ESTONIAN QUALITY AGENCY
FOR HIGHER AND VOCATIONAL EDUCATION

Assessment Report on Meeting the Requirements of the Secondary Condition

Tallinn University of Technology

Study programme group of Architecture and Civil Engineering

Doctoral studies

2020

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Introduction

Background. Aim of the assessment

Quality assessment of a study programme group involves the assessment of the conformity of study programmes and the studies and development activities that take place on their basis to legislation, national and international standards and developmental directions with the purpose of providing recommendations to improve the quality of studies.

The goal of quality assessment of a study programme group is supporting the internal evaluation and self-development of the institution of higher education. Quality assessment of study programme groups is not followed by sanctions: expert assessments should be considered recommendations.

Quality assessment of a study programme group takes place at least once every 7 years based on the regulation approved by EKKA Quality Assessment Council for Higher Education (EKKA Council hereinafter) Quality Assessment of Study Programme Groups in the First and Second Cycles of Higher Education.

In 2018, international expert panel assessed the quality of the study programme group of Architecture and Civil Engineering at the level of doctoral studies at the Tallinn University of Technology (TalTech hereinafter). As a result, EKKA Council decided at its meeting on June 20, 2018, that the next assessment is to take place in seven years if the HEI meets certain requirements set by the Council.

The aim of the current expert panel was to evaluate whether the requirements (secondary condition) set by the EKKA Council have been met by the TalTech.

The following persons formed the expert panel:

Ruben Paul Borg	Professor, University of Malta (Malta)
Piia Markkanen	Doctoral student, University of Oulu (Finland)

Assessment process

The higher education institution sent its progress report on fulfillment of the secondary conditions to EKKA on June 20, 2020.

The members of the expert panel wrote the report based on the written material and documentation presented by the university and the information obtained in the interviews held electronically on Wednesday, 28th October 2020 between 09:45 and 13:00. The meeting was held online with the following participants:

- Meeting with Doctoral students (1st year, 3rd year, international student) (6 students)
- Meeting with the Supervisors (2 persons)
- Meeting with the Laboratory Managers
- Meeting with the Programme Director / Head of the Department.

In the following sections, the expert panel summarises their findings regarding the fulfillment of the secondary condition, and provides feedback on the progress the HEI has made in connection with experts' recommendations made in their report in 2018.

The current report is a public document and made available on EKKA website after EKKA quality assessment Council has made its decision.

General progress report since the last assessment of the study programme group

General assessment of the actions taken by the Tallinn University of Technology with regard to improvement areas presented in the EKKA Council 20.06.2018 decision.

Comments

1) *In the Architecture and Urban Design field of study, only a few of the teaching staff have a doctoral degree. Although recognised architects are involved in teaching, they lack the qualifications needed for supervising doctoral students. To fully develop the Architecture and Urban Design field of study, the relevant research focus has to be strengthened at the University, more members of the teaching staff and supervisors shall have a PhD degree; also, better use should be made of collaboration and synergies with the long-standing and successful research teams of the Construction field of study.*

   A review of the Architecture and Urban Design field of study was undertaken to assess the teaching staff, their qualifications and capabilities, based on data provided by TalTech and online official information. All staff members presented for this field (5 academics presented by TalTech), were in possession of a doctoral degree. Previous assessment noted that although recognized architects are involved in teaching, they lacked the qualifications needed for supervising doctoral students. It was also reported that in order to fully develop the Architecture and Urban Design field of study, the relevant research focus has to be strengthened at the University, and more members of the teaching staff and supervisors shall have a PhD degree. In the present review, it is noted that this target has been achieved as demonstrated through the staff list and staff profiles presented particularly for these 5 academics as presented below. Synergies and collaboration with the long-standing and successful research teams of the Construction field of study, support also the Architecture and Urban Design field.

   On the basis of the information provided including the Academic lists and their profiles and the report provided by TalTech regarding the Side Condition, together and the assessment of the academic staff, significant improvement is noted in staff qualification and experience, which promotes robust development of the Architecture and urban Design field of study through research. In this context additional staff has been also recruited and it is demonstrated that the strengthening of the academic body engaged on the Architecture and Urban Design component is ongoing, in order to ensure high profile research and a strong supervision team through the experience of the academics involved as the team grows in time to sufficiently cover the main areas of interest.

   TalTech provided a report on the fulfilment of the secondary condition regarding the Architecture and Building Study Group. In the Report, TalTech reported as follows: [Note: 5 members of the Academic Staff actually were noted to hold a PhD. However, one academic staff member is listed as a PhD student currently at Aalto University in Helsinki (Kimmo Lylykangas) and it could not be verified that he already holds a PhD]:

   Side condition report of the study programme indicates that 6 staff members hold a doctoral degree and the moment of writing the Side condition report included staff of 20 + 2 (support staff) members. This is an increase from previous assessment report in 2018 from 14 staff

members, where number of ones holding a PhD was not indicated. Further, the unit estimates in the Side condition report to have a staff of 18 + 2 persons of whom 7 will hold PhD degree in 2021. The number of PhD students has risen from 2 students (2018, Assessment report) to 7 students (2020, requested information). The requested material of research groups provided by study programme lists following supervisors for Phd Students in the Architecture and Urban studies: Veronika Valk-Siska, Francesco De Luca, Nele Nutt, Zenia Kotval. In addition, the Side condition report lists senior lecturer Epi Tohvri and Professor Jenni Partanen to have a PhD degree. Furthermore, Tiina Tuulik and Kristi Grisakov are expected complete their PhD in near future according to the Side condition report.

The following information is provided by TalTech outlining the current cohort of PhD supervisors.

Name	Year of birth	PhD	Position	Workload at TTÜ
Supervisors				
Francesco De Luca	1965	+	Researcher	1.0
Kimmo Sakari Lylykangas *	1970	-	Professor	1.0
Nele Nutt	1969	+	Lecturer	0.5
Zenia Kotval	1964	+	Adjunct Professor	0.5
Veronika Valk-Siska	1976	+	Researcher	0.8

- Note Above regarding Kimmo Sakari Lylykangas

On the basis of the information provided, the CVs of the Academic staff engaged, and the report presented in the document entitled: “A report on the Fulfilment of the Side Condition”, it can be noted that there has been significant progress. In addition, it can be demonstrated that there is an ongoing drive to engage more academically qualified staff and further develop and strengthen the Architecture and Urban Design research and doctoral supervision component. Therefore, the expert panel concludes that the Secondary Condition is Fully Met.

2) *The description of the subjects of the doctoral programme is too general. They should be more detailed so the doctoral students could make informed decisions in planning their studies.*

For subjects in the doctoral programme, in the case of a number of courses, TalTech reported updated descriptions in the case of the new doctoral curriculum. However, in the previous review, it had been pointed out by the expert panel conducting the review reported that some descriptions are too general, especially for specification courses. This is reported to be due to the fact that students from different backgrounds, from different research groups and specializations pass specific subjects somewhat differently. In this context, the descriptions of the courses are therefore further supplemented to provide a better overview of the content. This is very important since it will allow students to prepare more robust plans for the doctoral studies.

3) *Feedback procedure for different parties should be more individualised and meaningful. There are six very general questions in the feedback questionnaire for PhD students that are addressed to the entire student body. Gathering feedback from alumni is centralised in the University, and the response rate is poor.*

The feedback mechanisms in the doctoral study programme have improved. Based on the documents, direct feedback is gathered during doctoral school seminars and at the yearly attestation. After completing the doctoral programs in addition to the course-based feedback harvested through TTU Study Information System (OIS). In the current curriculum, the students and alumni also have a presentation in the program council, thus providing a direct feedback instrument. Importantly, feedback questions are reviewed by yearly and implemented in improving the doctoral training. The programme director confirmed that feedback from students given to the courses is noted and that there is a Programme council meeting once a year with representatives of students in the council.

Interviews with doctoral students, supervisors, programme director, and head of department, showed that a lot of emphasis is given on direct feedback from doctoral students to their supervisors and programme management. While such direct communication with friendly attitude is a strength in the programme, such direct feedback may remain undocumented and may prove to be insufficient in conflict situations, for example, between student and their supervisors or other members of research group. In addition, there is a general understanding that whilst there is a friendly attitude with the supervisor, possible-supervisor has an important role in addressing possible disagreements. Students feel that they may not always aware of their rights and this may depend at times on the information provided by the specific supervisor. It was also noted that the management and supervisor community is tightly linked. This may pose difficulties to support students who have a different opinion – therefore there may be the perception that it does is not impartial. Altogether, we recommend investigating a low-threshold feedback mechanism that is in place for conflict situations where giving direct feedback is difficult. This can be organized, for example through student council services.

Doctoral students are involved in teaching on under-graduate courses. The OIS based feedback from undergraduate courses does not support doctoral students' pedagogical skill development. Therefore, it is important that they receive feedback on their performance as teachers from faculty.

4) *Doctoral students, particularly international doctoral students, shall be better integrated with the activities of the Institute as a community.*

The study programme has improved the integration of students into the work community. This supports students' well-being, peer support and to provide students' daily opportunities to discuss their research and studies with others. The number of doctoral students in research groups of this study programme range from 1 to 15 students. Also, the review of provided documents revealed altogether 15 supervisors with one doctoral student. If the research topics within the research group vary greatly, the communication between other researchers and doctoral students may be low and their work-related interaction and support may be dependent on their supervisor. Integration of international students is especially important, as their social network is not available in Tallinn.

As recommended, the study programme has increased students' opportunities to communicate and integrate into the community: First, to support daily encounters, a coffee-

room has been implemented in the faculty premises. Second, an additional seminar is organized, thus gathering the students together twice a year. The seminars organized in off-faculty premises provide opportunities to strengthen the ties within the study program on both academic and personal level. These events were deemed important by the students. Action plan also reported the possibility of assigning a mentor for international students if need arises.

During the interview, the students pointed out that the daily integration to the community is dependent on the supervisor and the research group. Altogether, we recognize that supervisors have an important role in providing a sufficient environment for interaction in the study programme. While the study program can support daily encounters (coffee room) and academic encounters through regular doctoral seminars, the doctoral students benefit from regularly organized meetings with other students and researchers. Organizing such events falls under the responsibility of supervisors and research group leaders. In addition, the study programme is advised to pay attention to students' individual research and career aims, and to provide support if necessary and if students' and supervisors' goals are not aligned.

5) *The admission procedure for PhD students has to be revisited to make it more transparent. Currently, the opinion of the potential supervisor carries a substantial weight, which can cause bias to prefer the master's graduates of the Tallinn University of Technology. The share of international doctoral students shall be increased.*

The new admission procedure is based on a supervisor competition, which ensures that the topic of the doctoral thesis is well defined and ensures completion of thesis. Furthermore, the supervisor has less influence in the choice of the doctoral student, as reported by TalTech. The list of doctoral candidates is compiled by the supervisor on the basis of the material provided and the interviews, but the final candidates are approved by the program manager, who can also examine the candidates' material submitted and involve other interested parties in the decision-making process. In this manner, there is more effective control over the supervisor's possible subjective decision.

It is reported by TalTech that in 2018, there were approximately four times more foreign students admitted to doctoral studies when compared to candidates from Estonia. Several international students where in fact selected. In order to improve the number and quality of international candidates, supervisors are also motivated to promote their topics internationally through online platforms.

It is reported that the Research Administration Office, in cooperation with the program managers and the marketing arm of the faculty, promotes admission and marketing of doctoral studies with the aim of (1) introducing doctoral study opportunities and research activities to bachelor's and master's students; (2) develop attractive value propositions for both domestic and foreign markets; (3) develop sector-based international social networks. TalTech also reported that the EURAXESS platform is also used to advertise the doctoral positions.

In general, this development promotes greater transparency in the admissions procedure. The presence of international students in addition to TalTech graduates further demonstrates that there is greater engagement of international and external students at doctoral level.

6) *The model for covering maintenance, development and replacement costs of laboratories shall be carefully considered, keeping in mind that the funding will be reduced soon.*

It was reported that the department can use the financing from the university and school level to finance the development projects and to ensure the sustainability at the termination of larger research grants. In this regard, TalTech reported that in 2019 the Department of Civil Engineering and Architecture received 196 900 € funding from the School of Engineering to fund development projects. In addition, TalTech reported that there is a financial support based on publishing (42 000 € in 2018 and 2019) and for the capacity of structural units (total of 200 000€ in 2018 and 2020). Also, it is reported that a significant part the research equipment and infrastructure has been updated through ASTRA program. Among other things, the teaching and research facility in Mäepealse 3 is being renovated as reported by the University. Financial stability has been also supported by the development projects of the university and the School of Engineering. Sustainability of the research teams has been assured through 140 employees form 7 research groups. The research groups have also been successful in obtaining research grants from ETAG.

The institute motivates study group leaders and instructors to participate in grant applications and research projects to ensure sustainable financing.

An interview with Laboratory Manager and Laboratory staff was organized during October 2020, as part of this Review exercise. In general, the Laboratory Managers reported satisfactory performance and ensured quality through accreditation systems in the Laboratories which ensure that the systems are calibrated and under controlled operation.

7) *A minimum number of academic staff that is needed for obtaining the status of research teams shall be put in place for optimum use of resources.*

The research teams are reported as follows:

- AU - Academy of Architecture and Urban Studies. Prof. Kimmo Sakari Lylykangas
- EN - Nearly Zero Energy Buildings RG. Prof. Jarek Kurnitski
- EP - Building Lifecycle RG. Prof. Irene Lill
- KO - Structural Engineering RG. Associate Prof. Ivar Talvik
- MH – Structural and Fluids Mechanics RG. Prof. Aleksander Klauson
- TG – Road Engineering and Geodesy RG. Prof. Artu Ellmann
- VK – Water and Environmental Engineering RG. Prof. Karin Pachel
- Research Group of Logistics and Transport. Prof. Dago Antov
- Wave Engineering RG. Prof. Tarmo Soomere
- Naval Architecture and Hydrodynamics. Prof. Mihkel Kõrgesaar

It is reported by TalTech that the Department continues to develop the model of subdivisions and research groups. This is in view of the recommendation that for resources used to support doctoral studies, the University might consider whether a research group should have a minimum number of affiliated academic staff to qualify for recognition.

The number of staff and achievements of the research group are analyzed by the department. It is reported that the University regularly analyzes the activities of all its research groups. Each year, the activities of the research teams are mapped based on several parameters; the results are compared with those of previous periods, other research groups, and made publicly available. When attesting professors (PIs, study group leaders), a systematic and thorough

analysis is performed once every 5 years. The annual performance interview takes place between the heads of the research groups and the director of the department. In the case of insufficient results, the director of the department discusses further activities in cooperation with the vice-dean for research. TalTech reported that an employee attestation model has been developed.

TalTech presented a list of research groups with the number of students in each group and their supervisors. In all research teams there is a sufficient number of research staff capable of leading the research activity. In the case of one academy (Naval Architecture and Hydrodynamics) only one student is listed while three students are listed for Structural Engineering. It should be noted, that since 2020 the Naval Architecture and Hydrodynamics research group have a new dedicated study program under the Mechanical Engineering, thus the rest of the doctoral students of that group belong to the other study programme.

As a result of the activities described above, the department has 7 research groups, with generally a sufficient number of professors and supervisors. TalTech reported that all research groups have been successful in preparing doctoral dissertations and in applying research grants. TalTech reported that the size of research teams and other developments are monitored annually. The employee appraisal model has also been introduced.

8) *PhD students are not very well aware of their rights and obligations concerning the organisation of doctoral studies, supervision and counselling. PhD students shall be offered an orientation course on these topics at the beginning of their studies. The orientation training should go further from being merely a part of communication between the PhD student and their supervisor.*

As per recommendation, the study programme has implemented ways to provide information of doctoral students' rights and obligations. TalTech reported that the doctoral school seminar, which is targeted for new student, provides an overview of the university and national legislation concerning the rights and obligations of doctoral students and the internal procedures of the department. This was confirmed during an interview with doctoral students. In addition, an overview of the study organization, responsibilities and rights is sent to incoming doctoral students. The autumn doctoral seminar, which is aimed at new students, also addresses the expectations and working practices. Altogether, the study programme should consider if parts of the orientation information, such as information how to plan studies, would benefit older students as well. In addition, new information should be shared equally to all students.

9) *A frequent problem with the industrial doctorate programme is that the covered topics do not offer enough for a doctoral thesis, nor do they meet the established standards, which means students are unable to publish articles in high-level research journals. While creating an industrial doctorate place, it has to be kept in mind that the problem set would meet the requirements for a PhD thesis.*

It had been noted in the previous review that the creation of each industrial PhD study position should require an extra approval stage which validates the scope of the industrial problem as reaching the level and standards required for a PhD and for the associated journal publications. TalTech has addressed this issue concerning the Industrial Doctorate programme. The evaluation takes place through a competition of supervisors and the

approval of candidates. The quality assessment of industrial doctoral students and the communication between the director-supervisor-doctoral student within the institute is enhanced. In addition, the topics of the industrial doctoral program are approved by the program director in cooperation with the director of the department and the head of the field to ensure the relevance and quality of the topic. Therefore, the Industrial Doctoral programme procedure is improved and the procedure for approving the topics of industrial doctoral students has been defined addressing this point.

The PhD topics proposed by supervisors and can be rejected by the programme director if the topic is irrelevant. There is a university level competition for government scholarship, thus the process is competitive for the supervisors. The areas of research selected are those leading to high impact scientific publication. The doctoral studies work plan also includes a publication plan to strengthen the research. The position of programme director is also an important step in providing an additional point of reference for students.

10) *The income of doctoral students consists of a national stipend and a contractual amount paid by the University. The contract should define the workload of the doctoral student, to make sure they are not overwhelmed with teaching, administrative tasks and research that is not linked to the topic of their doctoral thesis.*

The income of doctoral students is determined at the university level to ensure a minimum of average salary in Estonia as reported in the document. Also, as per in document, the doctoral students' employment contracts contain information concerning their workload division between doctoral thesis related work, teaching, other project research and administrative responsibilities. As students have a limited time to graduate from the study programme, as set by the attestation procedure, it is important that students' workload is monitored in terms of workload division between doctoral thesis related research, teaching, administrative tasks and project research.

Interviews revealed that doctoral students are not fully aware of which workloads they are obligated/entitled. Based on the interviews with doctoral students and supervisors, the workload divisions are not monitored. Students also reported on parallel project collaboration to the PhD and experience gained and that the project activity does not influence the PhD work. It is advisable that time allocated for work tasks outside of the doctoral thesis related work is occasionally planned and monitored in order for both students and supervisors to have clear understanding on the time used for different categories of work.

11) *The learning experience of PhD students may vary depending on the size of the research teams and the supervisor. More sense of community shall be created among the PhD students of the entire study programme, as well as more opportunities for debates, socialising, informal events and sharing of experiences; this could also include, for example, overarching PhD seminars for research teams.*

TalTech provided an updated list of research groups, with PhD students and supervisors. As pointed out in this review, the list indicates that nearly all research group include a sufficient number of students and supervisors. However larger interaction between research groups is encouraged and recommended in order to enhance the sense of community between PhD students.

In fact it had been noted that although students are exposed to modern teaching methods in both taught courses and supervision within research groups, it had been recommended that best practice be shared such that the student experience is not unduly influenced by the size, group dynamic and/or leadership style in their allocated research group. This could be achieved for example by increasing the annual number and the scope of pan-research group doctoral seminars.

TalTech organizes doctoral seminars which take place once a year in spring within the doctoral school. TalTech reported that the participation in this seminar has been somewhat modest and in order to motivate greater the participation, it is reported that it is possible to pass the yearly attestation by presenting the progress at the spring doctoral seminar. This model was reported as having been implemented by TalTech for the period 2018 and 2019. An additional seminar for doctoral students has been be launched at the end of the autumn semester as recommended, where a mid-term review of the doctoral process and topic is presented in a more popular-science form for a less specialist audience.

The autumn seminar was held for the first time in 2019. The focus was on the first-year doctoral students, who had to present and discuss the research plan for their studies.

Therefore, as a result of doctoral seminars organised across research groups, communication between doctoral students and the exchange of experiences has increased as reported by TalTech and confirmed by student interviewed as part of this assessment.

12) *It is recommended to engage PhD students in writing project applications as a part of their doctoral studies.*

The graduate school aims to provide positions for doctoral students with ensured funding for their doctoral thesis research. While it ensures the timely graduation, it may not support the skills needed in establishing new research projects. Participation in project application processes teaches doctoral students' important skills to make their academic career sustainable after graduation.

The doctoral program has introduced a new course in the curriculum (MNI9040 Management of Research Project), which also reviews the application writing process. The participation of students' in the research application writing process is dependent on their supervisors. There appears to be differences in the involvement of the students in the process. It is recommended that students in different stages of doctoral training are involved in the project planning, defining research questions and exploration of different methods to achieve the research objectives successfully. This will also strengthen students' integration into the research community.

13) *PhD students should be prepared to present their research to a wider audience in order to understand its broader relevance and impact for society.*

As recommended, the documentation states that the study programme offers many opportunities for students to train in disseminating their research. The different research groups within the study programme itself create a diverse forum, thus students need to present their work in a manner that reaches an academic audience outside their specific research topic. In addition to the training in writing scientific publications (EXX9090 Scientific Publication), the study programme plans to offer a seminar that aims to student publications

in popular scientific journals and newspapers. Students experience that they are given plenty opportunities to present their work both in seminars but also as conference talks and poster presentations.

14) *Supervisors shall inform PhD students more actively about the opportunities for international mobility and encourage them to take maximum advantage of these opportunities to make international collaboration an integral part of their PhD studies.*

Taltech reported that supervisors inform doctoral students on a regular basis about the mobility opportunities for which there is a good level of funding. In addition, there is a presentation on mobility opportunities at the doctoral school seminars. Supervisors have been informed of opportunities to attend specialization courses in foreign universities.

Information was also provided with respect to mobility schemes as follows:

Mobility scheme	2016/2017	2018/2019	2019/2020
Dora Programm short-term mobility (1-30 days)	17	22	10
Dora Programm long-term mobility (semester)	3	4	2
Kristjan Jaak Programm short-term mobility (1-30 days)	2	0	0
Kristjan Jaak Programm long-term mobility (semester)	2	1	1
Doctoral School Mobility scholarship	7	35	9

The mobility of doctoral students is noted to have increased for 2018/2019 semesters, with a drop in 2020 , in general and dissemination about international opportunities for mobility and adhesion to new mobility programmes should be continued and encouraged. The drop recorded for the period 2019/2020 may be associated to the pandemic, widely affecting mobility in general.

15) *A clear distinction shall be made between the first evaluation of PhD students (12 to 18 months after enrolling) and the following evaluations. The first evaluation indicates explicitly whether the student continues their PhD studies or not, while the following evaluations contribute to graduating within the standard term. Also, a procedure for challenging the evaluation result shall be established.*

The attestation procedure has been developed into the current needs of the study programme while following the university guidelines. The doctoral seminars organized by the study program (2 times per year) are used as an attestation procedure for students with known excellent progress. Students are provided an opportunity for private attestation if necessary. Furthermore, as per recommended, the first attestation focuses on presenting the work plan for the doctoral thesis work and the following attestations support the students in their timely graduation.

16) *The share of international teaching staff shall be increased to facilitate international research collaboration and better mobility of PhD students. A separate plan for recruitment of international doctoral students, post-doctoral researchers and teaching staff should be established at the University level.*

TalTech has addressed this through doctoral seminars and inviting foreign lecturers. TalTech reported that in order to promote research cooperation and promote the mobility of doctoral students, the doctoral school and the department contribute to the organization of doctoral seminars groups, (for example in the form of summer schools). Such focused two-day seminars are attractive for potential foreign lecturers, and thus it is argued that these offer the fastest way to address this issue.

TalTech reports that the university's strategy and strict requirements for lecturers will lead to an increase in the number of foreign lecturers and foreign doctoral students. These create better preconditions for more effective international cooperation. In addition, information on possible foreign lecturers and visiting periods is shared at the department and the university level. The transmission of information on international research collaboration opportunities to doctoral students needs to be improved. In addition, the collaboration in International research projects supports greater opportunities for collaborative research and exchange among staff with their international peers. This also promotes greater exchange of doctoral students among international institutions.

Sufficient information on external and foreign lecturers is not clear and it is recommended that in future reviews, additional information on past international experience of lecturers is included and provided (Rather than nationality it is recommended to focus on international experience and outlook of the academic.

TalTech reported that in 2018 and 2019, the doctoral school organized 6 seminars in both years and that the number of foreign doctoral students and lecturers has increased.

It is reported by TalTech that in 2018, there were approximately four times more foreign students admitted to doctoral studies compared to candidates from Estonia. Several international students also turned out to be selected. In addition, TalTech reported that while in 2013-2017 the share of foreign students in the curriculum group averaged 10%, in recent years with this indicator growing steadily, reaching 24% by the beginning of 2020. In 2017 and 2018, the share of foreign students in the curriculum group was 19.5 and 21.2 percent, respectively (27.9% and 33.7% in the university as a whole in the respective years).

A more focused strategy for international collaboration and participation in European funded programme is encouraged and proposed in order to enhance doctoral student opportunities and also opportunities for Academic staff regarding research visits. The School and the Department can also support through the regular dissemination on research funding programmes and opportunities.

Commendations

1. The study programme has versatile instruments to collect feedback of different aspects of doctoral training and education. Importantly, there is doctoral student and alumni representation in the program council of the curriculum. This provides direct feedback mechanism.
2. The study programme offers a wide range of opportunities for students to improve their skills in scientific communication and dissemination of their research. The new doctoral seminar focusing on disseminating research for wider audience is a good opportunity for students, supervisors and other staff to increased engagement with external entities and identify new research opportunities for both student and staff.
3. The doctoral students are well-integrated into the work community. Students, supervisors, and management have active, open, and friendly communication opportunities, ranging from chance encounters to attestation. While it is important to monitor each students' integration, especially international student and single students in small research groups, there are support mechanisms in place, such as possibility to assign a co-supervisor or a mentor to ensure student's integration.
4. The attestation protocol serves as a supporting mechanism to ensure students' timely graduation. It is used in a dynamic manner, thus ensuring that each student has an opportunity to present their progress in a manner that benefits their development as a researcher – through seminar presentation or private meeting. Importantly, in problematic cases, the attestation is used from both students' and programme's perspective to find solutions to complete the thesis.

Further considerations

1. Discussion based direct feedback may remain undocumented and prove insufficient in conflict situations, for example between student and their supervisors or other members of research group. It is therefore recommended that a low-threshold feedback mechanism is introduced, which is in place for conflict situations. This can be organized, for example, through student council services.
2. Doctoral students are not always fully aware of which workloads they are obligated/entitled and their workload divisions are not sufficiently monitored. It is advisable that time allocated for work tasks outside of the doctoral thesis related work is occasionally planned and monitored in order for both students and supervisors to have clear understanding on the time used for different categories of work.
3. It is recommended that students in different stages of doctoral training are involved more in the new project proposals and their planning, defining research questions and exploration of different methods to achieve the research objectives successfully.
4. A more focused strategy for international collaboration and participation in European funded programme is encouraged and proposed in order to enhance doctoral student opportunities but also opportunities for Academic staff. The School and the Department can also support through the regular dissemination on research funding programmes and opportunities.
5. The continued development and strengthening of the Architecture and urban Design component is necessary to ensure a long-term performance. This can be achieved through the continued assessment of performance and quality while addressing any gaps in the academic staff compliment and main research fields of activity. In this regard in order to strengthen the Architecture and Urban Design component further, a long-term plan with the current strengths and the anticipated developments and target areas of specialization is to be put in place.

Report on meeting the requirements of the secondary condition

General background

At its meeting on June 20, 2018, EKKA Quality Assessment Council for Higher Education decided that the next quality assessment of the Architecture and Civil Engineering study programme group at the level of doctoral studies at the Tallinn University of Technology will take place in seven years (maximum term) but set a secondary condition that university should meet in 2 years.

Meeting of the requirements of secondary condition

The following are the requirements set by the EKKA Council to be met by TalTech, and the expert panel`s assessment on the developments TalTech has made in this regard.

Clause 6 (7) 2) of the Regulation of the Government of the Republic 'Higher Education Standard' sets out that conducting the studies meets the requirements if a lecturer or a researcher conducting the studies (which according to clause 2 (6) of the Higher Education Standard also covers supervisors) has the necessary teaching competencies and their qualification supports achieving the objectives and learning outcomes of the study programme. Only a few members of the teaching staff of the Civil and Environmental Engineering doctoral programme in Architecture and Urban Design (under its new name Civil Engineering and Architecture) hold a doctoral degree. Although recognised architects are involved in teaching, they lack the qualifications needed for supervising PhD students. To fully develop the Architecture and Urban Design field of study, the relevant research focus has to be strengthened at the University, more members of the teaching staff and supervisors shall have a PhD degree; also, better use should be made of collaboration and synergies with the long-standing and successful research teams of the construction field of study.

Assessment of the expert panel: the secondary condition is fully met

On the basis of the information provided, the CVs of the Academic staff engaged, and the report presented in the document entitled: “A report on the Fulfilment of the Side Condition”, it can be noted that there has been significant progress. In addition, it can be demonstrated that there is an ongoing drive to engage more academically qualified staff and further develop and strengthen the Architecture and Urban Design research and doctoral supervision component. Therefore, the expert panel concludes that the Secondary Condition is Fully Met.

Facts and Circumstances

TalTech provided a report on the fulfilment of the secondary condition regarding the Architecture and Building Study Group. In the Report, TalTech reported as follows: [Note: 5 members of the Academic Staff actually were noted to hold a PhD. However, one academic staff member is listed as a PhD student currently at Aalto University in Helsinki (Kimmo Lylykangas) and it could not be verified that he already holds a PhD]:

Side condition report of the study programme indicates that 6 staff members hold a doctoral degree and the moment of writing the Side condition report included staff of 20 + 2 (support staff) members. This is an increase from previous assessment report in 2018 from 14 staff members, where number of ones holding a PhD was not indicated. Further, the unit estimates in the Side condition report to have a staff of 18 + 2 persons of whom 7 will hold PhD degree in 2021. The number of PhD students has risen from 2 students (2018, Assessment report) to 7 students (2020, requested information). The requested material of research groups provided by study programme lists following supervisors for Phd Students in the Architecture and Urban studies: Veronika Valk-Siska, Francesco De Luca, Nele Nutt, Zenia Kotval. In addition, the Side condition report lists senior lecturer Epi Tohvri and Professor Jenni Partanen to have a PhD degree. Furthermore, Tiina Tuulik and Kristi Grisakov are expected complete their PhD in near future according to the Side condition report.

The following information is provided by TalTech outlining the current cohort of PhD supervisors.

Name	Year of birth	PhD	Position	Workload at TTÜ
Supervisors				
Francesco De Luca	1965	+	Researcher	1.0
Kimmo Sakari Lylykangas *	1970	-	Professor	1.0
Nele Nutt	1969	+	Lecturer	0.5
Zenia Kotval	1964	+	Adjunct Professor	0.5
Veronika Valk-Siska	1976	+	Researcher	0.8

- Note Above regarding Kimmo Sakari Lylykangas

1. Currently the number of staff members at the Academy of Architecture and Urban Studies (later referred as Academy) is 20 + 2 (support staff). Six of the staff members hold a doctoral degree.
Most recent doctor-level recruitments are senior lecturer Epi Tohvri (2019) and professor of Future City, Jenni Partanen, who has started in her post in during the spring term 2020. Both of them have a full-time contract.
They will both be involved in supervising doctoral students and also the courses from Special studies module: EAX9033 Architecture and Urban Special Study I, EAX9033 Architecture and Urban Special Study II. Epi Tohvri is already teaching several Master's level courses.
Professor Partanen has not started with her teaching yet. She has prepared her research plan and is in the process of recruiting three new PhD students; currently these PhD student positions are open for applications.
Senior Lecturer Tohvri is currently planning her future research activities and is searching for funding to recruit PhD students.

2. Two staff members are in the process of completing their doctoral degree (Tiina Tuulik, Estonian Arts Academy; Kristi Grišakov, Aalto University). Academy plans to continue employing both of them. In the perspective of 12 months we (TelTech) expect to have a staff of 18+2 persons, of whom 7 are

PhD holders. According to this plan, more than 1/3 of academic staff members at the Academy will hold a PhD in the summer of 2021.
Academy plans to recruit a visiting professor to increase the PhD supervision capacity in the field of urbanism and city planning. The negotiations are in progress. This recruitment is not included in the figures above.
In addition, Academy has encouraged two staff members to start with their PhD studies during 2020.

3. The work of researcher Francesco De Luca is based on the close collaboration with the TalTech researchers in the field of civil engineering (a.o. nZEB research group). The topics of his PhD students (Sepulveda, Vikberg, Eslamirad) are related to building performance, daylighting and machine learning. In the international context these topics could be labelled as architectural engineering.
Professor of Future Cities, Jenni Partanen, has a five-year research plan which applies cross-disciplinary studies related to urbanism, cities and planning. This includes three PhD student posts related to energy, traffic and economy. Co-supervisors are expected to come from other TalTech disciplines. The recruitment is in progress.
Researcher Veronika Valk-Siska and lecturer Kristi Grisakov are participating the FinEst Twins project on Smart Cities. The seven-year project engages a large Finnish-Estonian consortium, aiming at establishing a new center of excellence at TalTech. The researchers from Academy are part of the research stream "built environment", with research topics related to planning processes, participatory planning and sustainability of urban environment. The research team "built environment" consists of researchers with a background in architecture, civil engineering and psychology.
The head of Academy, professor Kimmo Lylykangas is co-supervising two PhD students and has been a member in a PhD defense committee for a dissertation at the Department (Peep Pihelo 6/2020). He received financing for an on-going research project on natural ventilation and wind boosters, carried out in co-operation with professor Martin Thalfeldt.This includes two Master theses in civil engineering, of which the first one was completed and defended in the spring term 2020. Supervisor is prof Thalfeldt and co-supervisor prof Lylykangas.
Academy is constanstly preparing research funding applications, which rely on cross-disciplinary collaboration. The aim is to establish research activities in two new directions. One of the focus areas is related to the sustainability of built environment and carbon neutrality (one international funding application submitted); another one is about immersive reality and new digital applications (a.o. digital twins) in design and planning. Both areas are cross-disciplinary by nature and will include research collaboration within the department. In addition, there is one research project proposal related to advanced timber structures.
As the result of these activities the teaching staff with Ph.D's has increased and will increase further in close future. Staff with Ph.D's is participating in teaching and supervision. Active cooperation with other research groups is ongoing.

In addition, from the information provided by TalTech, in the section specifically focused on the Architecture and Urban Design, 4 out of 5 Academics presented, had a PhD qualification with experience. Their CVs and academic profiles clearly demonstrate years of experience

Supervisors		**Qualification**	
Francesco De Luca	1965	PhD	Researcher
Kimmo Sakari Lylykangas	1970	-	Professor
Nele Nutt	1969	PhD	Lecturer
Zenia Kotval	1964	PhD	Adjunct Professor
Veronika Valk-Siska	1976	PhD	Researcher

It is recommended that the staff records presented include also the level of commitment of the supervisors, whether they are full time staff or part time staff. It is encouraged to strengthen the full-

time staff base while collaborating closely with part time experts as well. In addition, the year of employment of the academics / year of engagement on full-time or part time, also provided important information with regards the academic progression of the individual supervisors and the experienced gained over time. This information is encouraged and shall be provided for future assessment and review of progress and development.

It has been reported by TalTech that two staff members are in the process of completing their doctoral degree; It is to be noted that Academics pursuing a PhD should be encouraged to finalise the PhD within a stipulated timeframe. The time limits set on PhD duration are important also to gauge the level, intensity and quality of the work done at a Level 8 (European Qualifications Framework) Level.

TalTech reported that the Academy is constantly preparing research funding applications, which rely on cross-disciplinary collaboration. The success or otherwise of research funding applications / rate of success has not as such been presented. But it is an important indicator. It is encouraged that the success rate of research project application is recorded in view of research application submissions, type of submissions and funding programme and success or otherwise.

Evaluation of the facts and circumstances

The information provided by TalTech has been duly analysed. The CVs linked to the Supervisors have been duly reviewed. These demonstrate that the Academics are engaged with active supervision and research activity, strengthening the activities put into Architecture and urban Design significantly. In addition, the information provided demonstrates ongoing renewal and strengthening of this field.

On the basis of the information provided, the CVs of the Academic staff engaged, and the report presented in the document entitled: “A report on the Fulfilment of the Side Condition”, it can be noted that there has been significant progress. In addition, it can be demonstrated that there is an ongoing drive to engage more academically qualified staff and further develop and strengthen the Architecture and Urban Design research and doctoral supervision component. Therefore, the expert panel concludes that the Secondary Condition is Fully Met.

Further considerations

The continued development and strengthening of the Architecture and urban Design component is necessary to ensure long-term performance. This can be achieved through the continued assessment of performance and quality while addressing any gaps in the academic staff compliment and main research fields of activity.

In this regard, in order to strengthen the Architecture and urban Design component, a long-term plan with the current strengths, the anticipated developments, and target areas of specialization is to be put in place.