



**Совершенствование образования мастер-  
уровня в области физических наук в  
белорусских вузах: «Физика»**

**Improvement of master-level education in the  
field of physical sciences in Belarusian  
universities, Acronym: "Physics"**

The Kick-off meeting 17.12.2015  
in Belorussian State University  
Anatolijs Zabashta  
Anastasija Zhiravecka  
Riga Technical University

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

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

## *Our regulations*

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

# Partners – short introduction

- 1.RTU - Riga Technical University
- 2.University of Cyprus
- 3.KU Leuven Kulab ReMI Research Group Brugge-Oostende (Belgium)
- 4.BSU - Belarusian State University
- 5.GrSU, Grodno State University
- 6.GoSU, Gomel State University
- 7.BSTU, Belarusian State Technological University
- 8.Belarusian Physical Society, Belarus
- 9.Republican Nanoindustry Association, Belarus
- 10.Ministry of Education of Belorussia

Asociētie partneri (bez budžeta):

- LOTIS TII
- Research Institute for Nuclear Problems

# 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 ....

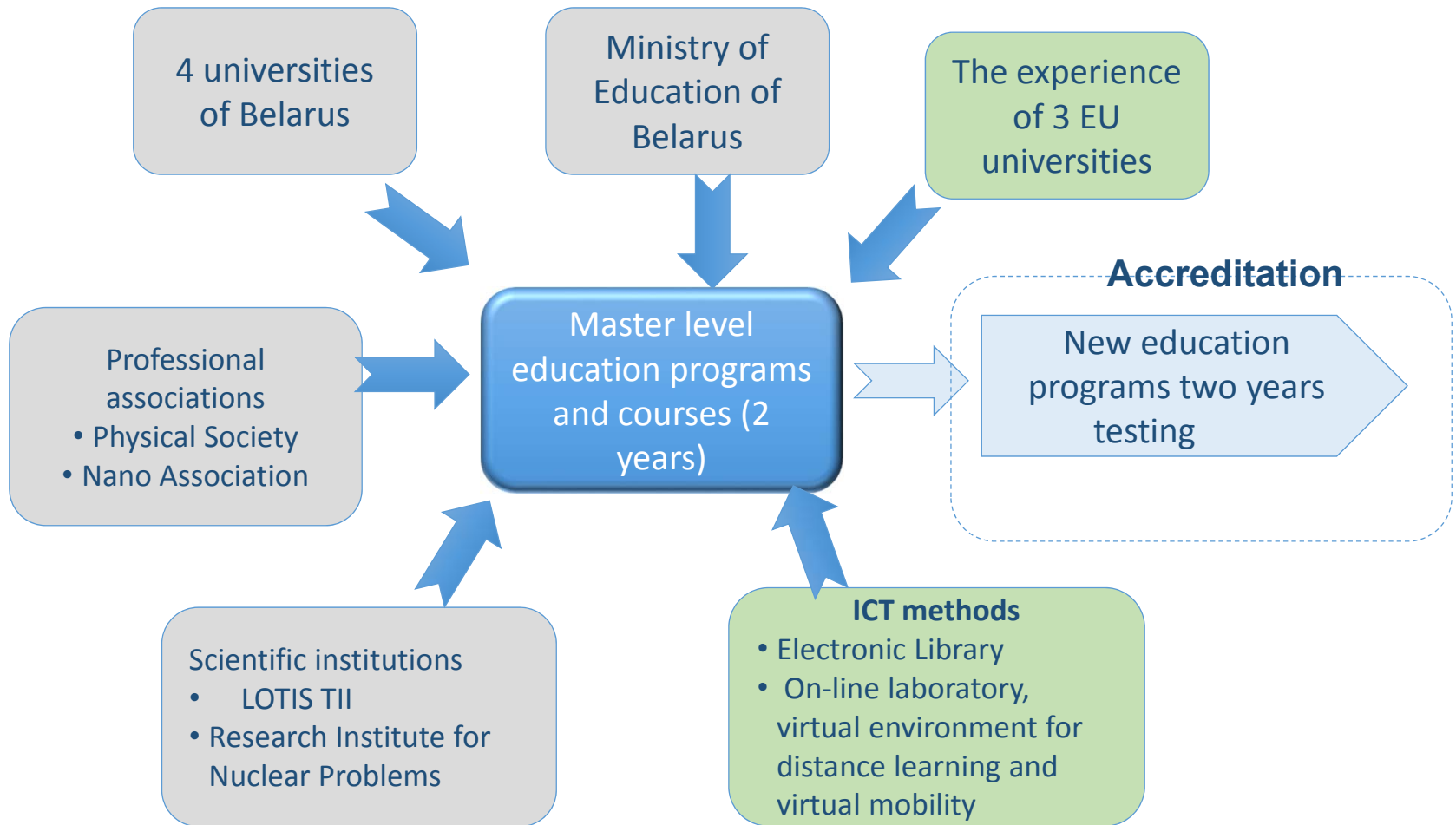
# Today's agenda

- The project targets
- Project management
- Implementation of the curricular (WP2)
- Implementation of innovative ICT based teaching/learning environment (WP3)
- Dissemination and Exploitation of results (WP5)
- Preparation tasks (WP1)
- Project financial aspects.
- Reporting and progress monitoring
- Communication tools for the team members
- Further tasks and the next steps

# Background of the project

- Ministry of Education of Belarus 2012.g. set the target for HEIs to reform curricula from the existing system “5 plus 1” to the system “4 plus 2»
- Since academic year 2014, according to Regulation of the Ministry of Education, HEIs have to start teaching according to a 4 years program for the first stage of higher education.
- **Problem:** Decreasing a training period from 5 to 4 years for physics and engineering specialists causes a certain risk providing an impact on the labour market:
  - existing proportion of 5 and 6 year specialists in physics specialities as 90% and 10%
  - 5-years trained specialist qualification meets industry requirements, but specialists with 6-years training cycle were requested mostly by universities and small part of research institutions.
- Our task is to address mentioned problem at least in the areas - physical sciences (*functional nanomaterials production and nanotechnology, including photonics*)

# Project idea



# Short description

- Project implementation: 15th October 2015 – 14th October 2018
- Participants 10 partners from 4 countries
- RTU is a Leading partner
- The project total budget: EU Grant 660 576 euro, co-financing 67 270 euro.
- **The target is** to upgrade master-level education in the field of physics (functional nanomaterials, photonics and applied physics) in four universities of Belarus according to Bologna practices in physical science, to enhance the quality and relevance of education using modernised study programs, focusing on the use of ICT, and through networking activities in respect to the labour market needs



# Objectives

- To develop **modern master-level programs** in the field of functional nanomaterials, photonics and applied physics, and to implement it at four Belorussian universities;
- To develop and update courses and teaching materials for two **master-level model educational programs** *Functional nanomaterials and Photonics*;
- To improve teachers' qualifications and skills;
- To improve Belarusian academic staff competences for teaching of developed courses in English;
- To implement **modern technical infrastructure** for teaching and learning.
- To develop **innovative ICT based teaching and learning** environment;
- To bring the Higher Education Institutions of Belarusian **closer to the Labour Market needs**.
- To introduce to the faculty the ICT skills that are required for new graduates to break their way into the industries and scientific institutions

# Motivation

## Belarus:

- Involvement into Bologna process, recognition of curricula, new master education programs
- New equipment for laboratories
- Opportunity to travel and create network of researchers
- Additional salaries for teachers, interpreters and professionals

## Latvia:

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

# What did RTU benefit from TEMPUS?

- Five new courses have been developed – *Energy Saving Technologies, Power Electronics, Hydrogen Energy, Effective Lighting, Gas and Hydrodynamics*
- 5 course books have been issued
- One course (EST) is taught to foreign students
- Five scientific conferences and publications:
  - ICL 2012
  - EDUCON 2013 March 12–14th 2013, Berlin
  - 21st IEEE Mediterranean Conference on Control and Automation (MED '13) June 2013
  - The 14th international conference on modelling and applied simulation, 2015, Italy.
  - 25th International Conference on European Association for Education in Electrical and Information Engineering, Turkey, Izmir, Cesme, 2014.
- RTU IEEI received invitations to participate in a total of five projects
- 21 persons of academic staff participated in the new courses elaboration and partner' s students training.
- New friends and new partners for future projects

# Deliverables

## WP1 Preparation

- 1.1. Ex-Ante Evaluation Reports
- 1.2. Studies and a Report on curricula, needed to the labour market

## WP2 Development and modernizing of curricula

- 2.1. Developed and translated to teaching language master-level study programs and courses for specialities functional nanomaterials and photonics.
- 2.2. Master-level study *Standard Programs* accreditation in the Ministry of Education of Belorussia
- 2.3. Five electronic courses e-Books by the declared directions
- 2.4. The master-level courses tested during one year
- 2.5. Master-level study courses accreditation in Belorussian universities
- 2.6. Documents for master-level curricula accreditation in the Ministry of Education
- 2.7. Teacher staff improved professional and practical English skill.
- 2.8. Belarus universities readiness for transition from existing system to new “4 plus 2” system

## WP3 Development of innovative ICT based teaching and learning environment

- 3.1. Creation of e-Library for e-Books, synopses and teaching /didactic materials;
- 3.2. Development of virtual /on line laboratory and virtual environment for distance learning

## WP5 Dissemination & exploitation

## WP6 Management. Purchased equipment, hardware/ software

# Partners responsibilities 1

## RTU

- Leading partner, responsible for budget, development of curricula,
- Development a project Web Portal,
- Coordinator of e-book elaboration “Applied Informatics”.
- Partner’ s countries students and teaching staff teaching in RTU.
- **WP1 Preparation leader**
- **WP6 Management leader**
- **WP4 Quality Assurance and monitoring leader**

## Ku Leuven

- Coordinator of e-book elaboration “Applied Physics”
- E-library development
- On-distance lectures environment creation.
- Partner countries students and teaching/ academics staff teaching in the KU Leuven university,
- Belorussian teachers and technician staff teaching English language;
- **WP3 Implementation of innovative ICT based teaching/learning environment leader** *(from a didactical point of view)*

# Partners responsibilities 2

## University of Cyprus

- Coordinator of e-book elaboration “Research towards master thesis/ scientific project management”.
- Development a virtual laboratory by ITC means,
- Partner countries students and teaching/ academics staff teaching in the UCY university,
- **WP5 Dissemination and Exploitation of results leader** (including Final conference arrangement at Cyprus).

## BSU, Belorussia

- Development of curricula Educational model by specialities «Functional nanomaterials» and «Photonics and effective lighting»,
- Coordinator of e-book elaboration “Functional nanomaterials” and “Photonics”.
- Purchase of hardware/ software for virtual and physical laboratories;
- Coordination of new study programs validation
- Quality assurance of deliverables related to new curricular development.
- **WP2 Implementation of curricular leader**

# Partners responsibilities 3

## Grodno State University, Gomel State University, Belarusian State Technological University:

- Development of study programs of courses, developments of lecture courses, development of didactic materials;
- Purchase of hardware/ software for virtual and physical laboratories;
- Acquisition a virtual /experimental lab,
- New study programs validation and accreditation;

## Belarusian Physical Society, Belarus and Republican Nanoindustry Association, Belarus

- Consultation relating job marked needs,
- Consultation on development of model curricula, study programs and review of the study programs.
- Organisational and technological support for the master programme students practice and master degree thesis preparation (Nanoindustry Association)
- Organisation of supporting events

# Partners responsibilities 4

## Ministry of Education of Belarus

- Consultation relating job marked needs,
- Consultation on development of curricular and on curricular reform priorities.
- Validation of master level *model* curricula by specialties «Functional nanomaterials» and «Photonics».
- Promotion of new training programs accreditation.
- Evaluation of impact transition from traditional 5+1 system to new 4+2 system on the labour market needs in applied physics specialities.



# Partners responsibilities 5

## All universities

- Responsible for development of training courses according to Partner agreement.
- Partner countries students and teaching/ academics staff teaching in the EU universities
- Holding workshops on developed courses
- Acquisition of virtual/experimental labs,
- Dissemination of the information concerning the project partners' activities
- *All partners participate in MC and WS meetings!*

## Belorussian universities

- Teaching staff and master students flow and trainings.
- Documents for Educational model curricula and study programs accreditation

# Project management

- Accepting and updating Project Schedule
- MC meetings (MC1 – MC6)

## Kick-off - Minsk, BSU

MC1 – Riga, Latvia (RTU),

MC2 – Ostend, Belgium (KU Leuven),

MC3 – Grodno, Belarus (GrSU),

MC4 – Nicosia (Cyprus),

MC5 – Riga, Latvia (RTU),

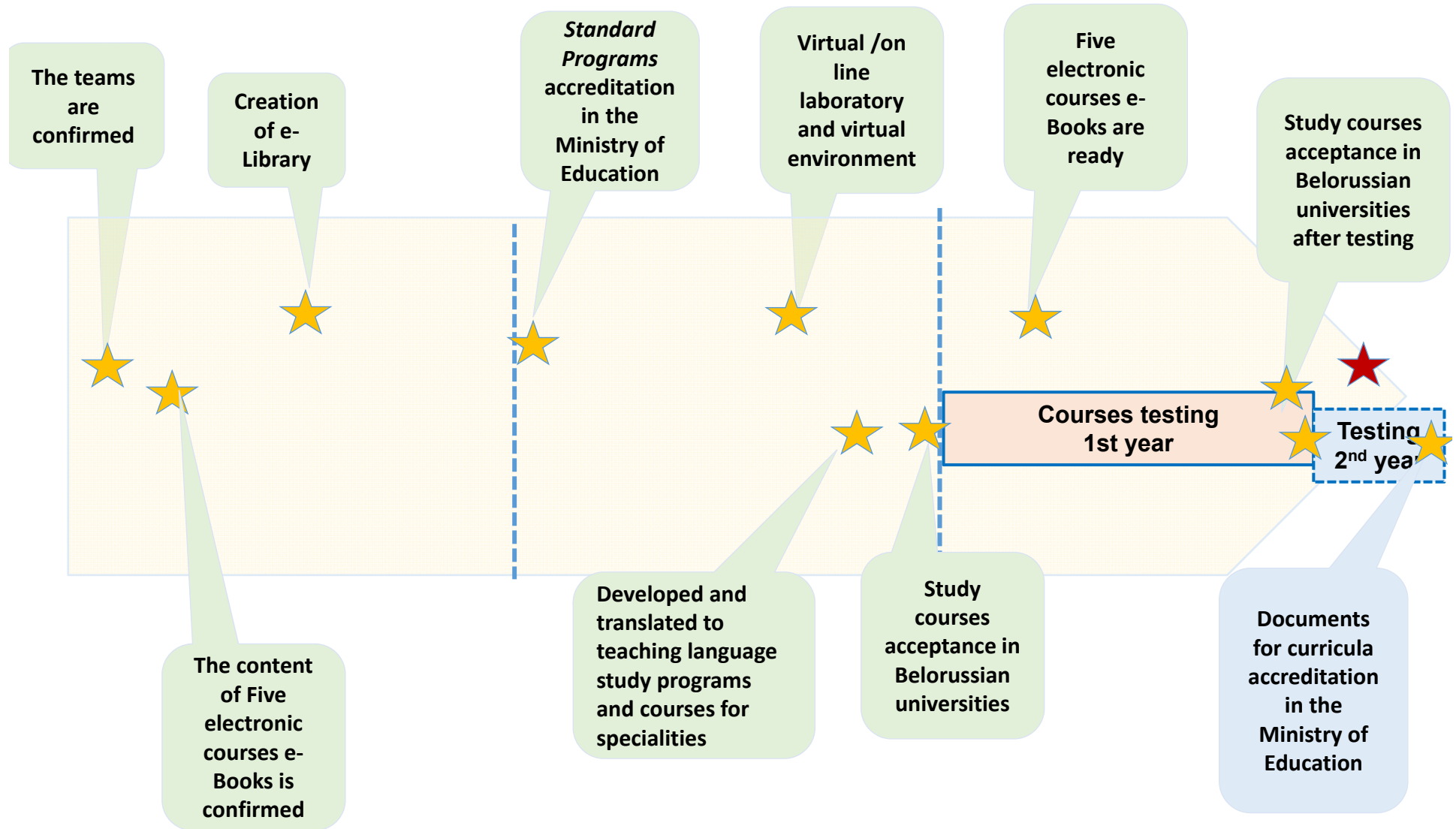
MC6 – Gomel, Belarus (GoSU).

- Partner Agreements signing
- Administrative and financial management, coordination and communication
- Reporting: Partners progress reports
- Purchasing of Equipment, hardware, software for physical and virtual labs
- Partners progress reports and preparation to Final report to EACEA
- Audit

# 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

# Deliverables schedule



# **Implementation of the curricular (WP2)**

Belorussian State University

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

Ku Leuven University

# **Dissemination and Exploitation of results (WP5)**

University of Cyprus

# Preparation tasks (WP1)

Riga Technical University



# WP1 Preparation

- The preliminary study/analysis of compatibilities of educational regulations/principles in the Partner countries (difference in educational curricula, study programs, teaching/learning approaches, didactic/teaching materials, methodological tools, language barriers, etc.)
- Development of Ex-Ante report by Belarusian universities.
- Discussions and commitment about accreditation/validation procedures and their levels.
- Review and analyse the existing educational plans and curricula, study programs and the recent advances in physical science and particular in the field of functional nanomaterials, photonics and applied physics.

# WP1 Preparation

- Studies and a workshop to define specific needs of the labour market.
- Providing surveys of industry representatives and interviewing of Ministry of Education and Ministry of Economics officers.
- A Report elaboration, which contains adjusted to the labour market needs, the list of specialities and adjusted list of curricula to be developed and modernised in the project.
- Outputs:
  - 1.1. Ex-Ante Evaluation Reports
  - 1.2. Studies and a Report on curricula, needed to the labour market

WP1 conclusion will be Workshop WS1 to be held in BSTU, Minsk (Belarus) for elaboration and discussion the finding and the Report

# WP1 Preparation

## The tasks:

- Confirm the names of responsible for development of training programs and courses development
- Ex-Ante reports by ..... (the template of the report by RTU by ...)
- A Questionnaire for survey by RTU by .....
- A survey of stakeholders provided by BSU, BSTU, GoSU, GrSU by ....
- Recommendations from professional associations (PS, NA) by ....
- A draft of the Survey and report with recommendation for curricula to be developed and modernised in the project (RTU) by....
- Confirm the names of courses to be developed for education programs and for e-books
- Workshop in Minsk (BSTU) on .....

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

# Partnership Agreements

- Detailed implementation modalities of the project will be agreed upon by the partners and formalised in a *Partnership agreement*.
- This 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.

# Salaries

- Salaries should be paid by all partners, excepted Ministry of Education
- A formal employment contract is required (according to national legislation)
- Salaries to the team members will be paid according to staff categories:
  - **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.

# Travels

- The travel expenses are planned for all partners, including Ministry and NGO!
  - WS1 in Minsk on Preparation WP, probably in February
- Development and modernizing of curricula workshops:
- WS2 – Riga, Latvia (RTU)
  - WS3 – Ostend, Belgium (KU Leuven),
  - WS4 – Grodno, Belarus (GrSU),
  - WS5 – Nicosia (Cyprus),
  - WS6 – Riga, Latvia (RTU),
  - WS7 – Gomel, Belarus (GoSU).
  - WS9 – Minsk, BSTU, Belarus (2 pers.)

English language in Ostend or Leuven for Belarusian universities

- BSU: Ostend 4 x 7d.;
- GrSU: Ostend 4 x 7d.;
- GoSU: Ostend 4 x 7d.;
- BSTU: Ostend 4 x 7d.;

Students' flows for training:

- BSU: Nicosia 8 x 7d.;
- GrSU: Ostend 8 x 7d.;
- GoSU: Nicosia 8 x 7d.;
- BSTU: Riga 8 x 7d.;
- GrSU: Riga 8 x 7d.;
- GoSU: Ostend 8 x 7d.

# Travels

- WS8 in Ostend on Development of innovative ICT based teaching and learning environment
- The Final conference in Nicosia
- Seminar for stakeholders in Minsk arranged by Ministry of Education
- Travels for 6 Management and one Kick-off meetings – MC meeting will be combined with WS2 – WS7:
  - Kick-off - Minsk, BSU
  - MC1 – Riga, Latvia (RTU),
  - MC2 – Ostend, Belgium (KU Leuven),
  - MC3 – Grodno, Belarus (GrSU),
  - MC4 – Nicosia (Cyprus),
  - MC5 – Riga, Latvia (RTU),
  - MC6 – Gomel, Belarus (GoSU).



# Tenders for the equipment

- BSU - Belarusian State University – 93 600 euro
- GrSU, Grodno State University – 41 938 euro
- GoSU, Gomel State University – 34 765 - euro
- BSTU, Belarusian State Technological University - 26 500 euro

**Total 196 803 euro**

- 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

# Subcontracting

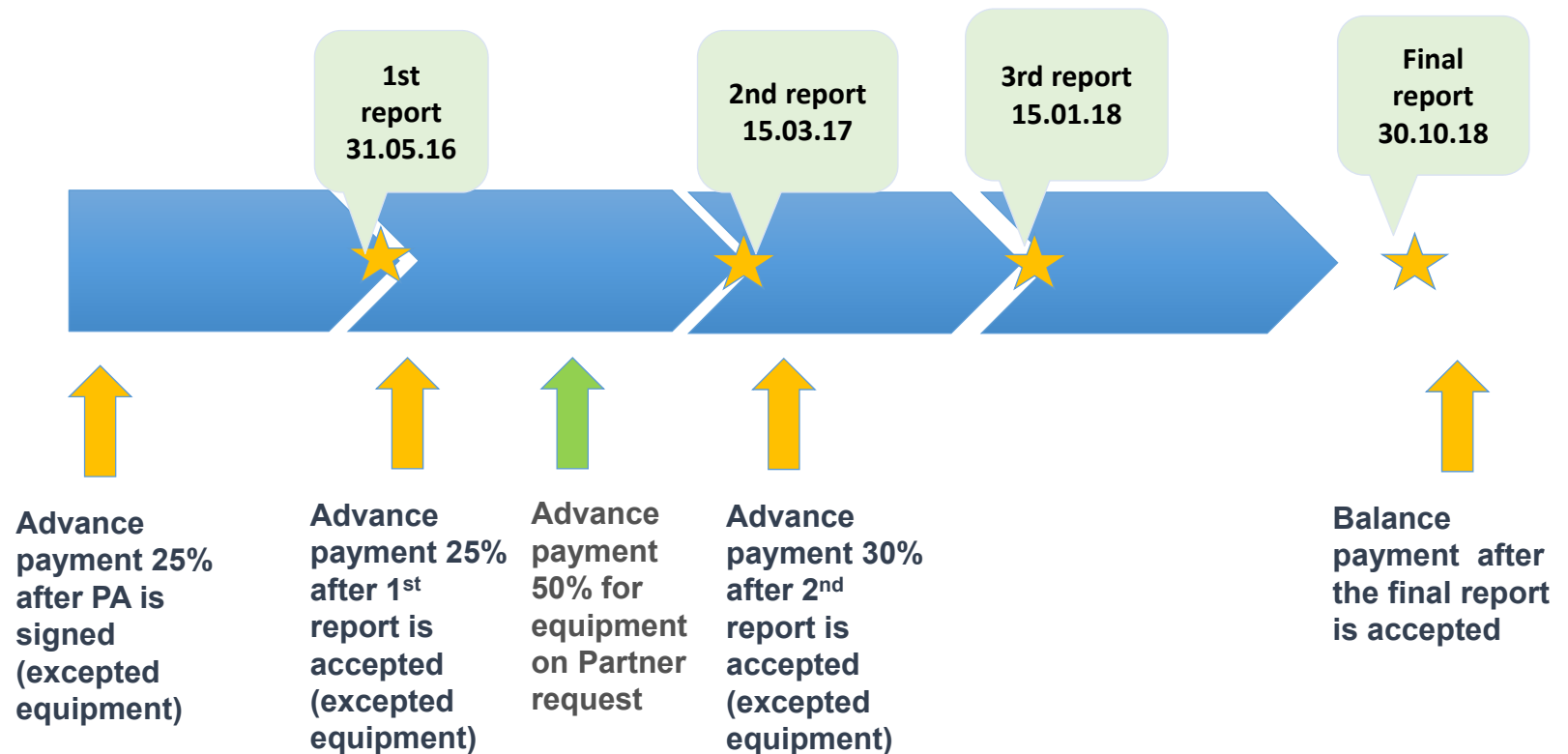
- Riga Technical University:
  - Project web page design and maintenance: 9 000 euro
  - Project audit: 5 800 euro
- University of Cyprus:
  - Purchase of services for the Final conference: 2000 euro

# **Reporting and progress monitoring**

# Reporting

- ✓ Only the Coordinator can submit technical implementation reports and financial statements to the Executive Agency by providing proof of progress of the project.
- ✓ In order to provide adequate information on the progress of the project, the Partner has to submit a 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 accordance with the approved Application Form.
- ✓ Deadlines for Partner Reports are the following:
  - ✓ 31<sup>st</sup> of May 2016; 15<sup>th</sup> march of 2017; 15<sup>th</sup> January of 2018 and 30<sup>th</sup> October 2018.
- ✓ 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 on validation of expenditure to the Coordinator in due time as requested by the Coordinator, within 10 (ten) working days.
- ✓ Partner Reports and supporting documents on validation of expenditure not submitted to the Coordinator within the set deadline will not be included in the progress report of the Coordinator to be submitted to the Executive Agency.

# 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 25% 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 25% 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 30% 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.

# Cost reporting

- 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.

# 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.*

# 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

- 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 staff convention for each person employed by the project
- The conventions 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 convention must be signed for each type of activity.
- Documents from bookkeepers as evidence about payments

# 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

# Travel cost reporting – for Ministry of Education of Belarus

## Two variants:

### 1<sup>st</sup> – Ministry - BSU

- Staff of Ministry participating in the project activities purchases ticket for travel to the meeting
- After the meeting a participant of the meeting sends a mobility report and supporting documents to BSU.
- BSU check the documents and transfer to the personal bank account of participant travel and accommodation money.
- BSU will maintain an account for Ministry travel and accommodation expenses
- The procedure to be described in the agreements RTU – Ministry and RTU – BSU

### 2<sup>nd</sup> Ministry – RTU

- The same procedure, as for other partners

# Audit

- ✓ Keep at the Executive Agency disposal all original documents, especially accounting and tax records, or in exceptional and duly 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**



# RTU team

- Nadezhda Kunicina - Scientific Project Manager
- Anatoly Zabašta - Project Manager
- Zane Treinovska - Project Financial Specialist
- Alina Galkina - Project Information Specialist and administrator
  
- Anastasia Žiravecka - Scientific Project Manager Deputy, Methodist and teacher
- Other team member will be adopted in accordance with the tasks

# **Further tasks and the next steps**

# Further tasks and the next steps

- Partners has to nominate one **contact person and one sponsor (Belorussian universities) by .....**
- To sign Grant Agreement RTU - EACEA (in a progress!)
- RTU elaborates and sends Partners Agreements
- Until PA is not signed and 1<sup>st</sup> advance is not paid, partners ensure a pre-financing to cover travel cost and salaries
- WP1:
  - Confirm the names of responsible for development of training programs and courses development
  - Ex-Ante reports by ..... (the template of the report by RTU by ...)
  - A Questionnaire for survey by RTU by .....
  - A survey of stakeholders provided by BSU, BSTU, GoSU, GrSU by ....
  - Recommendations from professional associations (PS, NA) by ....
  - A draft of the Survey and report with recommendation for curricula to be developed and modernised in the project (RTU) by....
  - Workshop in Minsk (BSTU) on .....
  - Confirm the names of courses to be developed for education programs and for e-books.
- KU Leuven, RTU, BSU and UCY nominates team leaders responsible for five e-course books – **by .....**
- All partners nominate teaching staff responsible for development of five course books **by .....**

# Questions

# Rezerves slaidi

# Plāni un iespējas

## 1. Grāmata: Applied Physics

1.1. "Electricity and magnetism", RTU – (A.Žiravecka, L.Ribickis, Ašmanis)

Tiks izmantots priekšmetam: EEE101 Elektriība un magnētisms 2 KP (studenti - ārzemnieki)

1.2. "Reliability in the (practical) set-up of physical systems" RTU nepiedalās izstrādē, taču mēs varam izmantot šo grāmatu vairākos priekšmetos, piemēram, EEP570 Automātikas elementi (studenti - ārzemnieki)

1.4. Modern measurement technics (RTU) N.Kunicina, A.Zabasta, O.Krumins, P.Apse-Apsitis

Tiks izmantots priekšmetam EEI703 Metroloģija un matemātiskā modelēšana, 5 KP, priekšmets ir ieklānots akad. studiju programmas Viedās industriālās vadības sistēmas ietvaros.

1.5. "Electrical engineering" (RTU) (Ribickis, Zabasta, Kunicina)

Tiks izmantots EEP570 Automātikas elementi (studenti - ārzemnieki)

## 2. Grāmata "Functional nanomaterials" (curator – BSU)

2.3. "Materials with specific electro-magnetic properties (electricity and magnetism, electrical engineering – in special appendix" (RTU) (A. Ziravecka)

Tiks izmantots priekšmetam EEE101 Elektriība un magnētisms 2 KP (studenti - ārzemnieki)

# Plāni un iespējas

## 3. Grāmata: Photonics (curator – BSU)

Laser physics and nonlinear optics - Practical examples – lighting (RTU) (A.Avotins)

Tiks izmantots priekšmetam EEI701 Energoefektīvs apgaismojums brīvās izvēles priekšmets (studenti - ārzemnieki)

## 4. Grāmata: “Applied Informatics” (curator - RTU)

Signal transmitting in heterogeneous environment (RTU) (J.Caiko)

Tiks izmantots priekšmetam EEI411 Industriālo datortīklu pamati brīvas izvēles priekšmets RECO (un REBO) studentiem

## 5. Grāmata “Research towards master thesis/ scientific project management” (curator - UCY)

- Tiks izmantots priekšmetam EEI712 Jaunievedumu ieviešana tehnoloģiskos uzņēmumos 4 KP. Priekšmets ir ieplānots akad. studiju programmas Viedās industriālās vadības sistēmas ietvaros
- Priekšmets EEI603 Zinātnisko projektu vadīšana 2KP brīvas izvēles priekšmets RTU doktorantiem
- Priekšmets EEP586 Jaunievedumu stratēģijas vadīšana

# Kādas ir iespējas ERASMUS?

1. Applied Physics (curator – KU Leuven)
2. Functional nanomaterials (curator – BSU)
3. Photonics (curator – BSU)
4. Applied Informatics (curator - RTU)
5. Research towards master thesis/ scientific project management (curator – The University of Cyprus)