана з'ясувати цілі та завдання, пріоритети науковців університету в функції на державній адміністрації інфраструктури, чотирьох-річної програми навчання та інтеграції програм університету. Національний автомобільно-дорожній університет (ХНАДУ) (https://www.kios.ucy.ac.cy/ukr/). Управління адмін-технічними ресурсами мають можливість використовувати спеціальні послуги з технічного моделювання, розробки та прототипування об'єктів системи, навчання в інноваційних розробках науковців Дослідницького та інноваційного центру KIOS, оптимізації алгоритмів з комп'ютерним моделюванням систем управління транспортними засобами.</p> </p>	<p>http://www.knu.edu.ua/novini/studenty-universytetu-proyshly-stazhuvannya-na-bazi-doslidnych-koho-ta-innovaciynoho-centru-kios-koho-universytetu</p>
<p>03/03/23</p>	<p>-</p>	<p>Students from Kryvyi Rih visited Cyprus. All Kryvyi Rih News</p> <p>Новини Кривого Рогу</p> <p>Студенти з Кривого Рогу побували на Кіпрі</p> <p>Опубліковано: 03 березня 2023</p> <p>★★★★★ Рейтинг 5.00 (2 оцінки)</p> <p>Як повідомляє «Криворізький національний університет», з 31 січня по 10 лютого 2023 року в межах проекту «Повищення практичних освітньо-наукових зв'язків в області освітнього інформатичного сектору (DIPRIU)» грантової програми ЄС Erasmus здійснені виїзди Українських національних університетів разом з колегами з Національного університету «Львівська політехніка» та Харківського національного автомобільно-дорожнього університету (ХНАДУ) пройшли стажування на базі Дослідницького та інноваційного центру KIOS Кіпрського університету.  <p>Управління адмін-технічними ресурсами мають можливість використовувати спеціальні послуги з технічного моделювання, розробки та прототипування об'єктів системи, навчання в інноваційних розробках науковців Дослідницького та інноваційного центру KIOS, оптимізації алгоритмів з комп'ютерним моделюванням систем управління транспортними засобами.</p> </p>	<p>https://www.veskr.com.ua/kriv-orozhskie-gorodskie-novosti/59548-studenti-z-krivogo-rogu-pobuvali-na-kipri.html</p>
<p>08/04/23</p>	<p>Volodymyr Sistuk</p>	<p>KNU Open Day, familiarization with the project for applicants</p> 	<p>http://www.knu.edu.ua/novini/08-kvitnya-2023-roku-v-stinah-universytetu-vidbuvsya-den-vidkrytyh-dverey</p>

<p>April 2023</p>	<p>Kostiuk Svitlana</p>	<p>News about Workshop and final conference at RTU</p> <p>Ризький технічний університет об'єднує країни та університети</p> <p>Розвиток проекту EUREC від Європейського парламенту на базі Ризького технічного університету та Фінляндського інституту інженерів проектування (VTT) об'єднує дослідників та спеціалістів з різних країн. Проєкт спрямований на дослідження нових технологій у галузі мобільності та безпеки автомобільного транспорту. У рамках проекту відбулися зустрічі з керівниками департаменту інженерії та безпеки автомобільного транспорту Міністерства ЕКА та керівниками відділу інженерії та безпеки автомобільного транспорту Міністерства ЕКА, а також з директором департаменту інженерії та безпеки автомобільного транспорту RTU. Крім того, відбулися зустрічі з керівниками департаменту інженерії та безпеки автомобільного транспорту RTU. Крім того, відбулися зустрічі з керівниками департаменту інженерії та безпеки автомобільного транспорту RTU.</p> 	<p>http://www.knu.edu.ua/novini/ryz-kyy-tehnichnyy-universytet-ob-yednuye-krainy-ta-universytety</p>
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