



Co-funded by the  
Erasmus+ Programme  
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# Development of practically-oriented student-centred education in the field of modelling of Cyber-Physical Systems - CybPhys

**CybPhys: 1st Management meeting (Kick-off)**

Belarusian State University, Minsk, Belarus  
December 5-6<sup>th</sup>, 2019  
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Riga Technical University

# The targets of the 1<sup>st</sup> meeting

- To meet one another
- To make a commitment about partner's responsibilities in the project
- To develop a preliminary time schedule with the deadlines
- To set the milestones for near future

## *Our regulations*

- Language of the meeting English
- Questions – in English - Russian
- The brakes for coffee, relaxation and informal communication

# Please, introduce yourself

- My name is ..... You may call me .....
- I represent .....university (company etc.)
- The sphere of my professional interest .....
- I participate in this project, because .....
- My personal interest to participate in this project ....

# Agenda of the meeting

- The project targets
- Preparation tasks (WP1)
- Development and modernizing of curricula (WP2)
- Implementation of innovative ICT based teaching/learning environment (WP3)
- Developing the Sharing Modelling and Simulation Environment platform (WP4)
- Quality Assurance (WP5)
- Dissemination and Exploitation of results (WP6)
- Project management (WP7)
  - Project financial aspects.
  - Reporting and progress monitoring
  - Communication tools for the team members
  - Partnership agreements
- Further tasks and the next steps

# Partners – short introduction *by 10 minutes*

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

## Associated partners

11. BPS - Belarusian Physical Society Voluntary Association
12. Institute for Nuclear Problems of Belarusian State University
13. PJSC - Kharkiv enterprise of bus stations
14. JSC "INTEGRAL" - Holding Managing Company
15. V.M. Glushkov Institute of Cybernetics of National Academy of Science of Ukraine

# **Introduction of the partners**

# **The project targets and deliverables**

# The success rate

Erasmus+ Capacity Building in Higher Education  
Call 2019 EAC/A03/2018

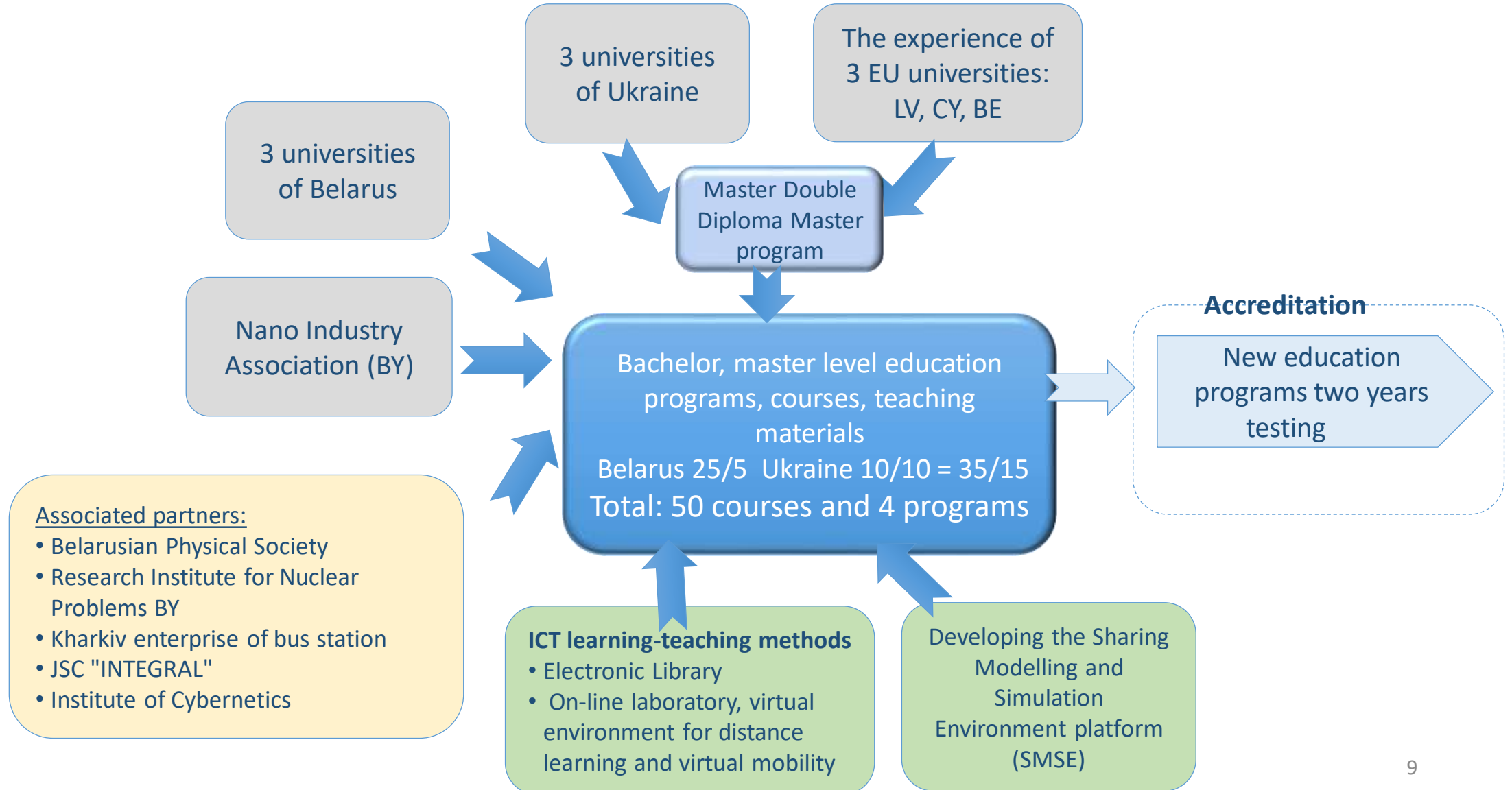
Region (targeted by applications)	Eligible applications	Applications selected for funding	Success rate
Region 1 - Western Balkans	77	20	25,97%
Region 2 - Eastern Partnership Countries	185	20	10,81%
Region 3 - South Mediterranean Countries	234	34	14,53%
Region 4 - Russian Federation (all proposals are cross regional)	82	8	9,8%
Region 6 - Asia	166	55	33,13%
Region 7 - Central Asia	104	15	14,4%
Region 8 - Latin America	87	14	16,09%
Region 9 - Middle East (Iran, Iraq, Yemen)	16	2	12,50%
Region 10 - South Africa	18	5	27,78%
Region 11 - ACP	51	8	15,7%
<b>All Regions*</b>	<b>833</b>	<b>163</b>	<b>19,6%</b>
Cross Regional applications	159	15	9,43%

\* Figures per Region cannot be added since Cross Regional applications are counted in each of their target Regions



# Project idea

Project implementation: November 15th 2019 – November 14th



# Courses and programs: new / updated

- BSU: courses 11/2; Programs 1/1
- GSU: courses 10/2
- MSPU: courses 4/1
- CNTU: Courses 5/2; Programs 1
- KhNTHU: Courses 2/4; programs 1
- KNU: courses 3/4; programs 1

**Total:** courses Belarus 25/5 and Ukraine 10/10 = 35/15 = 50

# What we promised! *Indicators 1*

- Expected number of new/updated courses to be DEVELOPED/ ACCREDITED/ IMPLEMENTED: **50**
- Volume (in ECTS) of new/updated courses: **240**
- Number of planned learners enrolled per course delivery: **15**
- Expected number of partner country "HEIs' students" to be trained: **420**
- Expected number of partner country "HEIs' academic staff" to be trained: **120.**
- Expected number of partner country "non-HEI individuals" to be trained (priv. sector, NGOs, civil servants, etc.): **4**

# Indicators 2

- Number of direct beneficiaries in the Partner countries per year: academic staff from HEIs: **102**
- Number of direct beneficiaries in the PCs (/year): students: **140**
- Number of direct beneficiaries in the PCs (/year): non HEs individuals: **16**
- % of the new curriculum planned to be taught in foreign language of the total of new curriculum developed by the project: **20%**

# Double Degree Master program development and accreditation: RTU - KNAHU

- To develop curriculum of the [double-degree Master Program](#)
- To developing flexible and modular training courses, and methodological tools
- Bilateral Agreements between RTU – KhNAHU will be signed
- KhNAHU will accredit Double Degree master program at the Ministry of Science and Education of Ukraine
- RTU will make adjustments in the existing master program, which do not require accreditation in the Ministry of Education
- RTU and KhNAHU start preparation to the student admission (practical arrangements, visa arrangement, etc.).
- The MS student' admission Guide and Agreement will be developed

# New teaching books

1. Bringing innovations to the market – RTU, GSU
2. Mathematical Modelling of Mechatronic Systems – KU Leuven
3. Model-oriented control in Intelligent Manufacturing Systems – CNUT
4. Modern Mathematical Physics: Fundamentals and Application – BSU
5. High-Performance Scientific Computing and Data Analysis – BSU
6. Cyber-Physical Systems modelling and simulation – UCY
7. Cyber-Physical Systems for Clean Transportation – KNAHU
8. Control methods for critical infrastructure and Internet of Things (IoT) systems interdependencies analysis – RTU
9. Computer modeling of physical processes (handbook for students and PhD students)

# Students and teachers training

<b>P1</b>	LV	RTU	Students training in Riga, 3 pers., 6 partners, 14 days.	WP2	
<b>P2</b>	CY	UCY	Students training in Nicosia, 3 pers., 6 partners, 14 days.	WP2	
<b>P3</b>	BE	KU Leuven	Students training in Bruges, 3 pers., 6 partners, 14 days.	WP2	
<b>P2</b>	BE	KU Leuven	English language training for teachers in Bruges, BSU, GSU, MSPU, CNUT, KNAHU, KRNU, 4pers x 6	WP2	June 9th - 13th 2020
<b>P1</b>	LV	RTU	Training of teachers in Riga: BSU, MSPU, KNAHU, 7 days, 4 pers.	WP2	October 2021, RTUCON
<b>P3</b>	CY	UCY	Training of teachers in Nicosia: GSU, KRNU, 7 days, 4 pers.	WP2	October 2021
<b>P2</b>	BE	KU Leuven	Training of teachers in Bruges: RANI, CNUT, 7 days, 4 pers.	WP2	October 2021

# Sharing Modelling and Simulation Environment platform

- Developing the [Sharing Modelling and Simulation Environment platform](#) for online, distance and virtual laboratory works for teaching of modelling and simulation of CPS.
- Creation methodologies for implementing distance and virtual laboratory based on application of ICT tools.

4.1. Analyses of experience of the contemporary technical solutions and development of a concept of the SMSE

4.2. Development of the technical platform of the SMSE and designing of web interface for SMSE platform.

4.3. Development of computer classes with on-distance/ virtual laboratory in framework of SMSE platform

- *Workshop on SMSE in Minsk*



# Development of innovative ICT based teaching and learning environment

## 3.1. Creation of Electronic Library.

Development of virtual environments for distance learning and virtual mobility on the base of Moodle platform.

3.2. Elaborating e-books, document sharing facilities, digital writing and publishing facilities.

3.3. Development of learning and teaching methodologies and pedagogical approaches for use of ICT

3.4. *Workshop on ICT tools in Brugge*

# Motivation

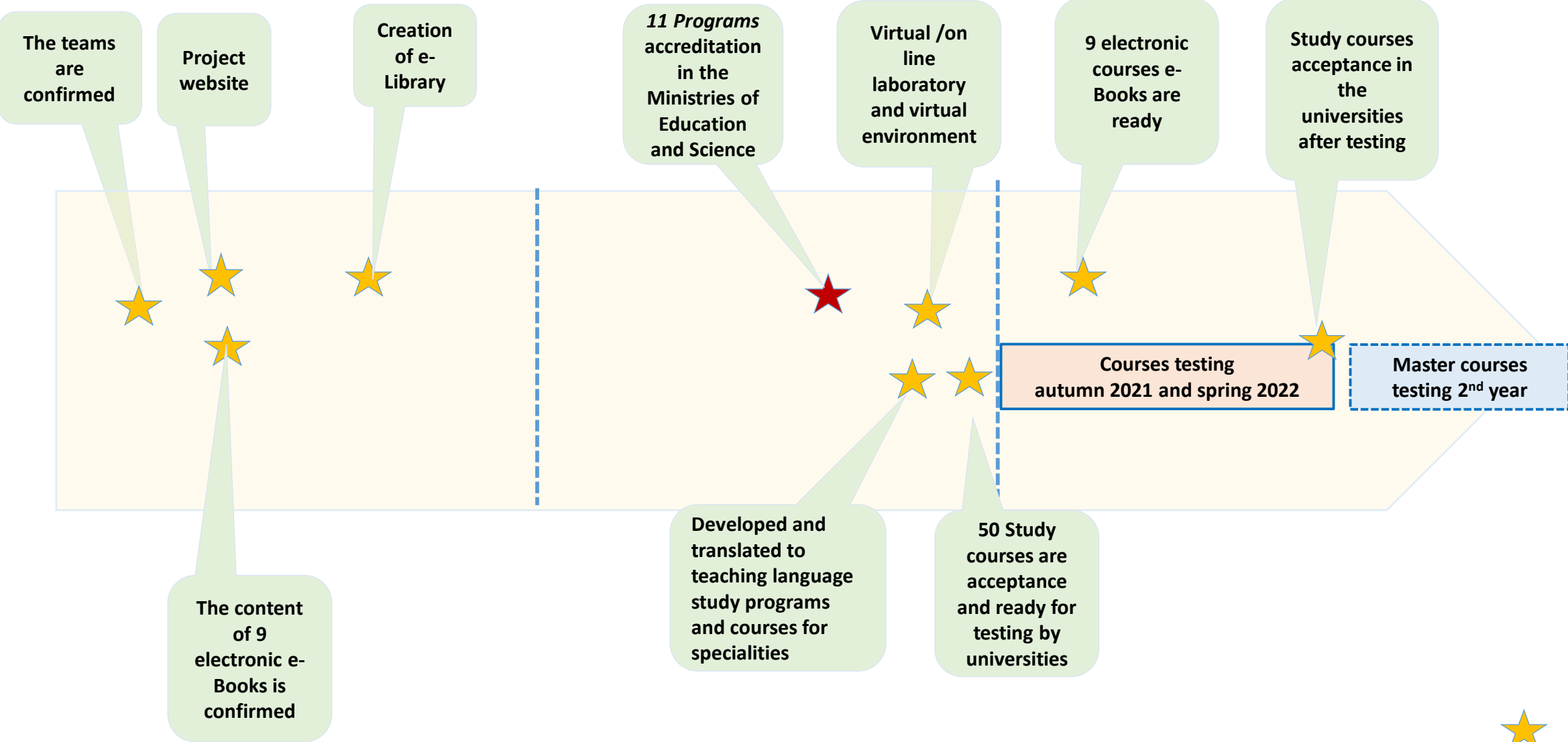
## Partner countries

- Involvement into Bologna process: recognition of curricula, new education programs and courses, ICT based teaching methods
- New equipment for laboratories and Shared modelling and simulation platform
- Opportunity to travel and create network of researchers, to improve English language skill
- Additional salaries for teachers, interpreters and professionals

## EU countries:

- Opportunity to develop new courses
- Opportunity for scientific publications
- Opportunity to create a network of researchers and participate in new projects
- Additional salaries for young researchers

# Deliverables schedule 2019-22



# Preparation tasks (WP1)

Riga Technical University

# **WP1 – Preparation 15.11.2019 - 14.03.2020**

## **Leader - RTU**

1.1. Kick-off meeting of the Project Team

1.2. The study of compatibilities of educational regulations. Ex-Ante reports elaboration

1.3. Finalising of the studies to define specific needs of the labour market. Report on studies. WS1 in Minsk.

Participate - KU Leuven, UCY, BSU, GSU, MSPU, RANI, CNTU, KhNAHU, KNU, all associated partners

# 1.2. Review and analysis of existing curricula and study programs - 14.02.2020

- The [preliminary study/analysis](#) of compatibilities of educational regulations/principles in the Partner countries and EU countries (difference in educational legislations, in educational curricula, study programs, teaching/learning, didactic/teaching materials, methodological tools, language barriers, etc.)
- Discussions and [commitments](#) about accreditation/validation procedures and their levels
- [Review and analysis of the existing educational](#) curricula and, study programs and the recent advances in innovative physical, mathematical and engineering topics.
- Development of [Ex-Ante report by Belarusian, Ukraine](#) universities.
- Development of [a plan](#) of the Double Degree Master program (DDMP) development (RTU and KhNAHU)

## 1.3. Studies and a Report on curricula, needed to the labour market - 14.03.2019

- In order to clarify the demands to the future specialists the business analysis was prepared at the pre-project's stage.
- At the Preparation BY and UA partners will finalise the survey of representatives of industry, research institutions, HEIs and professional association.
- A special questionnaire for analysis of the labour market.
- Matrix of competences and profile of the CPS specialist will be created in each PC university
- Report – an analysis of survey results
- Workshop WS1 to be held in Minsk (Belarus) for discussion and elaboration the finding of the Report

# WP1 Deliverables and milestones

- Confirm **the names of responsible for development** of training programs and courses development
- **Matrix of courses** to be developed for education programs and for e-books.....
- **Ex-Ante reports by** ..... (the template of the report by RTU by ...)
- A **Questionnaire for survey** (template by RTU) by .....
- **A survey of stakeholders** provided by Belarusian and Ukrainian partners ....
- A draft of the **Survey and report with recommendation** for curricula to be developed and modernised in the project (RTU) by....
- **Matrix of competences and profile of the CPS specialist** will be created in each PC university.....
- **Workshop** in Minsk (BSTU) on **10-11th, March 2020**



# **Responsibilities of the partners**

# Responsibilities of RTU

- **Double Degree Master program development together with KNAHU**
- Web design for e-learning platform: subcontracting
- **Development a project Web Portal:** web design task elaboration and further maintenance.
- Support to partners for development of training courses
- **Coordinator of e-book 8** "Control methods for critical infrastructure and Internet of Things (IoT) systems interdependencies analysis"
- **Coordinator of e-book 1** "Bringing innovations to the market"
- Holding **WS2** on developed courses in RTU
- Partner countries students teaching in RTU – 2 weeks
- Partner countries teaching staff teaching in RTU – 1 week.
- **WP1 Preparation leader:** survey, Ex-ante report, Report on new curricular.
- **WP7 Management leader:** responsible for budget, development of curricula, reporting to EACEA, etc.
- Financial audit of the project
- **WP5 Quality Assurance: UCY and RTU** – quality of project implementation. Project manual. Report and plan on sustainability.
- Quality Assurance external monitoring and evaluation

# Ku Leuven

- **WP3 Implementation of innovative** ICT based teaching/learning environment leader KU Leuven (methods), BSU – technical support
- KU Leuven will support the development of e-books by contributing on a number of topics: simulation of electrical motors and drives, EMI on critical infrastructures, Cyber Physical Systems for clean transportation, electric power systems.
- **Coordination of the e-book on “Mathematical Modelling of Mechatronic systems”**.
- Provides training on academic English to teaching staff of the partner countries: **June 15 - 19<sup>th</sup> 2020**
- It organises the teaching students and teaching staff of PCs at KU Leuven laboratories and premises.
- Holding workshop on developed courses in KU Leuven.
- Contributing to the dissemination and exploitation of results, including scientific publications and presentations at the conferences.

# Responsibilities of UCY

- **WP5 Quality Assurance leader.**
- UCY provides methodical support to BSU, who is a leader of *WP4 Developing the Sharing Modelling and Simulation Environment platform*
- UCY is responsible for developing of training courses about the Hardware and software of networks and the Microprocessors and microcontrollers.
- **Coordinator of e-book** “Cyber-Physical Systems modelling and simulation”.
- Teaching students of Partner Countries at UCY laboratories and premises.
- Teaching staff of Partner Countries at UCY laboratories and premises.
- Holding **WS4: Workshops for curricula development**
- Contributing to the dissemination and exploitation of results.
- Providing support for the methodologies on developing the *Sharing Modelling and Simulation Environment platform*.

# Belorussian State University

- **A leader of WP2** Development and modernizing of curricula
- **A leader of WP4** Developing the Sharing Modelling and Simulation Environment platform. BSU is local coordinator of Belarusian Consortium;
- BSU is responsible for development of standard (model) study programs “Mechanics and mathematical modelling (for bachelors)” and WEB-coding and Internet technologies (for bachelors), and of both programs accreditation in the Ministry of Education of Belarus.
- Development and/or modernizing courses, developments of lecture courses, lab. practicums, and didactic materials for them.
- Teaching staff and students flow for training in EU universities.
- Purchasing of hardware/software for courses, and also virtual and physical laboratories;
- Acquisition a virtual /experimental labs and innovative ICT teaching methods and tools
- Arrangement of Belarusian **stakeholders’ events** and WS and MC meetings in Minsk
- **Leader of 2 e-books** «Modern Mathematical Physics: Fundamentals and Application”, “High-Performance Scientific Computing and Data Analysis”.
- Hosting and maintenance of E-Learning system and SMS platform beyond the project. Hosting and maintenance of E-Learning platform beyond the project

# Gomel State University

- GSU will develop **10 new** Bachelor and masters-degree courses and will **modernize 2 bachelor** and masters courses.
- Purchase of hardware/ software for virtual and physical laboratories;
- Acquisition a virtual /experimental labs and innovative ICT teaching methods and tools,
- New study courses and programs validation and accreditation;
- Teaching staff and students flow for training in EU universities.
- Arrangement of Belarusian stakeholders' events in Gomel. Dissemination and exploitation activities concerning new training programs and courses.
- Arrangement of WS and MC meetings in Gomel
- Contribution to e-books elaboration by development course materials: **"Bringing innovations to the market", "Mathematical Modelling**

# Mozyr State Pedagogical University

- MSPU will develop study courses, the of lecture courses, didactic materials; this courses are aimed at solution of research problems in Physics and Computer Modeling in Matlab, Simulink, AdobeFlash.
- Didactic and educational materials will be developed and then addressed to secondary school teachers (total 4 new and 1 updated course).
- Purchase of hardware/ software for virtual and physical laboratories;
- Acquisition a virtual /experimental labs and innovative ICT teaching methods and tools,
- New study courses and program validation and accreditation;
- Teaching staff and students flow for training in EU universities.
- Arrangement of Belarusian stakeholders' events in Mozyr. Dissemination and exploitation activities concerning new training programs and courses.
- Arrangement of WS and MC meetings in Mozyr.
- **MSPU is a leader of e-books elaboration**: “Computer modeling of physical processes (handbook for students and PhD students)”.

# Republican Association of Nanoindustry (RANI)

- **RANI is a leader of WP6 Dissemination & exploitation**
- RANI will provide consultation of the partners relating job market needs;
- It will provide consultation on development of Education curricula, study programs. It will review the developed and modernised curricula and study programs;
- RANI will support Belarusian partners to arrangement Belarusian stakeholders' events.
- It will contribute to dissemination and exploitation activities concerning new training programs and courses.
- RANI together with other Belarusian partners will arrange **a Final conference for the project stakeholders**



# Chernihiv National Technological University

- CNTU will develop, validate and accredit in the Ministry of Education and Science a [new master program “Industrial Automation, update and accredit courses for existing bachelor program “Computer Systems of Automation”](#).
- It will develop and upgrade of the new courses, lectures, didactic materials, e-book.
- CNTU will purchase of hardware and software for creation new Virtual Automation Laboratory using of modern equipment and Cloud technologies via SMSP.
- CNTU will ensure master students flow for teaching in EU universities. The key teachers will be retrained at university of EU partners.
- CNTU will develop dissemination and marketing materials for Virtual Automation Laboratory, exploitation activities concerning new training programs and courses.
- CNTU will involve region stakeholders:
  - PET Technologies, Chernigiv, Ukraine;
  - Slavyanski Wallpaper, Koryukovka, Ukraine;
  - Chernigiv department JSC “SUN InBev Ukraine”.
- CNTU will organize Ukraine stakeholders’ events, WS and MC meetings in Chernihiv.

# Kharkiv National Automobile and Highway University

- Developing the training modules (standards) and curricula of **the educational program “Electric Vehicles and Energy-Saving Technologies”**;
- **Development of Double Degree master program with RTU** and accrediting the curricula and the training programs by the Ministry of Education and Science of Ukraine;
- **Coordinating the e-book elaboration “Cyber-Physical Systems for Clean Transportation”**.
- Developing the course based training programs, lectures and other teaching materials.
- Purchasing the hardware/ software for virtual and physical laboratories and SMS platform;
- Training the teaching staff and Master’s students;
- Developing the lab “Laboratory of Energy-saving technologies in transport”.
- Arrangement of Ukrainian stakeholders’ events.
- Dissemination and exploitation activities concerning new training programs and courses.
- Arrangement of WS and MC meetings in Kharkiv.

# Kryvyi Rih National University

- KNU is responsible for development of study programs of courses, developments of lecture courses, development of didactic materials.
- KNU will develop and accredit in the Ministry of Science and Education **the new educational program «Cyberphysical systems»**.
- KNU will purchase of hardware/ software for virtual and physical laboratories and for SMS platform development.
- Acquisition a virtual /experimental labs and innovative ICT teaching methods and tools,
- New study courses and programs validation and accreditation;
- Teaching staff and students flow for training in EU universities.
- Arrangement of Ukrainian stakeholders' events in Kryvyi Rih. Dissemination and exploitation activities concerning new training programs and courses.
- Arrangement of WS and MC meetings in Kryvyi Rih
- Contribution to e-books elaboration by development course materials: "Cyber-Physical Systems for Clean Transportation".

# Implementation of the curricular (WP2)

Belorussian State University

# **Implementation of innovative ICT based teaching/learning environment (WP3)**

Ku Leuven University (methods), (BSU – technical support)

# Developing the Sharing Modelling and Simulation Environment platform: WP4

**BSU** and UCY (methodical support)

# **WP 5 Quality Assurance:**

**University of Cyprus and RTU – quality of project implementation**

# Quality plan

- Development of Project Manual
- Circulation and archiving correspondence
- Following up the project progress, corrective actions
- Developing forms for reporting and reporting schedule
- Creating and maintenance of archive



# **Dissemination and Exploitation and Sustainability of results (WP6)**

**RANI**

# Activities

- 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.

# Development of information and promotional materials

- Development a project logo.
- Press conferences will be arranged (at least 3 press conferences by PCs partners)
- Posters allocated in the premises, where equipment/software is installed and where teaching activities take place (6 PCs universities)
- Project leaflets issues (RTU)
- Distribution of promotional materials including regional TV and radio advertising.

# Information sessions for target groups.

Information sessions for students of secondary schools, university' students, universities teaching and academic staff.

Seminars for stakeholders: professional associations, NGOs, SMEs, research institutions, students, universities teaching staff Ministries of Education and national accreditation offices.

2 regional stakeholder sessions: one in Minsk (arranged by RANI and Belarusian partners) and the second in Kharkiv

Organisation of Final conference

The network universities – enterprises - institutes will be set up with the support of associated partners

Spring conferences for master-level and PhD students (at RTU and UA-BY HEIs in May 2020, 2021, 2022).

Partners will participate in international conferences related education topics with papers and presentations

# Project Web Portal and social media

Design of Web Portal platform (RTU and UCY) and regular updating portal information

Project participants will regular update their portals with actual information;

Regular publications about the project and conducted studies and questionnaires at partners' websites.

User groups will be created at social networks in LinkedIn, Facebook, etc. (all partners).

Project deliverable's materials publishing in YouTube.

Advertising in social media about selection for students training in EU and BY-UA universities.

BY-UA partners will send direct mails to the schools aiming to invite to "open doors" events, stakeholders' seminars and conferences.

Project e-Newsletter, with all information about the reached results of the project and advertising about future plans and activities;

Publications and press realizes in mass media, TV, radio broadcasts and joint Newsletter of the Project.

# Social networks

- LinkedIn
- Facebook
- ВКонтакте: <https://vk.com>
- Telegram Messenger <https://telegram.org>
  
- You tube
- ???

## **6.4. Recommendations for new master-level programs introduction in PCs universities beyond the project**

Analysis of feedback, gained during the first year of new courses/ programs testing.

Elaboration of recommendation obtained in the meetings and workshops with associated partners and other stakeholders.

Provide a report with recommendations for new training programs/ courses introduction in Belarusian, Ukraine universities in compliance with ECTS principles beyond the project.

# **Strengthening the academia – industry network**

Elaboration and signing Double-sided agreements for cooperation between project partners during the project running and beyond the project.

Partners will agree that produced educational materials will be freely accessible through the use of open licenses.

The university - enterprise network will be set up in the first project year with the support of associated partners.

It will be used for dissemination and exploitation activities within the industry and research institutions sector.



# Hosting and maintenance of e-Learning system and SMSE platform beyond the project.

- Agreements between HEIs responsible for hosting and maintenance of e-Learning and SMSE platforms (BSU) and the other partners beyond the project.
- Planning of the budget for hosting and maintenance of e-Learning and SMSE platforms beyond the project.

# **Project financial aspects. Partner's agreements. Tenders for the equipment: WP7**

Riga technical University

# Project management issues

- Accepting and updating Project Schedule
- MC meetings
- Partner Agreements signing
- Administrative and financial management, coordination and communication
- Purchasing of Equipment, hardware, software for physical and virtual labs
- Partners progress reports and preparation to Final report to EACEA
- Audit

## ERASMUS+ CybPhys: MC, WS meetings and training schedule 2019-2020

No	Countr	Respon	Meeting topics	MC	WP	Time
P4	BY	BSU	Kick-off, 4 days, in Minsk.	Kick-off	WP1	5-6 <sup>th</sup> Dec 2019
P1	LV	RTU, BSU	Instruction in Brussels, 4 days			27-28 <sup>th</sup> January 2020
P4	BY	BSU	WS1: The content of Five electronic courses e-Books is preliminary confirmed, 4 days.		WP1	10-11 <sup>th</sup> , March 2020
P9	UA	KNAHU	Double Degree Master program – study visit: 4 members of academic staff visit RTU, 4 days		WP2: devoted to DDMP	February 2020
P1	LV	RTU	WS2: Workshops for curricula development. First draft of the course books, in Riga.	MC1	WP2	29-30 <sup>th</sup> , June 2020
P8	UA	CNUT	WS3: Quality Assurance plan with milestones, QA set up, in Chernihiv.	MC2	Quality WP5	20-21 <sup>st</sup> , October 2020
P3	CY	UCY	WS4: Workshops for curricula development	MC3	WP2	2021
P2	BE	KU Leuven	English language training for teachers in Bruges, BSU, GSU, MSPU, CNUT, KNAHU, KRNU, 4pers x 6		WP2	June 9th - 13th 2020

## ERASMUS+ CybPhys: MC, WS meetings and training schedule 2020-2022

<b>P2</b>	BE	KU Leuven	WS5: Workshop on innovative teaching methods & electronic environments, training	MC4	WP3: ICT tools	
<b>P4</b>	BY	BSU	WS6: Developing the Sharing Modelling and Simulation Environment platform (SMSE) training	MC5	WP4: SMSEP	
<b>P6</b>	BY	MSPU	WS7: Workshops for curricula development, Mozyr		WP2	
<b>P7</b>	BY	RANI, BSU	Inform. session for stakeholders, Minsk		WP6: Disseminat	
<b>P9</b>	UA	KNAHU	Inform. session for stakeholders, Kharkiv		WP6: Disseminat	
<b>P9</b>	UA	KNAHU	WS8: Workshops for curricula development, Double degree, Kharkiv		WP2: devoted to DDMP	
<b>P10</b>	UA	KRNU	WS9: Workshops for curricula development, Kryvyi Rih	MC6	WP2	November 2022
<b>P5</b>	BY	GSU, EU	Regional 5 days' seminars- master classes in Gomel (Minsk?)		WP2	
<b>P8</b>	UA	CNUT, EU	Regional 5 days' seminars – master classes in Chernihiv		WP2	
<b>P7</b>	BY	RANI,	Final Conference in Minsk		WP6: Disseminat	October 2022

# **Reporting and progress monitoring**

# Partnership Agreements

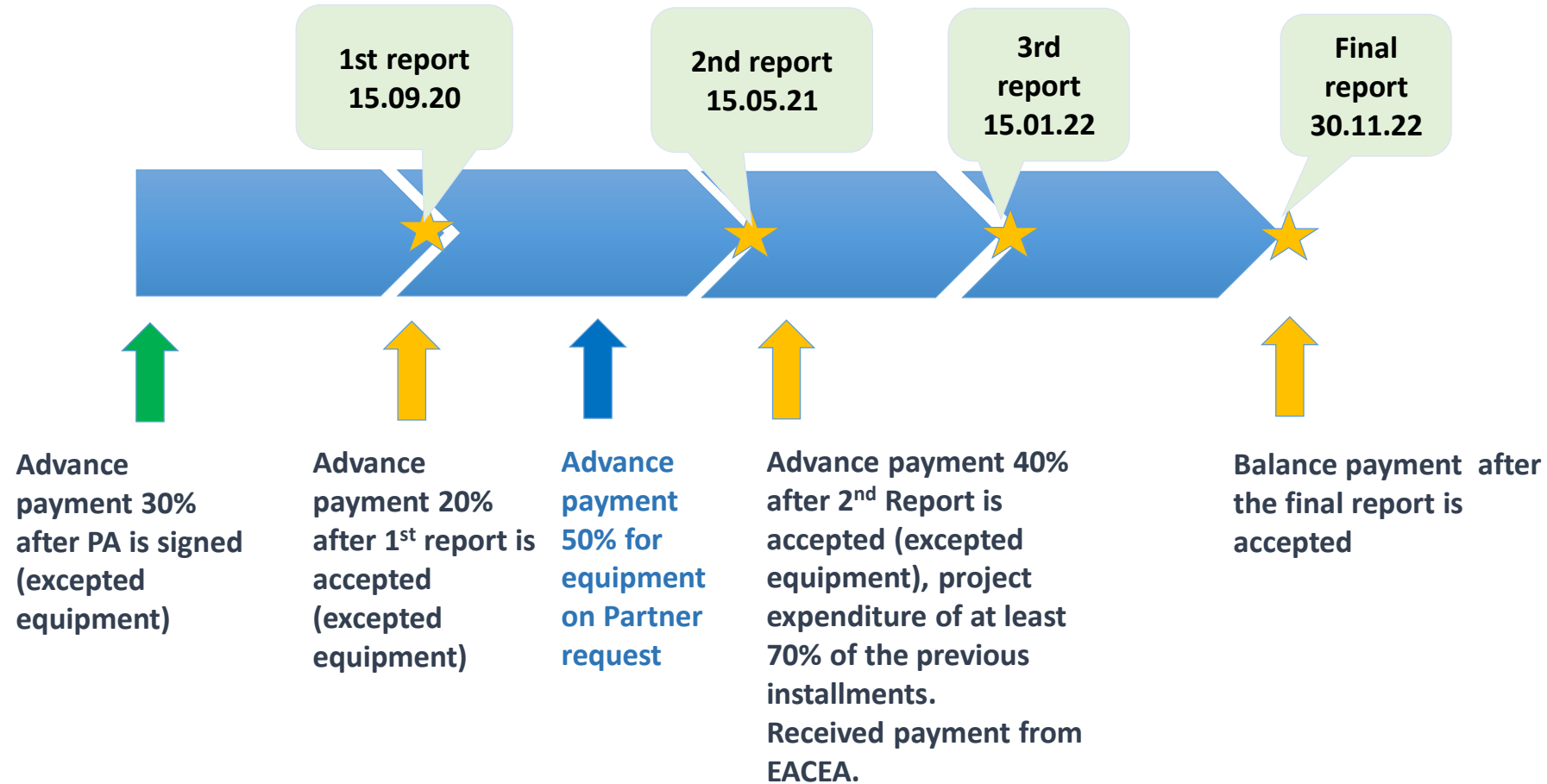
- Detailed implementation modalities of the project will be agreed upon by the partners and formalised in a *Partnership agreement*.
- This **bilateral** Partnership agreements will cover the various financial, technical and legal aspects related to the implementation of the project, including:
  - partners role and responsibilities;
  - budget matters (co-funding, breakdown of budget per activity and partner, modalities of transfer of funds, etc.);
  - remuneration policy for staff;
  - reimbursement modalities for travels and costs of stay;
  - reporting mechanisms;
  - conflict management mechanisms, etc.
- A copy of the partnership agreement will be provided to the Executive Agency within 6 months of the signature of the Grant agreement.

# Reporting

- ✓ **Coordinator** submits Technical implementation reports and Financial statements to the Executive Agency by providing proof of progress of the project.
- ✓ Each **Partner** has to submit a progress Report to the **Coordinator** consisting of
  - ✓ an Activity report describing the activities carried out and their outputs and results during the reporting period
  - ✓ A Financial report presenting the costs incurred in the project.
- ✓ Deadlines for Partner Reports are the following:
  - ✓ **15<sup>th</sup> of September 2020; 15<sup>th</sup> May of 2021; 15<sup>th</sup> January of 2022 and 30<sup>th</sup> November 2022.**
- ✓ The partner ***may submit a report before the deadline*** established in the Partnership agreement, confirming with the Coordinator, ***and request the next payment in case of the faster the performance of the project activities.***
- ✓ The Partner has to respect the reporting deadlines of the Grant Agreement and Partner Agreement, and submit their Partner Report and supporting documents.



# Reporting & Progress monitoring



## Intermediate reports:

- ✓ **Financial part:** Excel and evidences (timesheets, conventions, printing from bookkeeping system) - for external auditors;
- ✓ **Activities report** on the project progress against project plan, milestones and deliverables.

# Payments

- ✓ **First instalment of pre-financing:** the Coordinator will transfer 30% of the Partner's Executive Agency contribution, after signing the Partnership Agreement, provided that the Coordinator has received the pre-financing from the Executive Agency and bank details are correctly provided by the Partner.
- ✓ **2nd payment:** the Coordinator will transfer 20% of the Partner's Executive Agency contribution, after the Partner submits the first intermediate report to the Coordinator.
- ✓ **3rd payment:** After receiving the second payment from the Executive Agency the Coordinator will transfer 40% of Partner's total Executive Agency contribution, provided that the Partner provides eligible and full supporting documentation on project expenditure of at least 70% of the previous installments and the second intermediate report.
- ✓ **Balance payment:** All outstanding payments to cover actual eligible expenditures that have not been received in previous instalments (see above), taking into account the co-financing share, will be paid to the Partner within 30 days after the Coordinator receives the final payment from the Executive Agency, on condition that the Partner has provided the requested eligible supporting documentation and submitted the financial table to the Coordinator within the foreseen deadline.

# Adjustments

- Projects may increase budget headings, by means of transfer from another budget heading, up to a maximum of 10% without EACEA prior authorisation
- Budget heading amendment to be confirmed by RTU
- Requests to increase budget headings by more than 10% must be presented in writing to the Agency
- The maximum ceilings for *staff, equipment and sub-contracting costs are exceeded, the request will not be accepted!*
- At reporting stage, the Executive Agency will request the partners to provide information about the co-funding provided for statistical purpose.

# Special issues

17.3 According to Article 11.3 of the International and Republic of Latvia **National Sanctions Law**, coordinator has rights **to terminate Agreement** if it is impossible execute the Agreement due to **International or national sanctions** or sanctions imposed by a Member State of the European Union or of the North Atlantic Treaty Organization affecting a significant financial and capital market interest have been applied during the execution of the Agreement.

# **Financial issues**

# Funding rules

## Co-funding principle

### Grant (combination of actual costs/unit costs):

Calculated so, as to require co-funding to implement the project

### Co-funding:

- other expenses (e.g. overhead costs), dissemination etc.
- higher expenditure than unit cost values (e.g., travel, accommodation)
  - not taken into account for the calculation of the Grant
  - requested with final report for information purposes

# Financing approaches of the grant

**Actual costs:** budget headings **Equipment** and **Subcontracting**

**Unit Costs:** budget headings **Staff costs**, **Travel costs** and **Costs of stay**

# Eligible Costs

Incurred during the eligibility period

Foreseen in the application/budget

In connection with the action and necessary for project implementation

Identifiable, verifiable, recorded in accounting records of the beneficiary

Comply with requirements of applicable tax and national legislation

Reasonable, justified, complying with principle of sound financial management, in particular regarding economy and efficiency



# Ineligible Costs

## Non exhaustive list:

- equipment such as: furniture, motor vehicles, alarm systems
- costs linked to the purchase of real estate
- activities not carried out in the project beneficiaries' country unless prior authorisation
- in kind contribution
- excessive or reckless expenditure
- deductible VAT (unless beneficiary can prove he is unable to recover it according to the national tax authority)

# Exchange rate

**Transactions ≠ EUR must be converted and reported in EUR in the Financial Statement of the final report**

## **Which exchange rate should be applied?**

From start of eligibility period until date of receipt of second pre-financing: rate of month in which the coordinating institution received the first pre-financing

From date of receipt of second pre-financing until end of eligibility period: rate of month in which the coordinating institution received the second pre-financing

Rate to apply: monthly rate established by the Commission: <http://ec.europa.eu/budget/inforeuro>

### **Example:**

1<sup>st</sup> Pre-financing: **23 Dec 2015** – 2<sup>nd</sup> Pre-financing: **22 Nov 2016**

**Invoice date: 09 January 2016**    Applicable monthly rate: **December 2015**

### UNIT COSTS FOR STAFF

#### PROGRAMME COUNTRIES



	Manager	Teacher/Trainer /Researcher	Technician	Administrative staff <sup>5</sup>
<i>AMOUNTS IN EURO PER DAY</i>				
Denmark, Ireland, Luxembourg, Netherlands, Austria, Sweden, Liechtenstein, Norway	294	241	190	157
Belgium, Germany, France, Italy, Finland, United Kingdom, Iceland	280	214	162	131
Czech Republic, Greece, Spain, Cyprus, Malta, Portugal, Slovenia	164	137	102	78
Bulgaria, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia, former Yugoslav Republic of Macedonia, Turkey	88	74	55	39

#### PARTNER COUNTRIES

	Manager	Teacher/Trainer /Researcher	Technician	Administrative staff <sup>5</sup>
<i>AMOUNTS IN EURO PER DAY</i>				
Israel	166	132	102	92
Albania, Argentina, Bosnia and Herzegovina, Brazil, Chile, Colombia, Kosovo <sup>6</sup> , Lebanon, Libya, Mexico, Montenegro, Peru, Serbia, Territory of Ukraine as recognised by international law, Thailand, Uruguay, Venezuela	108	80	57	45
Afghanistan, Azerbaijan, Bolivia, China, Costa Rica, Ecuador, El Salvador, Georgia, Guatemala, Iran, Iraq, Jordan, Kazakhstan, Morocco, Palestine <sup>7</sup> , Panama, Paraguay, South Africa, Territory of Russia as recognised by international law	77	57	40	32
Algeria, Armenia, Bangladesh, Belarus, Bhutan, Burma/Myanmar, Cambodia, Cuba, (DPR) Korea, Egypt, Honduras, India, Indonesia, Kyrgyzstan, Laos, Malaysia, Maldives, Moldova, Mongolia, Nepal, Nicaragua, Pakistan, Philippines, Sri Lanka, Syria, Tajikistan, Tunisia, Turkmenistan, Uzbekistan, Vietnam, Yemen	47	33	22	17

THESE UNIT COSTS ARE NOT APPLICABLE FOR THE "SPECIAL MOBILITY STRAND"

#### *TRAVEL COSTS<sup>8</sup>*

Travel distances must be calculated using the distance calculator supported by the European Commission: [http://ec.europa.eu/programmes/erasmus-plus/tools/distance\\_en.htm](http://ec.europa.eu/programmes/erasmus-plus/tools/distance_en.htm)

The beneficiary must identify the distance of a one-way travel to calculate the amount of the EU grant that will support the round trip. Financial support will be provided only for travels that are directly related to the achievement of the objectives of the project.

Distance band	Unit cost per participant
Between 100 and 499 KM	180 EUR
Between 500 and 1999 KM	275 EUR
Between 2000 and 2999 KM	360 EUR
Between 3000 and 3999 KM	530 EUR
Between 4000 and 7999 KM	820 EUR
8000 KM or more	1100 EUR

#### *COSTS OF STAY<sup>9</sup>*

Costs of stay are based on the duration of the activities of the participants.

STAFF	Unit cost per day per participant	STUDENT	Unit cost per day per participant
Up to the 14 <sup>th</sup> day of activity +	120 EUR	Up to the 14 <sup>th</sup> day of activity +	55 EUR
Between the 15 <sup>th</sup> and the 60 <sup>th</sup> day of activity +	70 EUR	Between the 15 <sup>th</sup> and the 60 <sup>th</sup> day of activity	40 EUR
Between the 61 <sup>st</sup> day of activity and up to 3 months	50 EUR	Between the 61 <sup>st</sup> day of activity and up to 3 months	Not Eligible

# Cost calculation - salaries

- **Managers (staff category 1)** (including legislators, senior officials and managers) carry out top managerial activities related to the administration and coordination of project activities.
- **Researchers, teachers and trainers (RTT) (staff category 2)** typically carry out academic activities related to curriculum/training programme development, development and adaptation of teaching/training materials, preparation and teaching of courses or trainings.
- **Technical staff (staff category 3)** (including technicians and associate professionals) carries out technical tasks such as book-keeping, accountancy, translation activities..
- **Administrative staff (staff category 4)** (including office and customer service clerks) carries out administrative tasks such as secretarial duties.

# Cost reporting - salaries

- Salaries should be paid by all partners
- Salaries to the team members will be paid according to staff categories:
  - A formal employment contract is required.
  - The time-sheets must be signed by the person concerned and countersigned by the person responsible.
  - A duly filled in Joint declaration for each person employed by the project
  - The Joint declaration must be signed by the person concerned, then signed and stamped by the person responsible (e.g. the dean) in the institution where this person is normally employed.
  - For staff performing different categories of tasks a separate Joint declaration must be signed for each type of activity.
  - Documents from bookkeepers as evidence about payments

# Cost reporting - salaries

- Any evidence allowing to verify that declared workloads correspond to actual activities/outputs (e.g. attendance lists for lectures given, tangible outputs / products, courses materials, chapters of the books, etc.

# Cost reporting - travels

**Travels are intended for the following activities:**

- Teaching/training assignments;
- Training and retraining purposes (only eligible for staff from Partner Countries);
- Updating programmes and courses;
- Project management related meetings (e.g. for management, coordination, planning, monitoring and quality control activities purposes);
- Workshops and visits for result dissemination purposes.

# Cost reporting - travels

- The journeys are directly connected to specific and clearly identifiable project-related activities.
- For each journey, an Individual [Mobility Report](#) must be attached to the project accounts
- Supporting documentation will have to be attached to each mobility report
  - travel tickets
  - boarding passes
  - Invoices
  - hotel invoices
  - receipts
  - attendance list, etc.

*The actual contribution of the EU will be re-calculated globally for the overall project, using the unit cost approach, on the basis of the actual journeys carried out. The EU contribution to the travels and costs of stay cannot exceed 110% of the absolute amount indicated in the grant agreement or its amendments.*



# Travel and Costs of Stay - Supporting documents

## **Justification for the following elements:**

- Journeys actually took place
- Journeys connected to specific and identifiable project-related activities

## **To be retained with project accounts:**

INDIVIDUAL TRAVEL REPORT +

Supporting documents *e.g.*

- *travel tickets, boarding passes,*
- *invoices, receipts,*
- *proof of attendance in meetings and/or events, agendas, tangible outputs/products, minutes of meetings)*

# Cost of stay specific rules

## ***Examples:***

***A staff from **Gomel** takes part in activity in **Ostend** during 2 days plus a travel to and back 2 days:***

***Max. 4 unit costs of 120 Euros each (TOTAL: 480 Euros)***

***Travel expenses depend on the distance (500- 1999): 275 euro***

Project financial aspects. Tenders  
for the equipment

# Tenders for the equipment

- We should be aware of the fact that the procurement and delivery of equipment is often a rather complex procedure and this should be taken into consideration at the planning stage.
- Partners are responsible for arrangement of procurement procedure
- RTU will pay an advance to the partner, when gets the proof of successful tender

P4	BELARUSIAN STATE UNIVERSITY	Belarus	64 000
P5	FRANCISK SKORINA GOMEL STATE UNIVERSITY	Belarus	28 000
P6	Mozyr State Pedagogical University - MSPU	Belarus	28 000
P8	Chernihiv National University of Technology	Ukraine	28 000
P9	Kharkiv National Automobile and Highway University - KhNAHU	Ukraine	32 000
P10	Kryvyi Rih National University - KNU	Ukraine	28 000

# Tender's rules

The tender **specifications** must always indicate:

- the **exclusion and selection criteria** that must be fulfilled by tenderers (analysis of the tenderers)
- the **award criteria** and their relative weighting (analysis of the quality and price)
- the **technical requirements**, i.e. **the technical specifications** (including, whenever relevant, the minimum technical requirements)

# Tender's rules

Each tendering procedure must contain at least the following elements:

- Invitation to tender
- Tender specifications
- Minutes of the tender opening
- Tender evaluation report from the evaluation committee
- Commercial offers
- Etc.

# Adjustment of the list of equipment

- In **case of significant changes of the equipment** to be purchased compared to the equipment as specified in the original application, prior written authorisation from the Agency should be given during project implementation.
- In any **case of doubt** the coordinator shall contact the Agency and ask for prior written approval based on clear justifications.
- The **modification can be justified** and is related with the **project objectives**.

# Cost reporting - equipment

- In the event of purchase of equipment **over €25.000**, the beneficiaries must obtain competitive tenders
- At least three suppliers and retain the one offering best value for money (in all cases)
- The principles of transparency and equal treatment of potential contractors and taking care to avoid conflicts of interests.
- For the purposes of any financial evaluation and/or audit:
  - the declared costs being recorded in the accounting system of the beneficiary.
  - the equipment is properly registered in the inventory of the institution concerned.



# Cost reporting - equipment

**Supporting documents should be retained with the project accounts, copies –to the leading partner**

- **Invoices** for all purchased equipment (*please note that order forms, pro-forma invoices, quotations or estimates are not considered as proof of expenditure*).
- **Documentation on the tendering procedure and three quotations** (Tender Regulation, Tender commission decision etc.) to EC
- The beneficiaries **may not split the purchase** of equipment into smaller contracts with individual amounts lower than the EUR 25 000 threshold.
- *If the equipment differs by nature, supplier or by the time of supply, the tender could be arranged in several lots.*
  - *However, the procedure to be the same as for 25 000 euro and more*

# Cost reporting - equipment

- In the event of purchase of equipment over €25.000, the beneficiaries must obtain competitive tenders
- At least three suppliers and retain the one offering best value for money
- The principles of transparency and equal treatment of potential contractors and taking care to avoid conflicts of interests.
- For the purposes of any financial evaluation and/or audit:
  - the declared costs being recorded in the accounting system of the beneficiary.
  - the equipment is properly registered in the inventory of the institution concerned.

# Cost reporting - equipment

Supporting documents should be retained with the project accounts:

- Invoices for all purchased equipment (*please note that order forms, pro-forma invoices, quotations or estimates are not considered as proof of expenditure*).
- When the threshold of EUR 25 000 is exceeded, documentation on the tendering procedure and three quotations (Tender Regulation, Tender commission decision etc.)
- The beneficiaries *may not split the purchase of equipment into smaller contracts with individual amounts lower than the EUR 25 000 threshold*.
- If the equipment differs by nature, supplier or by the time of supply, the tender could be arranged **in several lots**.
- However, the procedure to be the same as for 25 000 euro and more

# Subcontracting

- The same rules as for equipment

P1	RIGAS TEHNISKA UNIVERSITATE	Latvia	24 000
P4	BELARUSIAN STATE UNIVERSITY	Belarus	10 500
P7	Respublikanskaya Associaciya Nanoindustrii - RANI	Belarus	2 500

# Audit

- ✓ Keep at the Executive Agency disposal all original documents, especially accounting and tax records, or in exceptional and dully justified cases, certified copies of original documents relating to the Grant Agreement for a period of 5 years from the date of payment of the balance.
- ✓ Enable the responsible auditing bodies of the Coordinator and any other outside body authorized by the Executive Agency to audit of the use made of the grant;
- ✓ Give these authorities any information about the project they request;
- ✓ Give them access to the accounting books and accounting documents and other documentation related to the project, whereby the auditing bodies decide on this relation.
- ✓ Such audits may be carried out throughout the period of implementation of the Grant Agreement until the balance is paid and for a period of 5 years from the date of payment of balance;

# Communication tools for the project team members

# Media tools

## 1. РТУ вебсайт проекта: <http://cybphys.rtu.lv>

Открытый доступ всем, в том числе Агентству для оценки проекта. Содержание примерно тоже самое, как и в прошлом проекте.

## 2. E-Library website of BSU, Moodle.

Хранятся все разработанные учебные материалы. После окончания проекта будет использоваться всеми партнерами для обучения студентов и как е-библиотека для преподавателей. Содержится силами БГУ. Допуск регулируется силами БГУ.

## 3. Dropbox:

В прошлом проекте его использовали только для диссиминейшн, содержался силами Кипрского университета параллельно с Moodle.

В данном проекте думаю его использовать для раздела Документация (собрания, протоколы, утверждение проекта, инструкции и прочего). Кроме того для деливераблес и т.д. Неплохой образец для подражания – ЕЛЕМЕНД. Допуск регулирует РТУ, т.е. Алина и я.

Частично перекрывается с cybphys.rtu.lv. Однако, это происходит и в других Еразмус проектах.

## 4. SMSE platform (смотрите описание проекта).

Представляю это, как среду для проведения лабораторных работ, хранилище учебных материалов по лабораторным работам, инструкции и прочее. Содержится и регулируется силами БГУ как во время проекта, так и после его окончания, как было обещано в Заявке.

# Media tools

## 1. **RTU project website:** <http://cybphys.rtu.lv>

Open access to everyone, including the Agency for project evaluation. The content is about the same as in the previous project.

## 2. **E-Library website of BSU, Moodle.**

All developed training materials are stored. After the end of the project, it will be used by all partners for student education and as an e-library for teachers. Maintained by the BSU. The access is regulated by the BSU.

## 3. **Dropbox:**

In a previous project, it was used only for dissemination, it was maintained by the forces of the University of Cyprus in parallel with Moodle.

It is used for the project documentation: meetings, minutes, approval of the project, instructions, etc. Also for deliverables, etc. The access is regulated by the RTU, i.e. Alina and me.

Partially overlaps with [cybphys.rtu.lv](http://cybphys.rtu.lv). However, this happens in other Erasmus projects.

## 4. **SMSE platform** (see project description). I imagine this as an environment for laboratory work, a repository of training materials on laboratory work, instructions etc. It is maintained and regulated by the BSU forces both during the project and after its completion, as promised in the Application.



# Further tasks and the next steps

# Further tasks and the next steps 1

- Partners has to nominate one contact person by [January 15<sup>th</sup>](#) for Partnership agreements.
- RTU elaborates and sends Partners Agreements, and Financial Identification form: [December 20<sup>th</sup>](#)
- Partners have to ensure a pre-financing to cover travel cost and salaries until PA is not signed and 1st advance is not paid.

## WP1:

- Partners confirm the names of responsible for development of training programs and courses development and send formation to the Coordinator by [January 15<sup>th</sup>](#).
- Partners nominate leaders of e-books by [January 15<sup>th</sup>](#). Information to be sent to partners and Coordinator.
- The leaders of e-books together with co-authors confirm names of courses at the Matrix of courses by [January 30<sup>th</sup>](#).
- Ex-Ante reports to be created by [February 15<sup>th</sup>](#) (the template of the report will be sent by RTU by [January 15<sup>th</sup>](#))
- A Questionnaire for survey of potential employers (template by RTU will be sent by [January 15<sup>th</sup>](#))
- A survey of stakeholders provided by Belarusian and Ukrainian partners by [February 30<sup>th</sup>](#).
- A Consolidated draft of the Survey and report with recommendation for curricula to be developed and modernised in the project (RTU) by [March 20<sup>th</sup>](#) (RTU).
- Matrix of competences and profile of the CPS specialist will be created in each PC university [March 15<sup>th</sup>](#).

# Further tasks and the next steps 2

- **WS1:** Workshop in Minsk (BSU). We will finish WP1 Preparation on **March 10-11<sup>th</sup>**.
- KU Leuven arrange training on academic English to teaching staff of the partner countries at Brugge: **June 15 - 19th 2020**.
- Developing the Sharing Modelling and Simulation Environment platform (WP4)
- BSU team (Alexander S. Fedotov and other colleagues) taking into account input from KNU colleagues will prepare a new version of the Concept of the Sharing Modelling and Simulation Environment platform: **January 30<sup>th</sup>**.
- KNAHU visit to Riga for discussion of double degree programs: **February 17-18<sup>th</sup>**.
- Workshop **WS2:** Workshops for curricula development. First draft of the course books, in Riga. Management Committee meeting – **MC1** will be held in Riga, **June 20-30<sup>th</sup>**.

**Thank you for the questions!**

