

## Decision Regarding Assessment of the Physical Sciences Study Programme Group at the Level of Doctoral Studies Tallinn University

20/06/2018

The Quality Assessment Council for Higher Education at the Estonian Quality Agency for Higher and Vocational Education decided to approve the report by the Assessment Committee and to conduct the next quality assessment of the Physical Sciences study programme group at the level of doctoral studies at Tallinn University in three years

On the basis of subsection 10 (4) of the Universities Act and point 40.3 of the 'Quality Assessment of Study Programme Groups at the Level of Doctoral Studies', authorised in points 3.7.3 and 3.7.1 of the Statutes of the Estonian Quality Agency for Higher and Vocational Education (hereinafter referred to as 'EKKA'), the EKKA Quality Assessment Council for Higher Education (hereinafter referred to as 'the Council') affirms the following:

1. On 27.03.2017 Tallinn University and EKKA agreed upon a time frame to conduct a quality assessment of the study programme group.
2. The Director of EKKA, by her order on 22.02.2018, approved the following composition of the Quality Assessment Committee for the Physical Sciences study programme group at the level of doctoral studies at the University of Tartu, Tallinn University of Technology and Tallinn University (hereinafter referred to as 'the Committee'):

<b>Robert William Munn</b>	Chairman of the Committee, Consultant, Finchwood Academic, UK
<b>Christian Enss</b>	Professor, Heidelberg University (Germany)
<b>Anna Geppert</b>	Professor, Sorbonne University (France)
<b>Lars Erik Holmer</b>	Professor, Uppsala University (Sweden)
<b>Juha Karhu</b>	Professor, University of Helsinki (Finland)
<b>Jürg Luterbacher</b>	Professor, Justus Liebig University of Giessen (Germany)

<b>Risto Nieminen</b>	Professor, Aalto University (Finland)
<b>Jakob Johansson</b>	Doctoral student, Lund University (Sweden)

3. Tallinn University submitted the following doctoral programmes for evaluation under the Physical Sciences study programme group:

#### **Physics**

4. Tallinn University submitted a self-evaluation report to the EKKA Bureau on 23.01.2018, and the assessment coordinator forwarded it to the Committee on 09.02.2018.
5. An assessment visit to Tallinn University took place on 27.04.2018.
6. The Committee sent its draft assessment report to the EKKA Bureau on 23.05.2018, and EKKA forwarded it to Tallinn University for its comments on 25.05.2018 and the University delivered its response on 06.06.2018.
7. The Committee submitted its final assessment report to the EKKA Bureau on 6.06.2018. The assessment report is an integral part of the decision. The report is available on the EKKA website.
8. The Secretary of the Council forwarded the Committee's final assessment report along with the University's self-evaluation report to the Council members on 6.06.2018.
9. The Council with ten members present discussed these received documents in its session on 20.06.2018 and decided to highlight in the assessment report the following strengths, areas for improvement, and recommendations regarding the Physical Sciences study programme group at the level of doctoral studies at Tallinn University.

#### **The Committee highlighted for the Physical Sciences study programme groups at the University of Tartu, Tallinn University of Technology and Tallinn University the following common areas for improvement and recommendations:**

- 1) The fact that the Estonian society and labour market do not highly value a doctoral degree is a challenge for the universities. Holding a doctoral degree has little influence on employment outside the academy. In some cases, it might even prove to be an obstacle. The universities should develop a joint plan for promoting the value of a doctoral degree outside the academic domain.
- 2) Today, the labs are well equipped, but there are no resources for sustaining or improving their level of quality since in a few years the European Union funds will no longer be available in the extent they are now. Universities should join forces to design mid-term and long-term measures for renewing the infrastructure.
- 3) An income equal to the average salary in Estonia shall be ensured for all doctoral students. It should mainly be done by increasing the state scholarship, but if this is not achievable, universities should supply it.
- 4) In the case of more ambitious projects, the period of doctoral studies tends to be extended. Besides having a principal supervisor, all doctoral students should have a co-supervisor in order

to ensure that the required number of publications needed for defending the doctoral thesis is prepared during the four years foreseen for the studies.

- 5) Many doctoral students have a feeling that they are on their own. The universities should organise more activities that would enable doctoral students from various research teams to get better acquainted. Seminars with guest lecturers bringing students from different research teams together should be organised regularly.
- 6) The biggest obstacle in recruiting and maintaining international doctoral students is the lack of sufficient information available in English. The University's website has to provide better information in English, and the number of courses in English has to be higher to promote the admission of international doctoral applicants.
- 7) The volume of industrial practice is insufficient, and the same applies to the uptake of industrial doctorate programme opportunities. However, it would add value to a PhD degree outside academia and allow the universities to generate additional income from cooperation projects with enterprises. Universities should set up systematic measures that would give doctoral students an incentive to conduct a part of the doctoral thesis outside the University.
- 8) Teaching sometimes puts a significant burden to the doctoral students and being a supervisor to bachelor's or master's students halts their research work for weeks. However, doctoral studies should primarily focus on research and ensuring the continuity of research is a task of the head of the study programme.
- 9) According to an agreement between universities, three published articles is a precondition for defending one's doctoral thesis, which is more of a quantitative and not so much qualitative requirement. In their self-evaluation, the universities highlighted that the requirement of three articles is a problem for the more demanding projects that include extensive fieldwork. However, during the assessment visit, almost no one referred to it as an issue. The requirements set for publications should be more flexible and focused on their quality. Also, for longer projects, the payment of doctoral allowance should continue beyond the standard period.
- 10) For each doctoral thesis defended within the standard period of study, the supervisors receive a considerable one-time additional fee. The Assessment Committee finds that this practice should be reviewed since productively supervising a doctoral student should be one of the contractual obligations of supervisors.
- 11) All three universities have a doctoral programme in physics. At the same time, the teaching staff of these study programmes are relatively passive in developing the study programmes, seeing additional funding as the primary development need. Continuance of the doctoral programme in physics is of strategic importance, but the universities and relevant academic units need to outline a long-term vision for the development of doctoral studies and recruit new active teaching staff to implement it.

## **Strengths, areas for improvement and recommendations for the Physics study programme at Tallinn University**

### **Strengths**

- 1) Despite the small number of doctoral students, they have the opportunity to attend a wide selection of subject courses at Tallinn University as well as at other universities.
- 2) An agreement with the National Institute of Chemical Physics and Biophysics facilitates cooperation.

- 3) All doctoral students attend weekly research seminars and present their research project twice a year.
- 4) Doctoral students have an opportunity to attend international conferences as well as summer and winter schools.

### **Areas for improvement and recommendations**

- 1) The physics doctoral programme is very poorly represented in the objectives and activities of the Tallinn University School of Natural Sciences and Health and none of the academic staff members who met with the Committee presented a clear view of how the physics doctoral programme and physics related research is associated with the strategic goals of the Institute or the University as a whole. They are aware of the related problems, but there is no strategic vision for the future. The explanations of how the physics doctoral programme has a vital role in educating physics teachers or its future prosperity in the broader context of the doctoral programme for natural sciences failed to convince the Committee members. The small number of doctoral students (6) further demonstrates the lack of attractiveness of the study programme.
- 2) The physics study programme is based on three specific research themes that cover only a small part of physical science. The research themes are not coherent, and the physics related research is not very visible in the University. What could be the unique strength of the physics doctoral programme at Tallinn University that would be appealing for new doctoral students, is quite unclear. The fact that in 2016 the master's programme of physics was closed due to lack of interest from students, further limits the number of potential applicants. A sustainable doctoral programme requires a coherent and well-balanced research programme, which should act as a starting point. An open and thorough discussion about the long-term strategy of physics research work should be opened up at the Institute, including considering its place in the School of Natural Sciences and Health.
- 3) The Committee finds that considering the profile of the School of Natural Sciences and Health, one outlook for the future could be research in physics of complex systems, which would benefit neurosciences, ecology, applied mathematics and chemistry. Such an interdisciplinary research theme has the potential to be more visible and distinguish itself from the other two doctoral programmes in physics offered in Estonia. However, other opportunities for moving on exist, such as creating a joint study programme with Tallinn University of Technology or transferring some of the research themes to the National Institute of Chemical Physics and Biophysics and others to Tallinn University of Technology. However, these do not allow for synergies within the University.
- 4) Depending on the strategy for the future, while transferring to the tenure system, academic staff associated with the new direction have to be recruited in a targeted manner.
- 5) Lab resources are scarce, and also, when inspecting the infrastructure, mostly chemistry labs were shown to the Committee. The two existing physics laboratories, however, are at a relatively high level. The number of received research grants has been low over the past few years, and the number of international projects is also small. While restructuring the study programme, additional investments to the infrastructure shall be made.
- 6) It is difficult to find research projects for doctoral students because of the shortage of research funding. Since their income is low, doctoral students are forced to work while studying. Therefore, their international mobility is also limited and time of doctoral studies is extended.
- 7) The share of practical subjects shall be increased, especially for doctoral students who conduct experimental research.

- 8) More focus should be put on preparing the doctoral students for work outside the academia in the private and public sector.
- 9) The short number of teaching staff means that teaching and supervision consumes a lot of their time, thus not leaving enough time for research work.
- 10) The doctoral students feel the need for more frequent discussions and group work, but the small number of doctoral students limits this.
- 11) An adequate income equal to the average salary in Estonia shall be ensured to the doctoral students.

**10.** Point 41 of the 'Quality Assessment of Study Programme Groups at the Level of Doctoral Studies' establishes that the Quality Assessment Council shall approve an assessment report within three months after receipt of the report. The Council shall weigh the strengths, areas for improvement, and recommendations outlined in the assessment report, and decide whether to conduct the next quality assessment of that study programme group in seven, five or three years.

**11.** The Council weighed the strengths, areas for improvement, and recommendations referred to in point 9 of this document and found that the study programmes have the following critical shortcomings:

- According to section 6(1) of the Regulation of the Government of the Republic 'Standard of Higher Education' *a study programme shall be in line with the areas of activity of the educational institution that are based on the development plan or statutes of the institution. A study programme shall contribute to fulfilling the mission of the educational institution and to achieving its goals.* The physics doctoral programme is very poorly represented in the objectives and activities of the Tallinn University School of Natural Sciences and Health, and also, none of the academic staff members who met with the Committee presented a clear view of how the physics doctoral programme and physics related research is associated with the strategic goals of the Institute or the University as a whole. The physics study programme is based on three specific research themes that cover only a small part of physical science and do not form a cohesive whole.
- Clause 6 (7) 4) of the 'Standard of Higher Education' prescribes that *necessary premises for studies as well as for research and development activities related to Doctoral study must be available (auditoriums, laboratories, seminar rooms and a library), the furnishings and equipment of which are ample and up-to-date for achieving the objectives of study programmes. Clause 7) of the same subsection points out that the financing sources for conducting studies and for research and development activities related to doctoral studies and a strategy supporting their obtainment must be ensured.* Lab resources are scarce, and while restructuring the study programme, additional investments to the infrastructure shall be made. The number of received research grants has been low over the past few years, and the number of international projects is also small.

**12.** Based on the previous, the Council

**DECIDED**

**to approve the assessment report and to conduct the next quality assessment of the Physical Sciences study programme group at the level of doctoral studies at Tallinn University in three years.**

The decision was adopted by ten votes in favour and 0 against.

13. The Bureau of EKKA will coordinate a date for the next quality assessment of the study programme group with Tallinn University no later than 20.09.2020.
14. A person who finds that his or her rights have been violated or his or her freedoms restricted by this decision may file a challenge with the EKKA Quality Assessment Council within 30 days after the person filing the challenge became or should have become aware of the contested finding.

The Council shall forward the challenge to its Appeals Committee who shall provide an unbiased opinion in writing regarding the validity of the challenge to the Council, within five days after receipt of the challenge. The Council shall resolve the challenge within ten days of its receipt, taking into account the reasoned opinion of the Appeals Committee. If the challenge needs to be investigated further, the deadline for its review by the Council may be extended by a maximum of thirty days.

A legal challenge to this decision is possible within 30 days after its delivery, by filing an action with the Tallinn courthouse of the Tallinn Administrative Court under the procedure provided for in the Code of Administrative Court Procedure.

**Eve Eisenschmidt**  
**Chair of the Council**

**Hillar Bauman**  
**Secretary of the Council**