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Project 561525-EPP-1-2015-1-LV-EPPKA2-CBHE-JP
"Improvement of master-level education in the field of physical sciences in Belarusian universities" (Physics)

Workshop 9th on curricula development: Testing results, acceptance. Quality assurance.

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Discussions and decisions

1. The start of the meeting

- **Welcome by UCY -** was provided by Prof. Elias Kyriakides
- **Adoption of the agenda of the meeting. Project Progress –** A. Zabašta introduced the agenda and the overview of the program, emphasizing the importance of dissemination events. A deliverables schedule presentation was provided that highlighted the testing of the courses in the first year and testing during the second year that entails testing reports, external quality report, internal quality report, dissemination report, materials that need to be uploaded to Moodle, an updated project web, and final reports (activities/financial).

  Decision: to accept the agenda of the meeting.

2. The topics of discussion were the following:

- Reports on new developed courses, teaching materials, and study programmes and their accreditation in the universities
- Reports on testing of the courses, teaching materials, and study programmes
- Testing of new developed and modernised courses in the spring semester and accreditation of the course
- Feedback from industry representatives on curricula development.

D.Gorbach from BSU provided a presentation on the testing of new developed and modernised courses in the spring semester. There was overview of the WP2 tasks of the Belarusian consortium and participants were informed that testing, study programmes and guides for lab practice, lecture synopses, presentations, and other didactic materials

have been completed. Curricula and study programmes were reviewed by Associate Partners. Additionally, most modernised courses and lab practices for testing have been analysed. In particular, 7 modernised courses and 1 laboratory practice were tested at BSU in the fall semester of 2017-2018. In the spring semester of 2017-2018, 1 developed course and 2 laboratory practices were tested at BSU. Curriculum and study programmes were reviewed using two types of questionnaires (information about experts and experts' opinion on the quality of curriculum of study programmes). Each curriculum was approved by the Ministry of Education of the Republic of Belarus: 1) Master's degree programme Functional Nanomaterials, 2) Master's degree programme Physics of Nanomaterials, 3) Master's degree programme Photonics 2, 4) Master's degree programme Photonics 1. Questionnaires and study programmes were sent by email to experts in the field and it was reported that all the participants supported the transition of higher education in Belarus to the Bologna 4+2 system as well as the need for the introduction of training programmes. A high percentage (90%) of the interviewees confirmed the importance of introduced courses and lab practices.

N.Strekal from Yanka Kupala State University of Grodno presented the accreditation of a new specialty certificate, three new courses that have been tested (1 in the winter semester and 2 in the spring semester) at the university, as well as credits-points for the courses for MA students and their dissemination activities uploaded to Moodle. The courses are: Nanophotonics, Physical and Chemical Methods of Analysis, and Optical Methods of Investigation.

Physics members from the university inquired about dissemination activities and Dr Stella Hadjistassou informed all the participants that it is urgent to upload all their dissemination activities after they fill in the relevant dissemination activities form that was provided by UCY. Filling in the form is critical as some documents/sites are written in Russian and are incomprehensible for categorisation by the rest of the project team.

A.Samofalov from Skorina Gomel State University reported on the progress of the e-books, introduced the curriculum, list of courses and study programmes, equipment purchase, publications, new curricular testing with feedback from stakeholders and presented a conference, which was held at the university and information was posted on the website.

K. Vishnevski from BSTU presented their progress in the project regarding course testing. Three courses were tested last semester and one course in the spring semester. Positive feedback was received from the students, the universities, and the industry.

A. Zabašta drew the participants' attention to comments on testing reports, including:

1) lack of a list with the names of students participating,

2) teachers' names are missing,

3) tables with testing results are not presented,

4) attachments for the report for evidence such as filled in questionnaires and screenshots of dissemination activities are required,

5) individuals should allocate the reports on https://dl.bsu.by.

Decision: the partners will create a new version of the Testing reports and send to A.Zhiravecka and A.Zabasta ***by 9.07.18.***

3. WP 2. Implementation of curriculum

Implementation of curriculum, eBook on Applied Physics, final version

Joan Peuteman (KU Leuven) informed participants that the final version of the e-book on Applied physics has been uploaded on Moodle and stressed that it is the product of hard work that exceeds 400 pages. The book consists of 6 chapters, namely Electricity and magnetism; Metrology and mathematical modelling for intelligent systems; Electrical engineering; Spectroscopy, microscopy, magnetometry, ellipsometry; EMC, EMI and reliability; Applied system theory, and that it is a product of joint effort by several universities.

Decision: to take this information into account.

Implementation of curriculum, eBook on Applied Informatics (WP 2), final version.

Decision: to take this information into account.

Implementation of curriculum, eBook on Functional Nanomaterials, final version.

Participants were informed that the chapters of the e-book are currently being reviewed by associate partners and representatives from the industry.

A.Zabašta requested the translation of all the chapters in English and he was assured that all chapters are translated from Russian to English. He also inquired whether the description of labs and questionnaires are a part of the book and he was informed that this material is held separately and does not form part of the e-book.

Decision: to take this information into account.

Implementation of curriculum, eBook on Photonics, final version.

Participants were informed that feedback from industry has been obtained and the e-book is currently under review.

Decision: to take this information into account.

Implementation of curriculum, eBook on Photonics, final version

E. Kyriakides from UCY presented the final version of the e-book 'Book on Guidelines on Master Thesis in Applied Physics'. He illustrated the list of contributors and went through the chapters of the book to provide an overview of each chapter. E. Kyriakides pointed out that the book has been completed and that comments and suggestions are welcome. A question was raised about whether the book can be translated in Russian. E. Kyriakides suggested that the book is very easy to follow as most chapters contain bullet points and illustrations.

A. Zabašta provided a resume of the progress of e-books. The e-books are published in e-library. The final version of the book Master Thesis Guidelines edited by Stella Hadjistassou and Elias Kyriakides was uploaded on 29.05.2018. The final version of the book Applied Informatics which was edited by Leonids Ribickis and Nadezhda Kunicina was uploaded on 26.03.2018. Minor changes were implemented in chapter 2, Control Theory, after Professor Zhiravecka's recommendations. The final version of the book Applied Physics, which was edited by Joan Peuteman, was uploaded in August 2017. A. Zabašta indicated that RTU cannot currently print these books because the printing cost is high. Discussions with a printing house about indexing without

professional editing are currently taking place but A. Zabašta suggested that the best solution is to submit the books to the library as an electronic (PDF) version and implement editing in 2019.

4. Dissemination and Exploitation of results. Dissemination and Exploitation plan (WP5). Implementation of curriculum.

E. Elias Kyriakides pointed that a close collaboration is of utmost significance for the successful dissemination of the project results. He informed participants that a dissemination and exploitation plan was uploaded to Moodle and suggestions by project members are welcome. Additionally, a dissemination report was uploaded, and the metrics have been devised. Drawing from questionnaires, it was pointed that everyone approved the need for transition. A list of the deliverables was presented, and Elias informed the audience that the number of page views and the percentage of every visit are monitored. Although numbers are increasing, it is critical to advertise the work to a greater extent, such as through providing links to posters. In addition, more promotion of the Facebook and LinkedIn pages are essential; invitations to join these pages will be sent to each member individually.

Decision: Invitations to follow the social media pages of the project will be sent to the participants.

5. Application of innovative teaching methods & electronic environments (WP3). Progress.

Joan Peuteman informed participants about activity and obtained results in this field. He noted that the main goal is to prepare students for both an academic and an industry-oriented career. The learning process forms a greater challenge nowadays because of the broad diversity of students with different prior knowledge and needs. He drew attention to the availability of online platforms such as Moodle and Blackboard through which a number of important restrictions arising from the traditional 'ex cathedra' model can be combated. For example, a digital learning platform enables its users to frequently reuse the digital content, adjust and elaborate the course content, structure and restructure the content while adapting to learning outcomes. Joan Peuteman demonstrated the TECOL project and A. Zabašta noted the importance of this approach to teaching and proposed to use it as a basis of a possible future Erasmus+ project.

Decision: to take this information into account.

6. Arrangements to final technical (activities) report. Project sustainability's issues.

A. Zabašta presented the progress of Technical Report ES Agency Recommendations: 1) A new version of dissemination plan that had to be developed was implemented by UCY and other partners and it is currently in progress, 2) to demonstrate complementarity with the TEMPUS project he required BSU to submit their reports, 3) partners should submit the reports that explain the role of associated partners, 4) more information is allocated on demonstrating the project output on website, 5) inter-institutional agreements or bilateral agreements need to be signed by partner country institutions to promote cooperation in the field of education and/or research.

For the Final Report, each of the partner countries should:

1) List 3 main achievements of their project.

2) Explain how the achievements are relevant to the policy area.
3) Provide information and quantify the inter-institutional agreements or bilateral agreements to be signed by partner country institutions.
4) Describe and justify where and when the equipment items have been installed, how they have been used in the project and how they will be used in the future.
5) Explain how the project helped to strengthen the role of higher education institutions in society at large.
6) Explain the involvement of partners and stakeholder and their future collaboration plans.

Regarding the sustainability of the project, A. Zabašta required project members to:

1) Explain measures taken by partner country beneficiaries to guarantee the sustainability of the project outcomes beyond the lifetime of the project and specify the funding sources if known.
2) Explain how they have achieved a multiplier effect and how the results have been exploited beyond the immediate target to other contexts.
3) Describe measures taken to formalise or institutionalise links with local non-university partners.
4) Explain if any measures have been put in place to enlarge the implementation of the project results beyond consortium partners.

A. Zabašta presented a follow up on previous recommendations. Participants should explain how previous suggestions given by the Agency have been adopted, addressing each recommendation separately and highlighting steps and measures taken. Lastly, participants should provide descriptions, if applicable, to the innovation of the project and ways the project promotes capacity building.

Decision: to take this information into account and start implementation of the recommendations in their Final reports.

7. Quality assurance issues. Monitoring and evaluation by external expert.

Financial aspects.

A. Zabašta informed that partners Testing reports will be evaluated by the external Quality expert. Additionally, he reminded that the partners have to prepare a new version of the internal Quality reports.

A. Zabašta presented financial aspects regarding the equipment project, including steps that need to be taken, such as compliance with procurement rules and eligibility of costs, documenting the tendering procedure, providing invoices and bank statements, and proof that the equipment is recorded in the inventory of the institution. Common errors made by beneficiaries regarding equipment were presented to avoid repeating them. Cost calculation, salaries, as well as supporting documents for the financial report (a formal employment contract, signed timesheets, a duly filled in joint declaration, joint declaration, separate declaration) are required.

A. Zabašta noted that separate timesheets are needed for each different role within the project. The project coordinator will send to the participants the template of the joint declaration form. Several documents regarding instructions of an auditor on staff cost (employee status/ activities/workload) and travel cost (travel tickets, boarding passes,

etc.) were presented. Dr. Zabašta will provide the template of the final technical report so that partners can start working on it.

Decision:

- *To prepare a new version of the Internal Quality reports by **16th of July**.*
- *to take this information into account and start implementing the recommendations in the Final Report.*

8. Conclusions, next steps.

A. Zabašta noted that the realisation of the project is being carried out without significant obstacles and requested participants to continue their activities according to the project timetable. Future meetings were scheduled and suggestions on the content of discussions during these events were contemplated, in particular with regards to the Final Conference. Prof Kyriakides proposed discussions of the e-environment whereas Stella Hadjistassou suggested exchanging good practices, sharing expertise, quality assurance, steps on how curricula are reformed, etc. It was suggested that the audience of such meetings could come from a broad range of fields and disciplines, such as teachers, professors, and people from the Ministry. A. Zabašta summarised further tasks and steps in 7 points:

1) Courses e-books: finalizing

2) Dissemination: press conferences, press releases, web and e-environment improvements, references to the project and its website, Facebook, LinkedIn, YouTube, publications at scientific conferences, final conference for dissemination

3) Sustainability: all materials to be allocated at https://dl.bsu.by and on the website of partners (dissemination and sustainability plan)

4) Accreditation

5) New curricular testing—spring semester. Test reports

6) Quality assurance:

The Quality assurance report will be prepared by the external expert,

*The partners will prepare their internal Quality assurance report by **July 16th***

7) Final reports: financing and technical (activities). It is recommended to start preparation of Technical and Financial reports in advance.

Decisions:

To accept the Schedule of the meetings by the end of the project.

- *Minsk, BSTU, **September 12th 2018**: The Final conference*
- *Nicosia, UCY, MC7 and WS10: Workshops for curricula development. Communication and sustainability of the project results. Quality assurance. Final reporting. **September 26 - 27th 2018**.*

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