

# Support to strengthening the higher education system in Azerbaijan



Twinning project ENI/2018/395-401

## Mission Report

Short-Term Mission on Activity 1.7 Improve national classifications of specialities in the priority areas

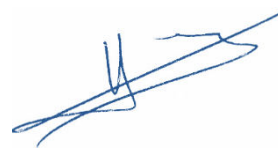
(June 10 – 14, 2019)

### 1. Name and Function of the Expert:

Full name of expert

**Mr Philippe Turek**

Signature



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## **2. Objective and Tasks of the Mission:**

The mission is carried out within the framework of:

COMPONENT 1: SELECTED NATIONAL EDUCATION STANDARDS ARE ALIGNED TO INCLUDE A COMPETENCE-BASED FOCUS

Activity 1.7 Improve national classifications of specialities in the priority areas

Benchmarks for this activity are:

- 12 national classifications for programmes in three priority areas developed



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### 3. Time schedule of mission:

Date and Time	Activity
Monday 10 <sup>th</sup> of June 2019	Deskwork at MoE, discussions with Ms. Lisa Bydanova
Tuesday 11 <sup>th</sup> of June 2019	A meeting with Working Group in MoE premises to finalize the suggested version of study programme in Physics.
Wednesday 12 <sup>th</sup> of June 2019	Deskwork at MoE, , discussions with Ms. Lisa Bydanova
Thursday 13 <sup>th</sup> of June 2019	Deskwork at MoE, , discussions with Ms. Lisa Bydanova
Friday 14 <sup>th</sup> of June 2019	Deskwork in MoE, discussions with Ms. Lisa Bydanova Report writing

### 4. Relevant Background Information/State of Affairs regarding the mission

Former discussions (previous mission) with Ms. Lisa Bydanova, resident delegate of the twinning project, concluded that a team of selected and motivated representatives of the relevant institutions be involved in the elaboration process of the educational offer. This has been realized as a peer-to-peer interaction with the expert. That is actually promoting their commitment for implementing the reforms. This is why the presentation (Annex 1) has been elaborated as being possibly shared with the field actors (ppt document).

This presentation depicts the scheme drawn by the Faculty of physics & engineering of the University of Strasbourg and a comparison between the Azerbaijani frame and the French frame of master curriculum. It may help to understand the elaboration process in a research-based university and the various issues that are offered to students. One of the goal is to avoid tubular process, which may favor bottleneck effect ending with people being not enough flexible to adapt to the nowadays job market rapid evolution.

The content of the national standards for the master looks widely open (70 ECTS/120). This is supposed being directly related to the fact that HEIs do design their educational offer at this level as being directly connected to their own competences, research labs and HR power.

At this stage, I do not know which content the HEIs are putting there and the relationship with research performed within the supporting labs and/or the existing job market network supporting the programmes, what should actually be assessed before launching/accrediting a master programme.

### 5. Achievement of the Expected Results

The main success indicator has been given by the interaction between the expert and the committee of faculty representatives of Baku State University and Sumqayit State University. Their involvement for the elaboration of the educational offer in physics at the B. Sc. And M. Sc. level was the main issue regarding the process of reforming the curricula with respect to competences-based approach, i.e. students' vocational issue as guideline.



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The audience could commonly agree with the observation that the present status does not allow assessing and promoting the vocational issue that one should expect after the completion of a curriculum.

## **6. Unexpected Results**

NA

## **7. Issues Left Open After the Mission**

The completion of the curriculum models must be carried out by the faculty staff according to recommendations: for example, after having consulted the local and national industrial network, thus seeking for job opportunities for students, and assessed the strengths of the potential host research labs (SWOT analysis including HR power and instrumental infrastructure).

## **8. Recommendations (including recommendation for future missions)**

- 1.** The pedagogical issues (teacher training) of the master should be dissociated from the core disciplinary studies. The present mixture does not allow a clear distinction between such very distinct issues as research and teaching at the primary and secondary level. The required background is definitely not similar for a teacher at the master level (primary and secondary school) and a potential engineer or researcher (ongoing PhD). My referential frame is the one of France. Applicants for positions of teachers in physics at secondary school are hired after completing a bachelor in physics or in physical chemistry. At this step, they perform most of the curriculum at the master level within a dedicated institute, similar to a faculty for pedagogy.
- 2.** The present duration (4 weeks research & 4 weeks pedagogy) of the master internship looks clearly undersized with respect to the professional issue for an engineer or a researcher/teacher, as targeted in the learning outcomes. The duration of the internship at the end of the master curriculum should be longer (> 3 months; allotted 30 ECTS), including: i) performing the internship within a research lab or within a company, ii) writing a detailed report with results and discussion, iii) defending the internship in front of an examination jury composed of an internship tutor, a faculty tutor, and faculty members involved in the curriculum. Purely academic work should be considered as the worst issue, since its outcomes are rather restricted regarding future entry in the labor market, whether as a researcher (PhD application) or as an engineer.
- 3.** The vocational future of students should be the guiding principle of the educational process, whatever the considered degree. Faculty staff should be aware of the potential local and national job market. This could be achieved with tools as, e.g. tracer studies of graduates, alumni network, internship center, feedback from companies (existence of a development council: see point 5 below), etc.
- 4.** The MoE should elaborate and further conduct yearly a national survey on the professional status of graduates. This should result in the elaboration of a national frame of vocational issues for graduates. These are known in France as the National Directory of Professional Certification (RNCP) and in EU as the European Center for the Development of Vocational Training (CEDEFOP: <https://www.cedefop.europa.eu/en>).
- 5.** The underlying vocational principles will be improved by regular (annual or biannual) meeting with the labor market representatives (development council). Such development council should be convened before launching a curriculum, i.e. before the accreditation process, and during the tenure of the accreditation being part of a quality process.



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6. This may help bridging the apparent gap existing between faculty members/research labs and the company representatives. Promoting the connection between companies and research labs may bring high added value to research labs and better R/I for the MoE regarding investments in up to date instrumentation. It will also support the economic development in innovative industrial areas, involving local human resources.

7. The survey proposed during last mission has been slightly amended (Annex 2), and it is proposed to ask the faculties representatives to conduct it and to analyze the results. The results of this survey should afford a robust support for vocational orientation of the educational offer.

8. Annex 3 depicts the proposal for the Bachelor's names as given by the French decree of 2014, and the proposal for the connection between a bachelor in physics and the relevant possible issues as master studies (French decree of 2017). The present status in Azerbaijan is reminded for comparison. There should be some reflection about the names of the masters so as providing them significance for the students and their family, and for the potential employers. Nevertheless, the present list is satisfactory for me, and sufficiently restricted as far as attention is paid to its relevance with respect to vocational issues.

9. Within the draft of the National Standards, it is suggested to suppress the final state examination. The usefulness of this examination is unclear regarding the achievement of competences. It is purely oriented towards knowledge rather than skills, whether transverse or specific. It is proposed to replace it by the last semester internship, of which the vocational issues are obvious. Indeed, the internship relies on an immersion within a professional environment, whether a company or a research lab.

10. A revised version of the proposal for National Standards is proposed (Annex 4). It has been implemented according to: i) movement between us and the representatives of the faculty staff; and ii) the model of the University of Strasbourg regarding the final attestation. This last one is based on the internship representing the end of the study cycle, once having completed all of the constitutive semesters. In France a compensation mechanism is used to compute the average for the degree, i.e. over 6 semesters for the B. Sc. As previously underlined, the internship at the end of the master is actually considered as a professional experience (first job).

Worthy of note, it appears that the global conformation of the supporting institutions, hence their subsequent goals could not be the same according to local research and /or industrial environment, as exemplified here for BSU and SDU. This is why it is shown that parallel pathways may be drawn within a faculty of physics, which are more oriented towards applied physics and engineering sciences. The broadening of the offer based on a starting common core allows students to better define their study track, once having tasted the flavour of various fields through optional subject modules and under the guidance of the faculty staff.

11. Once the models for the curricula have been completed by the faculty staffs, the last step is the assessment of these proposals, which should result on interactive feedback with the field actors. Discussions with Ms. Lisa Bydanova have been devoted to this topic.

## 9. Acknowledgments (if any)

As a ST expert, I was alone during this week. I have much benefited from the contributions of the resident delegate of the twinning project, Lisa Bydanova, and from the assistance of the local team, Tarlan Arzumanov and Aytaj Atakishiyeva . Thanks to their commitment and to their deep knowledge of the environment more topics could be envisioned and the mission's results are much improved.

## Annexes (if any)

**Annex 1.** Presentation of the B. Sc. and M. Sc. in Physics curricula offered at Unistra.

**Annex 2.** Revised version of the survey to be launched by faculty staffs.



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**Annex 3.** National nomenclature of B. Sc. and M. Sc. in Physics (France).

**Annex 4.** Revised draft of the National Standards for B. Sc. and M. Sc. in Physics.



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