



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

KAUNO TECHNOLOGIJOS UNIVERSITETO
PANEVĖŽIO TECHNOLOGIJŲ IR VERSLO FAKULTETO
STUDIJŲ PROGRAMOS *STATYBOS INŽINERIJA*
(612H20001)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF *CIVIL ENGINEERING* (612H20001)
STUDY PROGRAMME
AT KAUNAS UNIVERSITY OF TECHNOLOGY
PANEVĖŽYS FACULTY OF TECHNOLOGIES AND
BUSINESS

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Išvados parengtos anglų kalba
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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Statybos inžinerija</i>
Valstybinis kodas	612H20001
Studijų sritis	Technologijos mokslai
Studijų kryptis	Statybos inžinerija
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (4 m.), iššęstinė (6 m.)
Studijų programos apimtis kreditais	240 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Statybos inžinerijos bakalauras
Studijų programos įregistravimo data	Lietuvos Respublikos švietimo ir mokslo ministro 1997 m. gegužės 19 d. įsakymu Nr. 565

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Civil Engineering</i>
State code	612H20001
Study area	Technological Sciences
Study field	Civil Engineering
Kind of the study programme	University Studies
Study cycle	First
Study mode (length in years)	Full-time (4 years), part-time (6 years)
Volume of the study programme in credits	240 ECTS
Degree and (or) professional qualifications awarded	Bachelor of Civil Engineering
Date of registration of the study programme	19 of May 1997, under the order of the Minister of the Ministry for Education and Science of the Republic of Lithuania No. 565

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I. INTRODUCTION

This report presents the findings of an evaluation of the programme *Statybos inžinerija* (state code 612H20001), *Civil Engineering* at Kaunas University of Technology Panevėžys Faculty of Technologies and Business (hereafter – Panevėžys Faculty). This four year full-time (6 years part-time) programme leads to a Bachelor of Civil Engineering qualification. The programme was last reviewed in 2011 and 11 recommendations were made – 5 general recommendations and 6 specific recommendations. The programme is in the Civil Engineering (H200 series) study field and shares many study subjects in common with both the Civil Engineering (H200 series; first cycle) study field programme and a new Building Technologies (J800 series; first cycle) study field programme at Kaunas University of Technology (hereafter – KTU) main campus in Kaunas. The Review Group sought early indication from the programme management of their views on the future direction of this programme. They clearly indicated that it should be seen as a Civil Engineering study field programme, (and not Building Technologies), now and in the future. The review was conducted on that basis.

The Review Group were furnished in advance with a Self-evaluation Report (hereafter – the SER), dated 2013, which included comprehensive annexes. Further evidence was gathered during a site visit, which took place on 19 February 2014, including updates since the SER was written on current interim management arrangements and planned changes to management structures. These changes are a consequence of wider restructuring plans across KTU rather than planned changes at the KTU Panevėžys Faculty itself. Discussions were held with the Acting Director, senior Faculty administration staff, staff responsible for preparation of the SER, teaching staff, students, alumni and employers. An evaluation was conducted of teaching premises and equipment including library, laboratories, auditoria, and computing facilities (hardware and software). Final project theses and other coursework were also reviewed.

The review was conducted in accordance with current regulations and guidance furnished to the Review Group through documentation and training by SKVC. The Review Group was also expertly assisted by Ms. Eglė Grigonytė in discharging its responsibilities to SKVC.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The programme aims and intended learning outcomes are clear and well defined in respect of preparing “specialists in Civil Engineering” who are able to work as building project constructors, managers, designers, construction control and auditing organization supervisors, as well as being able to develop their own construction business. This is particularly evident from the programme aims stated in the SER as follows:

- “1) to prepare the specialists in Civil Engineering who are able to work in the following positions: building project constructor and manager, the manager of construction process, technical supervisor, the specialist in consulting, design and construction industry; the expert in building supervision, in the State enterprises for construction control and in real estate companies; the technical expert in auditing organizations as well as be able to establish and develop their own construction business;
- 2) to provide with the necessary learning and practical skills that enable to continue the second cycle studies and professional development.”

The emphasis on building construction is also apparent in the intended learning outcomes, stated in the SER:

- “1) the graduates will know the design, construction and manufacturing methods in civil engineering; 2) will be able to design, to maintain and manage the processes of building construction and construction manufacturing, to solve the engineering problems in construction and the related areas; will understand how to be competitive according to the estimation of costs;
- 3) will know the construction materials and their main characteristics, constructions and building technologies; will be able to apply the relevant ways of constructing, taking into account the limitations of the environment, the implementation cost, work safety, quality and reliability.”

The programme intended learning outcomes are publically accessible through the KTU website: http://uais.cr.ktu.lt/plsql/mod_dest/stp_report_ects.card_ml?p_valkod=612H20001&p_year=2014&p_lang=EN (both in Lithuanian and English languages).

It was clear from the SER and (more especially) from strong representations made from social partners during the site visit that the programme is useful and adopted for the Panevėžys region construction industry needs. The main social partner for this programme is the biggest Lithuanian construction company AB “Panevėžio statybos trestas“ allocated in Panevėžys municipality. Also strong support and need of the programme was expressed from the Mayor of

the Municipality of Panevėžys, who present plans for Panevėžys municipality and North Lithuanian region developments and the programme's importance for the municipality and other region municipalities, including the significance of further modernization. It should be noted that when the Review Group specifically questioned on the issue of "civil engineering specialism" (given the significant emphasis on building technology in the programme), the programme management and co-ordinators made it clear to the Review Group that the programme aims and intended learning outcomes were intended to map to the Civil Engineering study field (H200 series) rather than the Building Technology (J800 series) study field.

In overall, after the analysis of the information provided in the SER and the information received during the meetings, the Review Group could approve, that the programme aims, intended learning outcomes, qualification offered are compatible with each other, but there are some doubts about the content and field of the study programme compatibility. Further comments on the balance between the building technology ethos and civil engineering ethos underpinning the curriculum are presented and evaluated as a separate topic in Section 2.

2. Curriculum design

The study programme is compiled in compliance with the regulations of the State and resolutions of the Senate of Kaunas University of Technology. An analysis of the programme shows that, despite of the fact that study programme should be more oriented to the Civil Engineering field of study rather than Building Technologies, it technically complies with the requirements set in the Order of the Minister for Education and Science of the Republic of Lithuania "General Requirements for First Degree and Integrated Study Programmes" (Order No. V-501, 9 April 2010): special subjects in the study field comprise at least 183 ECTS of the programme's 240 ECTS. General university study subjects comprise 18 ECTS. Little more than 24 ECTS are identifiable as either elective study subjects, subjects of another field of study, general study subjects, practice or free electives; possibly because low enrolment numbers make it difficult to offer a wide choice of electives. It is noted that the 15 ECTS of practice is composed of a combination of internship (12 ECTS) and geodesy field work classes (3 ECTS). It is recommended that the full 15 ECTS of practice be conducted with industry. The practice components in geodesy are part of the related subject and should not be counted as internship (the provision of the Minister's for Education and Science Order "General Requirements for First Degree and Integrated Study Programmes": "10. Internship shall be considered one of the seven separate study subjects if it is not associated with any of the subjects studied, or, in case it is associated with one of the subjects, the programme providers have reason to consider it

separable from the subject studied. In case practise is constituent part of the subject, it should not be included in the list of the subjects studied”). The final thesis is valued at 12 ECTS, which is satisfactory.

However, the Review Group advise that attention should be paid to their finding that the balance of the curriculum is drifting towards a ‘building technologies’ programme, rather than an internationally recognised ‘civil engineering’ programme. This is particularly the case in respect of the analytical attributes of the graduates. Although the programme is modelled on the *Civil Engineering* Bachelor programme presented at Kaunas campus, up to 20% of the programme may be varied in the structure of the programme delivered at KTU’s Panevėžys Faculty. Currently the variation is becoming quite skewed towards building technologies rather than civil engineering. For example, an emphasis is put on construction economics, building physics, building materials, urban planning and architecture, heritage protection, manufacturing technology of building products and structures, construction technology and organisation, construction machinery. Equally the electives are centred around semester projects on building structures, building products technology, construction technology and organisation, construction management. This must ultimately impact on the actual learning outcomes and graduate attributes.

A detailed comparison of the curriculum against a similar civil engineering programme in Lithuania highlights how the credits are biased towards construction and management rather than the balance of analysis, design and professional practice normally associated with a civil engineering degree programme, internationally. The credits for mathematics (including probability and statistics) are 15% less that in an analogous programme. Engineering mechanics and structural mechanics credits are 42% less. Fluid mechanics is 40% less. Credits for design subjects related to structural materials are 46% less. On the other hand, the credits devoted to philosophy and communication are twice that in an analogous programme. Credits for IT studies are twice as much. More credits are also devoted to geodesy and its practice, building materials, building systems, manufacturing technology of building products and structures, construction machinery, and 9 ECTS elective semester projects are dominated by building products and construction technology. This emphasis on study subjects for construction and construction-related industries reduces the time available for deep learning in fundamental civil engineering design studies and analytical skills development. Therefore problem-solving skills may not be sufficiently developed due to emphasis on construction industry knowledge rather than the critical thinking skills expected of civil engineer graduates. In this context the Review Group were especially mindful of the recommendation made in the previous review: “Based on

discussions with alumni, it is recommended to support Structural analysis and design course”. However the Review Group found that this has not been addressed and remains a significant weakness in the development of appropriate graduate attributes in the context of a civil engineering programme. It is recommended that the analytical and design skills of the students be considerably strengthened by changes in the curriculum. This includes setting more challenging requirements for the level of structural analysis knowledge and skill assessed in the final project module. The bias towards building technologies is evident in the final theses as well. The Review Group noted during the site visit that the theses reviewed were too heavily dominated by construction topics without sufficient opportunity for the students to demonstrate critical thinking skills. Students need development of more design, critical thinking skills and ability to conduct independent research. This should be demonstrated and assessed at least in the final project. Failure to address would represent a failure to provide an adequate challenge for talented students of the region.

On a general note, the programme management may wish to consider if any implications arise for the curriculum from future development perspectives from the European Union and Lithuanian Government plans regarding Horizon 2020 implementation plans. Issues including energy efficiency improvement, infrastructure development needs, environment protection, sustainable development issues, public private partnership projects, digital construction and other important topics may be worthy of development as free selection study subjects, developed together with business company representatives. Such need, for example regarding digital construction developments, were already mentioned within the meeting with social partners. The Review Group noted from employers the significance of ongoing changes in fire regulations and also developments in Building Information Management (BIM) systems. It would be helpful if the programme co-ordinators would especially monitor these developments.

3. Staff

The teaching staff comprises 13 members of whom about two-thirds are professors and associate professors. The number of staff members with Ph.D. degrees and who work full-time exceeds half and reached 69% in the last academic year. The majority of teachers carry greater than half-time academic workload and publish scientific works. The teaching staff resource is currently sufficient to ensure an adequate provision of the programme (regarding turnover, the teaching staff is basically stable). Looking to the future, the provision of an adequate resource needs to take account of the decreasing number of students on the programme. Student:staff ratios during the last 3 years have decreased (2010-2011; 2011-2012; 2012-2013) from 26 to 19 to 10.

Staff members have the possibility to raise their qualification – if teaching load allows, the lecturers can do research or develop their professional qualifications. Staff development and research activities are well constructed. Lecturers' publications reflect involvement in research activities at an acceptable rate of publication output, despite the disadvantage of not having doctoral students. Half of the staff (6 out of 13) carry out research directly related to the subjects that they teach. The 4 associated professors have formed a research group undertaking projects, including those funded by the Lithuanian Science Council. This addresses some concerns raised in the previous evaluation.

Approximately half of the lecturers took part in international short-term teaching and training exchange programmes in countries, such as Belgium, Finland and Spain. Measures to enhance research support for staff, including encouragement of international collaborations, should be addressed. As a general point such encouragement needs to be done through contractual arrangements at the level of the University but this is more fundamentally an issue for the Republic of Lithuania. The Ministry for Education and Science of the Republic of Lithuania needs to consider how best resources can be directed at growing research capacity through revised contractual arrangements in respect of the percentage of workload devoted to teaching in research-intensive universities.

In summary, the staff numbers, qualification and quality are high enough to ensure the required level of education. The development of more links to international research projects should be encouraged by the University and, more generally by the Ministry for Education and Science through suitable contractual arrangements in respect of teaching hours commitments that allow development of sustained researcher profiles.

4. Facilities and learning resources

The premises for studies are more than adequate both in their current size and quality. However this could be a future challenge to sustain given the problem of infrastructure maintenance management in older buildings. All premises meet requirements of safety and hygiene. The Review Group noted very generous faculty building infrastructure relative to the low student numbers in academic groups but note that the programme managers are making increased efforts to attract students in future and this problem should be solved.

All classes of the *Civil Engineering* study programme, including the general study subjects are usually taught in the premises of the Faculty of Technologies. The Review Group noted ample

workplaces in auditoria, 15 workplace IT laboratory, 8 distinct laboratories and a 42 place library. Students and staff in general are very satisfied with the premises at present.

The *Civil Engineering* study programme students can use the reading hall located in the faculty and the main library-reading hall. The library subscribes annually to adequate technical journals, including those related to construction engineering. Students of the *Civil Engineering* study programme can use 19 electronic databases in the library and through computers at home via the library subscription to Ebrary, SpringerLINK and Synthesis Digital Library of Engineering and Computer Science. The opening hours of the libraries (9 am – 6 pm weekdays and 9 am – 2 pm Saturdays) are tailored to demand and students' wishes, such that they are extended during the examination period. The library also provides students with a facility to obtain printed editions from other libraries. There are books stocked in the English and Russian languages, both in the libraries and the reading room.

Regarding practical training and laboratory work, the number of laboratories is sufficient and the number of workplaces is adequate. Laboratories include those for fundamental studies (physics and chemistry), as well as more specialist studies (thermodynamics, optics, material durability, metrology, soil mechanics, surveying, geology). The classroom and laboratory computers administered by the IT centre are supplied with updated software for study process and specialised programmes for *Civil Engineering* programme students, such as MathCAD, Matlab, Statistica, AutoCAD, Samanta. Modern laboratory equipment is combined with basic civil engineering tools.

The laboratories provide the necessary personal safety equipment (goggles, aprons, gowns, caps, etc.). Students are given safety instructions before laboratory work and sign in the work safety register. There is an option to use your personal PC by having wireless connection to the local network. However wireless Internet connection could be improved, particularly in remote laboratories.

Computer classes have new equipment. Computers are provided with necessary software and special software for the *Civil Engineering* study programme. Current software meets the nature of study subjects taught in the study programme. Capacity is sufficient. All software used in the study process is updated regularly. An additional 15 workplace computer stations are accessible for students in their free time.

Students perform training practice and professional training practice. During the training students are able to use Panevėžys Faculty equipment. Also the programme co-ordinators see the

need to hold as many excursions for students to companies as possible. These visits to companies producing a variety of building materials provide an introduction to manufacturing technology and job characteristics. Kaunas University of Technology Panevėžys Faculty of Technologies and Business has several agreements with construction companies of the county. In addition students can approach companies from other regions and students can select placement locations into these other companies themselves. No problems with training places were reported to the Review Group.

5. Study process and student assessment

Admission to the undergraduate *Civil Engineering* degree programme is executed under the provisions of the general rules of Lithuanian Higher Education Association for General Admission. Admission is carried out by KTU Rector's order of selective faculty committee and takes place in two stages: the general secondary school enrolment in the study programme under a common request, and after that competing for the remaining free state-funded and non-funded places. The admission requirements are thus well-founded. However, the number of students enrolled dramatically decreased since 2010 to around 10, which is clearly not sufficient to meet the social and regional needs for this programme. The programme is failing to attract a viable cohort of talented students. Several external reasons have been proposed during the interviews to explain this phenomenon: the financial crisis, particularly stringent in the building sector, the significant emigration (young Lithuanian people having left the country), the low demography, the better attractiveness of the capital Vilnius. KTU Panevėžys Faculty provides a list of possible actions to better promote the programme, like attending fairs, and workshops, launching a promotional film, spreading various leaflets and flyers and is clearly supported by the city in this direction. The Review Group encourages KTU Panevėžys Faculty to increase the programme visibility and attractiveness, particularly to the best students, associating, for instance, the students and the stakeholders to their actions.

The study process gives a reasonable provision of the programme and the achievement of the intended learning outcomes. A quite good attention has been paid by KTU Panevėžys Faculty to cross the learning activities with the intended learning outcomes showing a reasonably balanced exposure to the latter. The competences related to design are however under-represented comparing to construction technologies. The language training remains insufficient as well. Optional non credited courses are offered in Semesters 1 and 2 (level B2) while a mandatory course is organized in Semester 4 (level C1). KTU Panevėžys Faculty is invited to reconsider the sequence and to assign credits to all the learning activities (see the ECTS guide

http://ec.europa.eu/education/tools/docs/ects-guide_en.pdf). Students have clearly expressed their wish to be taught in English or Russian in some courses from Semester 5 and KTU Panevėžys Faculty is encouraged to address this request.

The timetable is completed by the Dean of the Faculty, matching and adjusting it to the study subjects delivered by the teachers and with regard to the students' requests, also based on students' classroom flow rates. The Review Group however encountered situations where the sequence should be checked carefully (prerequisites).

The most brightest students are encouraged to participate in research activities but the intended learning outcomes related to investigation could be addressed by the study programme more sufficiently. A deeper attention should be paid to develop research skills ('investigation') for all the students during this Bachelor degree programme, in particular regarding the final project which is, so far, restricted to an integrated design exercise not offering any research or innovation perspective and whose requirements should be more challenging for the level of structural analysis.

There exist many ERASMUS student exchange partnerships and some students have benefited from this mobility (5 students in 2010/2011; 4 in 2011/2012; 1 in 2012/2013), mainly in the Scandinavian countries. It is recommended that KTU Panevėžys Faculty further analyse the reason for low take up of exchanges, particularly the attractiveness and reputation of their partners and the student preparation and promotion for mobility.

KTU Panevėžys Faculty is providing an excellent level of academic and social support. The panel would like to emphasize the significant improvement there. KTU Panevėžys Faculty produces two excellent university books ("KTU Study Programs" and "Studying and leisure time for KTU students"). KTU Panevėžys Faculty is also providing a Career Centre, scholarships for students (sometimes funded by private sponsors) and accommodation for the students. Student representatives are in place but their active participation to the programme management should be better encouraged and formalized. Most of the students have a part-time job, but KTU Panevėžys Faculty should find a way to better associate students to the management activities. Surveys are organised, but again could be filled and exploited more sufficiently. It was clear to the Review Group that the students particularly appreciate the staff openness and availability to discuss students' matters.

The assessment is based on a 10 points grading system. It is clear and publicly available (during an introductory lecture and on institutional website). In order to foster Erasmus mobility and

mutual recognition, KTU is encouraged to also produce the scores in the ECTS grading system and to develop the diploma supplement, as stated in the ECTS guide http://ec.europa.eu/education/tools/docs/ects-guide_en.pdf. The criteria to assess the final degree project are clearly stated. The final grade is the result of a well justified weighted average (the subject cumulative points score – the total of semester assignments and exam scores – are entered by the lecturer into the KTU database, which is also accessible to the students). An appeal procedure has been implemented and the students confirm that they do now have the opportunity to discuss their examination.

Professional expectations towards civil engineering skills have been expressed by a survey (2013) and by many stakeholders during the interviews. Alumni have given very good testimony on the relevance of their skills. Rate of employability in the SER are however surprising low (from 47,7% to 61,1%). During the interviews, the Review Group has been informed that they were probably misinterpreted. KTU Panevėžys Faculty is invited to better trace their alumni and to secure these figures.

6. Programme management

The Review Group were briefed by the Acting Director on changes in the management structure at KTU Panevėžys Faculty. Hitherto the programme was managed at departmental level by the Head of the Civil Engineering Department. The new arrangements will see the establishment of a Department of Technologies and a Department of Business in the Faculty. This will result in the programme being delivered by a department in which only 30% of the staff members are from the civil engineering study field. The initial impact on programme management could be limited because the Faculty of Technologies does not have its own Study Programme Committee. This oversight is appropriately conducted through the Study Programme Committee of Civil Engineering in the KTU Faculty of Civil Engineering and Architecture of which the Panevėžys Faculty current Head of the Civil Engineering Department is a member. Given the significance of the relationship of this programme with local economic developments (free economic zone), the programme aims may benefit from future closer working relationships in the KTU Panevėžys Faculty between Technologies and Business through the restructuring at departmental level.

The Study Programme Committee has student representation. However it seems that these students come exclusively from the Kaunas-based programmes. Additionally the students on the Panevėžys-based programme are not very pro-active, as well in their engagement with student surveys. To counteract this lack of formal engagement with published operating procedures, a

number of positive measures have been taken locally. These include surveys conducted by the Student Union and the appointment of a teacher-mentor, who regularly meets the students. The teacher-mentor feeds information to the Vice-dean for studies and reports back to the students. These are really positive initiatives, though the Review Group would like to encourage programme managers to continue their efforts in trying to use formal internal quality management structures, including proactive facilitation of student involvement in the Study Programme Committee and greater use of feedback loops. Some difficulties are also connected with time required for travelling from Panevėžys to Kaunas to take part in University organised meetings. However these negative aspects are out-weighed by advantages in being close to the main players in the regional market and responsiveness to regional interests and needs.

Despite the disadvantages of distance from the University's Kaunas base, the administration and quality assurance is supported by a virtual environment on which updated documents and databases are loaded. In addition a comprehensive quality assurance handbook has been prepared.

A significant challenge for the programme management is to stabilise the situation in respect of demand by prospective students. Within the last three years 2010-2013 the admission to this programme was 10-13 students, whereas in 2009-2010 it was 24. Within meetings it was explained that this situation is related to the economic downturn and the especially deep construction sector crises within the period from 2009 to 2012. It will require a period to recover, especially within the regions. The future demand is expected to be better. Despite this there is still a question as to whether or not there is a critical mass of full-time students available to allow adequate learning from one another in a class group atmosphere. The programme management has prepared a plan to actively promote the programme to school leavers. During the site visit meetings different Faculty initiatives for 3-4 class and 9-12 class pupils were mentioned, to show the attractiveness of engineering careers to school students. Also presented were additional activities with social partners for establishing special scholarships for regional students. That is really a positive step by the programme managers and clear effort trying to solve a problem.

The students, staff and social partners have structures allowing involvement in evaluation and improvement of study processes. Since 2010 the Faculty organises meetings twice a year with representatives of business, industry and the City / Municipality. External stakeholder involvement largely extends to the opinions of significant local employers. This has advantages and disadvantages at the same time. In the Review Group point of view, it could be, that focusing solely on local developments without taking account of longer term issues in the

context of future European developments in the academic formation of chartered civil engineers, causes problems in curriculum. This aspect has been covered in this review through comments on the curriculum (Section 2).

III. RECOMMENDATIONS

1. The programme management are commended on their awareness of the need to actively promote the importance of the programme to the regional economic and societal needs. It is recommended that they increase their efforts in this regard, in collaboration with current students, alumni and other stakeholders in schools, industry, regional and national Government.
2. The previous review made the following recommendation: “Based on discussions with alumni, it is recommended to support Structural analysis and design course”. However the current Review Group found that this has not been addressed and remains a significant weakness in the development of appropriate graduate attributes. It is recommended that the analytical and design skills of the students be considerably strengthened by changes in the curriculum. This includes setting more challenging requirements for the level of structural analysis knowledge and skill assessed in the final project.
3. Students need development of more design, critical thinking skills and ability to conduct independent research. This should be demonstrated and assessed at least in the final project.
4. It is noted that the 15 ECTS of practice is composed of a combination of internship (12 ECTS) and geodesy field work classes (3 ECTS). It is recommended that the full 15 ECTS of practice be conducted with industry. The practice components in geodesy are part of the related subject and should not be counted as internship.
5. Measures to enhance research support for staff, including encouragement of international collaborations, should be addressed. This needs to be done at the level of the university but also is an issue for the Republic of Lithuania.
6. It is recommended that the reasons for low take-up of ERASMUS exchange opportunities be analysed and addressed.
7. The programme could be improved by more effective use of the internal quality assurance arrangements, including proactive facilitation of student involvement in the Study Programme Committee, despite the inconvenience of distance from Kaunas.

IV. SUMMARY

The programme aims and intended learning outcomes are clear and well defined. The programme is useful and adopted for the Panevėžys region construction industry needs. The teaching staff resource is currently sufficient to ensure an adequate provision of the programme. The students particularly appreciate the staff openness and availability. Looking to the future, the provision of an adequate resource needs to take account of the decreasing number of students on the programme. KTU Panevėžys Faculty is providing an excellent level of academic and social support, for example, through the publications “KTU Study Programs” and “Studying and leisure time for KTU students”). Support includes a Career Centre and scholarships for students, including those funded by private sponsors.

The balance of the curriculum leans more towards a Building Technologies field programme than a Civil Engineering field programme in respect of the analytical attributes of the graduates. The programme curriculum is heavily biased towards construction and management rather than the balance of design and professional practice normally associated with a civil engineering degree study programme, internationally. The competences related to design are under-represented comparing to construction technologies. The heavy emphasis on study subjects for construction and construction-related industries reduces the time available for deep learning in fundamental civil engineering design studies and analytical skills development. The final project topics are too heavily dominated by construction topics without sufficient opportunity for the students to demonstrate critical thinking skills. Students need development of more design, critical thinking skills and ability to conduct independent research. The final project is restricted to an integrated design exercise not offering any research or innovation perspective and whose requirements should be more challenging in respect of structural analysis. It is recommended that the analytical and design skills of the students be considerably strengthened. Failure to address this would represent a failure to provide an adequate challenge for talented students of the region.

The largest Lithuanian construction company is located in the region, but there is still a question as to whether or not there is a critical mass of full-time students available to allow adequate learning from one another in a class group atmosphere. The number of students enrolled dramatically decreased since 2010 to around 10, which is clearly not sufficient to meet the social and regional needs for this programme. The programme is failing to attract a viable cohort of talented students.

V. GENERAL ASSESSMENT

The study programme *Civil Engineering* (state code – 612H20001) at Kaunas University of Technology Panevėžys Faculty of Technologies and Business is given **positive** evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	3
2.	Curriculum design	2
3.	Staff	3
4.	Material resources	4
5.	Study process and assessment (student admission, study process student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	3
	Total:	18

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;

2 (satisfactory) - meets the established minimum requirements, needs improvement;

3 (good) - the field develops systematically, has distinctive features;

4 (very good) - the field is exceptionally good.

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**KAUNO TECHNOLOGIJOS UNIVERSITETO PANEVĖŽIO TECHNOLOGIJŲ IR
VERSLO FAKULTETO PIRMOSIOS PAKOPOS STUDIJŲ PROGRAMOS STATYBOS
INŽINERIJA (VALSTYBINIS KODAS – 612H20001) 2014-05-15 EKSPERTINIO
VERTINIMO IŠVADŲ NR. SV4-239-2 IŠRAŠAS**

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Kauno technologijos universiteto Panevėžio technologijų ir verslo fakulteto studijų programa *Statybos inžinerija* (valstybinis kodas – 612H20001) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	3
2.	Programos sandara	2
3.	Personalas	3
4.	Materialieji ištekliai	4
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	18

* 1 - Nepatenkinamai (yra esminių trūkumų, kuriuos būtina pašalinti)

2 - Patenkinamai (tenkina minimalius reikalavimus, reikia tobulinti)

3 - Gerai (sistemiškai plėtojama sritis, turi savitų bruožų)

4 - Labai gerai (sritis yra išskirtinė)

IV. SANTRAUKA

Programos tikslai ir numatomi studijų rezultatai yra aiškūs ir tinkamai apibrėžti. Programa yra pagrįsta darbo rinkos poreikiais, taip pat atitinka Panevėžio regiono statybos pramonės reikmes. Akademinio personalo ištekliai šiuo metu yra pakankami tinkamo programos vykdymo užtikrinimui. Studentai vertina dėstytojų atvirumą ir prieinamumą. Norint ateityje išlaikyti esamus personalo išteklius, būtina atsižvelgti į studijų programoje mažėjantį studentų skaičių. Kauno technologijos universiteto Panevėžio technologijų ir verslo fakultetas užtikrina aukšto lygio akademinę ir socialinę paramą studentams, kaip tai iliustruojantį pavyzdį galima būtų paminėti, publikacijas: „KTU studijų programos“ ir „KTU studentų studijos ir laisvalaikis“. Paramą studentams taip pat teikia ir Karjeros centras, studentams mokamos stipendijos, įskaitant ir privačių rėmėjų finansavimą.

Analizuojant studijų programos sandarą iš studentų analitinių gebėjimų ugdymo perspektyvos, akivaizdu, kad programa yra labiau orientuota į statybų technologijas nei į statybos inžineriją.

Programoje itin daug dėmesio skiriama konstrukcijoms ir vadybai, lyginant su projektavimu ir profesine praktika. Ši tendencija yra neįprasta užsienio šalyse vykdomų statybos inžinerijos studijų programų atžvilgiu. Kompetencijoms, susijusioms su projektavimu, studijų programoje skiriama nepagrįstai mažai dėmesio. Vietoje to, programoje pabrėžiamas konstrukcijų technologijų aspektas. Dėl ypatingai daug skiriamo dėmesio studijų dalykams, susijusiems su konstrukcijomis, ir atitinkamoms statybos pramonės šakoms, per mažai laiko lieka gilesnėms projektavimo studijoms ir analitinių gebėjimų ugdymui. Studentų baigiamųjų darbų temos taip pat dažniausiai yra susijusios su konstrukcijomis, todėl studentai neturi pakankamai galimybių pademonstruoti kritinio mąstymo įgūdžių. Reikėtų žymiai daugiau dėmesio skirti projektavimo, studentų kritinio mąstymo įgūdžių ir gebėjimo savarankiškai atlikti mokslinius tyrimus ugdymui. Baigiamuosiuose studentų darbuose apsiribojama integruota projektavimo užduotimi, nesiorientuojant į jokią mokslinių tyrimų ar inovacijų perspektyvą; baigiamiesiems darbams turėtų turėti būti keliami aukštesni reikalavimai, susiję su struktūrine analize. Rekomenduojama stiprinti studentų analitinius ir projektavimo gebėjimus. Jei tai nebus padaryta, atitinkamai talentingiems regiono studentams nebus suteiktos jiems būtinos galimybės.

Nors šiame regione veikia viena didžiausių Lietuvos statybos įmonių, vis dėlto lieka neaišku, ar nuolatinių studijų studentai sudarys kritinę masę, kuri yra reikalinga adekvačiam mokymuisi grupinių užsiėmimų metu. Nuo 2010 m. priimamų į studijų programą studentų skaičius sumažėjo iki maždaug dešimties. Pažymėtina, kad šis skaičius nėra pakankamas siekiant tenkinti regiono socialinius ir ekonominius poreikius. Šiuo metu programa patiria sunkumų pritraukiant reikiamą talentingų ir perspektyvių studentų skaičių.

III. REKOMENDACIJOS

1. Už studijų programos vadybą atsakingus asmenis galima pagirti už tai, kad jie suvokia reikmę aktyviai populiarinti ir akcentuoti programos svarbą tenkinant regiono ekonominius ir socialinius poreikius. Rekomenduojama aktyviai vykdyti minėtąją veiklą, kartu didinant bendradarbiavimą su dabartiniais ir buvusiais studentais, socialiniais dalininkais mokyklose, pramonės sektoriumi bei su regiono ir šalies valstybės valdymo institucijomis.
2. Ankstesnio išorinio vertinimo metu buvo pateikta tokia rekomendacija: „Remiantis programos absolventų susitikimų metu pateikta informacija, rekomenduojama tobulinti Struktūrinės analizės ir projektavimo studijų dalyką“. Vis dėlto, ekspertų gupės manymu, ankstesnė rekomendacija įgyvendinta nebuvo. Taigi, atitinkamų studentų įgūdžių ugdymas išlieka programos silpnybe. Rekomenduojama skirti žymiai daugiau dėmesio

studentų analitinių ir projektavimo įgūdžių tobulinimui, atitinkamai peržiūrint ir pakoreguojant programos sandarą. Tai turėtų būti tiesiogiai susiję su aukštesnio lygmens reikalavimų kėlimu studentų struktūrinės analizės žinioms ir įgūdžiams, kurie būtų vertinami studento baigiamajame darbe.

3. Reikėtų daugiau dėmesio skirti studentų gebėjimų projektuoti, kritiškai mąstyti ir savarankiškai atlikti mokslinius tyrimus ugdymui. Tai turėtų atsispindėti ir būti įvertinama bent jau baigiamuosiuose studentų projektuose.
4. Pažymėtina, kad 15 ECTS praktiką sudaro praktika įmonėje (12 ECTS) ir geodezijos (mokomieji) lauko užsiėmimai (3 ECTS). Rekomenduojama, kad visa praktika, kuriai skiriama 15 ECTS, būtų atliekama įmonėse. Geodezijos (mokomieji) praktiniai užsiėmimai yra susijusio studijų dalyko dalis, todėl jos nereikėtų priskirti atskirai praktikai.
5. Reikėtų imtis priemonių, užtikrinančių didesnę paramą akademiniam personalui, atliekančiam mokslinius tyrimus, įskaitant tarptautinį bendradarbiavimą. Tai turėtų būti atliekama universiteto lygmeniu, kartu tai yra ir Lietuvos Respublikos turimos teikti pagalbos objektas.
6. Rekomenduojama išnagrinėti itin nedidelio ERASMUS mainų programos populiarumo priežastis ir spręsti šią problemą.
7. Studijų programą būtų galima patobulinti taikant efektyvesnes vidines studijų kokybės užtikrinimo priemones, įskaitant proaktyvų pasinaudojimą studentų įtraukimu į Studijų programos komitetą, neatsižvelgiant į galimus nepatogumus, sukeliamus pakankamai didelio atstumo tarp Kauno ir Panevėžio miestų.

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Paslaugos teikėjas patvirtina, jog yra susipažinęs su Lietuvos Respublikos baudžiamojo kodekso¹ 235 straipsnio, numatančio atsakomybę už melagingą ar žinomai neteisingai atliktą vertimą, reikalavimais.

¹ Žin., 2002, Nr.37-1341.