



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Kauno technikos kolegijos
**STUDIJŲ PROGRAMOS "STATYBOS INŽINERIJA" (valstybinis
kodas – 653H20001)**
VERTINIMO IŠVADOS

EVALUATION REPORT
OF "CIVIL ENGINEERING" (state code - 653H20001)
STUDY PROGRAMME
at Kaunas Technical College

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Išvados parengtos anglų kalba
Report language – English

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Statybos inžinerija</i>
Valstybinis kodas	653H20001
Studijų sritis	Technologijos mokslai
Studijų kryptis	Statybos inžinerija
Studijų programos rūšis	Koleginės studijos
Studijų pakopa	Pirmoji studijų pakopa
Studijų forma (trukmė metais)	Nuolatinės (3) Iššestinės (4)
Studijų programos apimtis kreditais	180 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Statybos inžinerijos profesinis bakalauras
Studijų programos įregistravimo data	2002-08-30

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Civil Engineering</i>
State code	653H20001
Study area	Technological Sciences
Study field	Civil Engineering
Type of the study programme	College Studies
Study cycle	First cycle studies
Study mode (length in years)	Full time (3) Part time (4)
Volume of the study programme in credits	180 ECTS
Degree and (or) professional qualifications awarded	Professional Bachelor Degree in Civil Engineering
Date of registration of the study programme	30-08-2002

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I. INTRODUCTION

1.1. Background of the evaluation process

The evaluation of on-going study programmes is based on the **Methodology for evaluation of Higher Education study programmes**, approved by Order No 1-01-162 of 20 December 2010 of the Director of the Centre for Quality Assessment in Higher Education (hereafter – SKVC).

The evaluation is intended to help higher education institutions to constantly improve their study programmes and to inform the public about the quality of studies.

The evaluation process consists of the main following stages: 1) self-evaluation and self-evaluation report prepared by Higher Education Institution (hereafter – HEI); 2) visit of the review team at the higher education institution; 3) production of the evaluation report by the review team and its publication; 4) follow-up activities.

On the basis of external evaluation report of the study programme SKVC takes a decision to accredit study programme either for 6 years or for 3 years. If the programme evaluation is negative such a programme is not accredited.

The programme is **accredited for 6 years** if all evaluation areas are evaluated as “very good” (4 points) or “good” (3 points).

The programme is **accredited for 3 years** if none of the areas was evaluated as “unsatisfactory” (1 point) and at least one evaluation area was evaluated as “satisfactory” (2 points).

The programme is **not accredited** if at least one of evaluation areas was evaluated as “unsatisfactory” (1 point).

1.2. General

The Application documentation submitted by the HEI follows the outline recommended by the SKVC.

1.3. Background of the HEI/Faculty/Study field/ Additional information

Kaunas Technical College (hereafter KTC) is a HEI that provides first cycle education and training for specialist in engineering field by implementation of corresponding study programmes and their periodical improvement to meet most modern, innovative level and keep competitiveness in educational market.

The Constituent and Academic Councils, the Director and Students‘ Union manage KTC. Departments of Study and Education, Communication and Study Quality are directly subordinate to the Deputy Director for Academic Work. There is one Faculty of Engineering Sciences that is formed by Departments of Transport and Mechanics Field Study Programmes, Electronics and Electric Engineering Field Study Programme and Civil Engineering Field Study Programme.

Civil Engineering, Road Engineering and Heritage Structure Engineering programmes are supervised by Department of Civil Engineering Field Study Programmes.

Last time study programme was evaluated by external experts in 2010 year.

1.4. The Review Team

The review team was completed according *Description of experts' recruitment*, approved by order No. 1-01-151 of Acting Director of the Centre for Quality Assessment in Higher Education. The Review Visit to HEI was conducted by the team on 21/11/2016.

1. **Prof. Roode Liias (team leader)**, *Professor of Tallinn University of Technology, Estonia;*
2. **Prof. Rui Ramos**, *Professor of University of Minho, Braga, Portugal;*
3. **Prof. Wojciech Gilewski**, *Professor of Warsaw University of Technology, Poland;*
4. **Prof. Nikolaos Theodosiou**, *Professor of Aristotle University of Thessaloniki, Greece;*
5. **Mr Artiomus Kuranovas**, *“Trevita”, director, Lithuania;*
6. **Ms Milena Medineckienė**, *student of KTH Royal Institute of Technology, Sweden.*

II. PROGRAMME ANALYSIS

2.1. Programme aims and learning outcomes

The general programme aims (SER p.4-5, KTC webpage) are well defined and are following:

- to provide knowledge and essential skills in Civil Engineering, application in modern, innovative products and technologies application for local and global markets, knowledge of basic humanities and social sciences, analytical, creative and critical thinking, ability to enhance professional skills during life-long learning as well as establish and develop own construction business;
- to develop interest in Civil Engineering scientific information, to combine knowledge and skills with business and management bases, and comprehend decision making influence and significance for societal development as well as broad erudition.

Aims and learning outcomes are publicly accessible: published in KTC's website and Education Exchanges Support Foundations., AIKOS system. According to information provided in SER (p. 6) aims and learning outcomes are presented in meetings with schoolchildren. However learning aims founded in English on college webpage <http://www.ktk.lt/assets/Uploads/SP-APRASAS-SI-eng.pdf> differs from provided in SER with stressing on aims "...to provide fundamental knowledge of foreign language for profession", "...to provide knowledge and ability to apply the national and international quality standards in business and management" that are partly

or fully missed in SER's aims. So, this requires to unify learning outcomes and aims to be the same in all official documents, data sources.

In comparison to the previous evaluation report programme aims and learning outcomes are updated and formulated according to the descriptor of the study field of Engineering and mainly focused to graduates' knowledge and personal-social abilities, engineering tasks, applied research and analysis, supporting it by ensuring mobility of the graduates on a national and international level, and allowance for continuing lifelong learning.

Learning outcomes are directed towards knowledge acquisition, its application, abilities to conduct research, special, social, and personal abilities, and correspond to first cycle study qualification programme's aims, its name. Civil Engineering study programme combines the aspects of applied nature and academic education criteria for First Cycle Professional Bachelor Degree Studies.

Revision of different subject descriptors (SER's Annex 6) shows that learning outcomes correspond to general programme aims and learning outcomes as well as quality of Final Theses provided for experts' evaluation. In general, Final Theses topic and content are adequate for Civil Engineering Bachelor Degree level. However, experts recommend to introduce more research activities (even in theoretical level) and use more international literature references and other sources in Theses preparation.

The programme aims and learning outcome based on labour market demands and public needs. Civil Engineering study field as a part of the national and EU construction industry plays a significant role in the national (creates up to 1/10 Lithuanian GDP) and EU economy. Expanding national real estate market, foreign investments and state level House Modernisation programme that requires advanced and innovative buildings' construction and buildings' products manufacturing technologies increase demand for construction specialists. The demand for Civil Engineering programme is represented by graduates employment results - in average about 80% of graduates employed (provided in SER's Table 17), survey of Lithuanian employers and was stressed by social partners during programme evaluation meetings.

Faculty provides possibility to social partners and alumni participate in annual survey and development of learning outcomes by expressing their demands and opinion on existing one.

2.2. Curriculum design

Curriculum design of the Civil Engineering programme meets legal requirements. Full-time and part time studies last for 3 and 4 years correspondingly, duration of the academic semester and year, separate subject's volume and content as overall curriculum design of programme are in compliance with the European credit structure, correspond programme's aims and provide

necessary learning outcomes for Civil Engineering graduates that receive Professional Bachelor Qualification Degree.

The scope of the programme is 180 credits including theoretical, practical and individual studies. The study programme structure consists of: general higher education subjects – 15 credits, basic engineering subjects – 102 credits, special professional subjects – 15 credits. The optional subjects amount to 9 credits, learning and professional activity practice – 30 credits, the final project – 9 credits. The scope of is 60 credits, for part-times studies – is no less than 30 credits and no more than 45 credits during an academic year.

Subjects are spread evenly and involved in the Programme in elected and mandatory groups of subjects including general (fundamental, humanities and social), study field (Engineering and particularly Civil Engineering fundamental) and specialized subjects to provide necessary knowledge and skills compulsory for Civil Engineering field specialists.

The ratio of theoretical lectures and practical works is not higher than 50% of subjects' volume, leaving its other half part for students' individual work and consultations. Achievement level of necessary learning outcomes level for each subject is controlled by cumulative assessment system with intermediate and final examination / student's individual work assessment. Content of study subjects' is rather broad, consistent with the type and level of the studies and in general not repetitive in different modules but separate subjects shall be double checked for non-repetitive content. For example, graduates have mentioned that Construction Work Organisation (study field subject) and Construction Management (specialisation subject) subjects very similar to each other.

Civil Engineering programme studies are completed with final thesis that represent graduates' professional knowledge and skills to find and analyse professional problems, use critical and logical thinking, specific information sources and experience to solve them.

Analysis of subjects' descriptions presented in SER Annex 6 shows that their content and teaching methods (differs to achieve different learning outcomes) correspond to appropriate provision of learning outcomes that are summarised for each subject in Annex 2.

The scope of Civil Engineering programme is sufficient to ensure learning outcomes. Programme periodically updated and improved in accordance with international legislation and demand and tendencies in national labor and construction market (2011, 2014 and 2016) with a goal to reflect tendencies and innovations in Civil Engineering.

KTC periodically organises labour market demand analyses, surveys involving stakeholders (students, graduates, social partners) related to programme's up to date content and learning outcomes that helps to keep programme's content updated. Collaboration with social partners helps to ensure basic practical professional skills through companies representatives' public lectures, seminars, industrial and construction practices where students are introduced with Civil Engineering

related activities, construction companies' specific design, production and management systems, business environment. However, it is recommended to stress more attention and involve actively social partners in organization of practical trainings, seminars, students participation in applied research activities, and to provide more practical knowledge to students within studies, practice, as it was highlighted by stakeholders in the meetings.

Beside all of these positive aspects curricula shall be improved with focus to foreign language skills as this was mentioned during the interview with alumni and student as one of main reasons of students' mobility's passivity. It is recommended to use in study subject descriptors more references to foreign literature sources, keep them up to date with periodic revision and encourage students to use more actively.

Subject Physics can be renamed to Building Physics as it contains knowledge mainly related to this specific physics section.

However, besides the fact that content of the programme in general reflects the latest achievements in science, technologies it is strongly recommended to introduce students to European design documents (Eurocodes) in conjunction with national standards. Alumni also have raised demand for outside the programme courses to keep qualification up to date (BIM, LEAN, Six Sigma, CAD/CAM etc.).

2.3. Teaching staff

The pedagogical staff of the programme corresponds to legal acts. For example, 9 teachers from 25 have doctoral degree (Annex 7 of SER) that corresponds to requirement to involve in programme not less than 10% of staff scientific degree. That along with lecturers' professional and pedagogical competence development including participation in scientific research activities, ensures provision of learning outcomes, study quality, appropriate organization and management of study process. However, in meeting with social partners expert team hasn't received the opportunity to discuss teaching staff professional competence with representatives of constructions companies, as partners mainly were presented by companies working and employing students from Road Engineering field.

The general workload of pedagogical staff is organised according legal acts with pedagogical activities for Associated Professor 60%, lecturer 70% and assistant 80%. The remaining part of workload is reserved for scientific-methodical work.

To achieve necessary learning outcomes there are 33 lecturers (30% Associated Professors) employed, 25% of them are employed permanently. Programme's modules are mainly supervised by 4 lecturers with Doctor's Degree that ensures 45% credits of study field subjects. The number of Associated Professors during assessment period increased from 5 to 10 in 2015/2016 (SER Table 4)

During the assessment period, the average number of lecturers' age remained in similar level, with certain fluctuations. The average rate of lecturer age during the period of 5 years is 52 years of age. Data (SER's Table 4) shows the trend to attract younger lecturers (during assessment period, the number of lecturers in the age group from 31-50 increased from 19 to 35%) for pedagogical activity, at the same time ensuring required part of staff with no less than 3 years of practical experience that corresponds to programme study field. Almost half of current teaching staff belong to the age group of 51 to 65 years of age and has experience of pedagogical work for more than 25 years. During the assessed period, this number decreased from 75 to 56% (SER Table 3).

The average number of students per one pedagogical staff member is 11,7 that corresponds to the standard ratio in technological science field studies and is sufficient to ensure programme's outputs.

KTC provides conditions for the professional development of the teaching staff necessary for the provision of the programme. For example: staff motivation system motivate lecturers to improve their qualification, more active participation in international mobility (13 lecturers participated with international visits to Germany, United Kingdom, Poland, Spain, Norway, Czech Republic and other foreign countries, internships during period 2011-2016 years between previous and current assessments).

According to SER (p.64-65, Annex 9) some members of teaching staff of the programme are involved in research (publications in scientific journals and conference proceedings, participation in projects and researches ordered by enterprises and organisations) directly related to the study programme being reviewed. Teaching staff scientific turnover within 2011-2016 years is 67 reports related to programme, 62 publications in scientific journals (mainly in local), conference proceedings or other sources with annual average 12,4 publication/year. Not all of the teaching staff are equally active here. And to ensure an adequate provision of the programme it is recommended to increase turnover to at least 1 article in journals, participation in conference, reports in conference proceedings per year per staff member.

Cooperation of HEI with social partners provides possibility for staff related to study field subjects participate professional courses, research and field projects, as for example professional courses organized by company „Žilinskas ir Ko“ and related to building energy performance, building material employment, etc., introduction to geodetic equipment and its appliance.

However, mobility and turnover related to programme aims and outcomes shall be improved, for number of lecturers, as not all the members of teaching staff participate equally in mobility and scientific activity. More publications in foreign journals and participation in international conferences are strongly recommended. Teaching staff needs to improve their foreign

languages skills, and to use more often in widely in pedagogical and research processes. Besides the fact that in Curriculum Vitae's provided in SER Annex 8 that greater number of staff can easily communicate in English (evaluation in average B1 and B2 levels) during the meeting with experts only few of presented teachers were able answer the questions without interpreter.

2.4. Facilities and learning resources

All teaching and learning actions mainly take place in classrooms, laboratories located in KTC central and new buildings, Multidisciplinary practical training center that fully ensures needs for programme implementation. Premises, audiovisual teaching aids, modern information technologies, laboratories' tools, machineries are used according to the purpose and in general correspond to the safe work and hygiene norms and adequate in their size.

Teaching of general subjects organised together with students from other study programmes in larger auditoriums, study subjects with 20-35 students in typical, and laboratory and practical tasks are organised in subgroups in specialised laboratories with not exceeding ratio between students and work places there. Individual studies can be performed in KTC library and reading room using published and online funds that are updated periodically according to the needs of students and teaching staff. Study premises: auditoriums, laboratories and reading room are equipped with computerised workstations and training stands for lecturers and students depending on type of premises and their teaching purpose.

During the period between the previous (in 2011) and current programme's assessments facilities were partly updated and renovated at the expenses of the college, but also national and European funds. Investments to learning resources such as computers, software, laboratories' equipment necessary to ensure learning outcomes were made and planned for the future, and they are working on the attraction of both, the state and private funds (for ex. Eternit laboratory) as stated by administration during interview.

HEI has adequate arrangement for student's practice involving social partners, number of them planned for programme that take place inside and outside the college involving social partners. The following practices are introduced in Programme: cognitive practice and practice of geodetic measurements are executed in KTC, Construction work practice, industrial practice, and final practice take place at public and private companies. The cooperation agreements with 31 companies corresponding to the Programme profile are signed and 824 students had practice within the period 2011-2016. However, when meeting students mentioned that usually they receive more theoretical knowledge during the practice in companies, and would like to get more tasks related with practical experience.

As stated in SER each year college succeed to attract more student to study Civil Engineering programme. This can cause the issue with facilities compliance concerning increased demand, not only with premises (administration has ensured that now 700 students study and college allow the amount up to 900) but with reading room space (that is quite small), necessary learning resources like computer software and hardware.

SER (page 16) states that KTC cooperates with Kaunas University of Technology, which provides the possibility to make use of their library and reading-room services, but interviewed teaching staff, students and graduates haven't been informed about that.

Teaching materials are adequate and accessible. Students have possibility to access internet, connect to virtual learning environment Moodle, academic information system for programme's curriculum design, descriptions of subjects and assessments, use library's online international scientific databases, most popular local printed and electronic constructions journals.

In SER (page 15) it is mentioned that college has about 20 licences for CAD/CAM software Solidworks, but nobody from staff, neither the students nor graduates had ever heard or used it during teaching or learning processes. This software could be introduced in subjects related to CAD and structural calculations.

Improvements to facilities still shall be done: renovation of indoor hall, conference and seminar rooms, outdoor renovation of building external walls and roof. As administration explained during the meetings – preliminary financing approval for these changes already received from Education Ministry. During interviews of graduates and students it was highlighted the necessity to enlarge the reading room size and working time extension of the library. Experts also recommend to ensure, that a canteen or cafeteria should be working in the building of the college, because as it was noted, there are no so many social places where students, teachers can spend their time between, before or after lectures, and that is the part of academic environment.

2.5. Study process and students' performance assessment

The admission is organised on the basis of legal acts and is identical for state funded and non-state funded places. Admission requirements are well founded and in general, these are based on an equation with weight coefficient taking into account secondary school evaluations and personal achievements that is common for admission of national Engineering programmes. Admission procedure is publicly accessible through national specialised educational journals and web portals, college webpage, future students can be consulted on website forums, social networks, communication applications or emails.

Organisation of the study programme for full- and part-time students corresponds to ECTS regulations, Programme Curriculum and allows the achievement of necessary provision for programme's learning outcomes.

In general, KTC ensures an adequate level of academic and social support. Dynamic of general admission number in 2013 – 110, 2014 – 143, 2015 – 158 students show growing popularity of the programme. Although new funding system of studies introduced by Education Ministry that forces students to select studies more responsibly and constant monitoring of their academic results takes place, „drop out“ ratio of students is quite high (~50%). During 5-year assessment period, 130 students entered the college and only 67 graduated. But this still corresponds to recommended marginal value. Data provided in SER (Table 14, page 20) data shows that students mainly decide to terminate their studies during first year. This is why KTC has introduced Study Adaptation Programme for new students that included round table discussions about parties' expectations, introduction to college life, management, assessment system, programme's aims and learning outcomes, and as it was mentioned by the students, help them with integration to Programme, college internal rules.

Students have opportunity to participate in mobility programmes and KTC has exchange and double degree agreement with Danish educational institutions, but unfortunately, after signing of this agreement only two (2) students went for studies. Outcoming and incoming number of students (in average per 2011-2015 period 2-3 students went for studies of practice correspondingly, and 2013-2015 period 4 students from abroad came to college for studies) and the interview of graduates and students show that there is lack of motivation. As the main reasons of this passivity were mentioned poor foreign language skills, insufficient information, students have fear of travelling and living independently abroad, they have been already employed by the local companies. It is strongly recommended to the management of the college to put more efforts on advertising the mobility programme by rising benefits of this opportunity, introduce meeting with students who already have good experience of studying abroad, invite social partners who can rise demand and highlight necessity of such experience and by more active in dialogue with students. Experts recommend to revise college's webpage in English, as number of information is not available for the foreign students, is missing, not presented or presented not in full scope comparing to Lithuanian, still contains some Lithuanian text etc.

HEI motivates students to participate in scientific, art and other applied science activities by introducing scholarships, favourable conditions for activities like premises, tools, additional tutorials and individual assessment schedule. Students are motivated by supervised lecturers to participate in applied science activities by performing various orders and implementation of research engineering decisions in final theses and publishing articles. For example: members from

teaching staff with the students prepared reports for conferences and articles for scientific journals. However, students' participation in research work could be more active as only in single cases one lecturer was the tutor of student's research that was the base for student's graduation final work. This is an example how this collaboration can improve overall situation with research activities for both parties: teaching staff and students.

Students have an opportunity for periodical academic, psychological and legal consultations, to participate on Career Days. Although SER (page 22) states that "second and third year full-time students have the right to study according to the individual study schedule" interviewed students and graduates have not been informed about this possibility and need to be more advertised as motivational tool for better academic result performance.

There is a scholarship system and students can also get state funded loan to cover studies costs, dormitory that is provided by the college for relatively small monthly payments. Students' Union works in KTC on the basis of legal entity with provided financial, organisational and legal autonomy.

The assessment system of students' performance is clear and adequate as it is based on periodical monitoring and cumulative grade methodology including intermediate assessment by tests. Practical and individual tasks, course papers and examinations of the subject knowledge, abilities and skills ensure proper learning outcomes presented in pages 5-7 of SER. Assessment organisation and methodologies are presented in the KTC academic information system, and also introduced by lecturers verbally at the beginning of particular subject course.

Periodical surveys by each lecturer are performed for the evaluation of quality and content of the subject evaluation that allows programme's management to optimise module content, and teaching methods according to students' expressed opinion.

In order to evaluate how professional activities of graduates fit into expectations of social partners, graduates and programme providers, employment research is performed annually for at least 6 months after graduation. Survey for the last 5 years provided in SER (p.26) shows that programme's graduates are highly demanded in the labour market (~80% of full time graduates employed after graduation within first 6 months and ~60% according to the speciality, majority of part-time students employed according to future speciality profile during studies). From the information provided by graduated and social partner representatives during the programme evaluation meetings it can be conclude that mainly graduates working in local (Kaunas region) private companies. Besides, the fact that in general graduates meet stakeholder expectations, representatives also have stressed attention on necessity to provide more practical knowledge and trainings.

As a conclusion, study process and study assessment meets legal requirements and generally ensure provision of learning outcomes. More attention need to be paid to provision of practices' practical contain and skill development, as well as more active actions and efforts need to be done to motivate student for studies abroad, attract foreign studies for studies in KTC.

2.6. Programme management

The Department of Civil Engineering Field Study Programme is responsible for the Study Programme "Civil Engineering" implementation, updating and improvement. The programme management incorporating responsibilities for Programme implementation decisions and monitoring is clear and involves initiation. Coordination and monitoring of programme's requirements implementation and quality of the programme execution, performs accreditation of subjects.

However, experts' team has one remark to the KTC organisational structure of the college. For a moment 10 programmes are supervised by single existing faculty. Recommendation would be to eliminate Faculty as management unit, or to introduce more faculties.

Information provided in SER (Table 20) implementation of the programme is regularly monitored according to programme preparation, implementation and improvement procedure that involves collection and analysis of primary and development process data, implementation results. Implementation data analysis takes place once per half year for examinations and group academic results, practical training registers, data on students' "drop-out", statistics on students'/lecturers' mobility, orders on learning outcomes, scholarships, loans and premium granting; and each year for graduation thesis topics, conclusions on defense, formation of qualification commissions, qualification award, students lecturers' and survey results and graduates' contact data. Once per 3 years Programme Committee revise subject descriptions, assessment system, references; learning outcome assessment methodology and analysis of particular subjects learning outcome, lecturers' qualification improvement plans, the analysis of students' survey results for the period of three years etc.

The internal assessment includes periodical surveys of students, alumni and social partners regarding the quality of the study programme management and curriculum design, subject teaching quality of the subjects and conditions of studies; participation of all stakeholders' and programme's administration participation in the assessment and expression of the demands of learning outcome process. External assessment is organised through SKVC with international expert team visits, interviews of stakeholders, administration, and staff, analysis of programme curriculum design, management and following assessment report. The outcomes of internal and external assessments are used for the improvement of the programme according to College's procedure of quality

assurance. As an example of external assessment result, Programme's aims and learning outcomes were improved according recommendations from the previous assessment. The example of internal assessment result – graduates have noted that after a survey they have participated and stressed necessity to introduce first year students to study process and academic life was implemented as Adaptation Programme.

Information on programme's implementation and improvements is provided to public in form of detailed reports, that are additionally discussed with stakeholders and can be accessed through the KTC website, and social networks.

Although that internal quality assurance measures are effective and efficient, more active and efficient collaboration with social partners is needed. Social partners, mainly local private construction and real estate companies, organises external practices for students, participates in organisation of internal practices (provides necessary laboratory or filed equipment), employ graduates, participate in Career Days events and in formal and informal discussions with KTC management, teaching staff. Besides that, during interview employers' representatives have mentioned that have not been involved in preparation of SER and would like to participate more active in formation of demands and learning outcomes to provide for all stakeholders up to date knowledge and skills. Unfortunately, this was raised mainly by Road Engineering companies. Experts team has noted lack of construction companies in the meeting.

III. RECOMMENDATIONS

1. Learning aims and learning outcomes need to be unified in all official documents and sources.
2. More attention has to be paid to students' and teaching staff's foreign languages skills and ability to use it (both regular and technical).
3. Descriptions of different subjects, their content and learning outcomes need to be double checked to avoid overlapping.
4. More programme's management staff activities to be done involving construction companies in curriculum development, practical trainings, ordering and participating in applied research activities including teaching staff of necessity to motivate students to use research in preparation of course works and final theses, conferences and journal articles.
5. Level of mobility activities must be increased twice both, for the teaching staff and students. College must ensure higher activity of incoming students. This also requires to revise college's webpage in English, as number of information is missing, not presented or presented not in full scope, still contains still some Lithuanian text etc. It is recommended to organise International weeks, expand opportunity for students to choose HEI for internship and studies, improve motivation (additional scholarship by college, social partners, shearing of experience by exchange students from previous year etc.).
6. Future investment to indoor and outdoor renovation of facilities, hardware and software, especially laboratory equipment (laboratories, equipment and tools mainly dedicated to Road Engineering excluding some fundamental test for Construction Engineering) needs to be done. However, students and alumni mentioned as improvement enlarging of the reading room size and extension of working time, larger space for students needs to be improved. There are no working canteen or cafeteria in college buildings that are the social places and part of academic environment, so experts recommend to introduce it for students, college teaching and managing staff, social partners.
7. Some improvements in curricula could be done to avoid overlapping of learning scope between subjects, introduce students to European design standards (Eurocode), usage of recyclable wastes, management system (Six Sigma, LEAN), more activities with BIM design.
8. It is recommended to review organisational structure of the college because all 10 programmes are supervised by single faculty/department and it is not clear necessity to have department at all.

IV. SUMMARY

The programme aims and learning outcomes are well defined, clear and publicly accessible, based on the academic and professional requirements, public needs and the needs of the labour market. Learning outcomes are directed towards knowledge acquisition, its application, abilities to conduct research, special, social, and personal abilities, and correspond to programme's aims and its name. However, learning aims founded in English version of college webpage differs, partly or fully missed comparing to that provided in SER. This needs to be fixed in same content in all official documents, data sources. Quality of Final Theses provided for experts' evaluation, their topic and content are adequate for Civil Engineering Bachelor Degree level. Besides that, it is recommended to introduce more research activities, and use more international literature references and other sources in preparation of Theses.

Curriculum design meets legal requirements. The content of methods of subjects teaching are appropriate to provide necessary learning outcomes and coincide with the type and level of the studies. Content of the programme could be periodically updated, extended and improved with the latest achievements in science, art and technologies, labour market needs. It is also recommended to double check for overlapping of different subject content, and learning outcomes, introduce students to European design documents (Eurocodes). Alumni and employers also have raised demand for knowledge and practice in BIM, LEAN, Six Sigma, CAD/CAM.

The study programme is provided by the staff meeting legal requirements and qualifications. The number of the teaching staff is adequate to ensure learning outcomes. Staff is quite motivated and loyal and this shows that HEI creates conditions for the professional development of the teaching staff necessary for the provision of the programme and social support. Comparing to previous assessment staff has become younger, college attracts graduates and involves them in teaching process. Along with that it is necessary to conclude that mobility and professional turnover needs to be improved with involvement in research directly related to the study programme. Foreign languages skills, of teaching staff need to be improve, as well as their use in teaching and research processes, qualification improvement, that helps to attract incoming foreign students by involving more lecturers in exchange programme teaching process and let local students to practice their communication in foreign language skills and be more prepare for exchange studies abroad.

It is clear that a lot of efforts and investments were done since last evaluation, but still a lot of improvements need to be done including outdoor and indoor facilities, computer and testing hardware and software, spread of social and reading room spaces, parking places for the students. Information provided in SER and received in the meeting with student shows that internal and external practices are organised involving private and public companies. Students and stakeholders have mentioned in the meetings the necessity to pay more attention on provision of practical skills

and knowledge during the practical activities. Library resources in general are adequate to ensure Programme's aims and learning outcomes. However, during interviews, graduates and students have stressed attention to possibility enlarge reading room size and prolong library's working time. As well KTC management needs to organise working canteen or cafeteria in college building, as social place where students, teachers can spend their time between, before or after lectures, and that could be the part of academic life and environment.

Management of the study process provides necessary achievement of learning outcomes. Programme's admission requirements are clear and well-founded. Students have opportunities to participate in student mobility programmes, research, artistic and applied research activities. Assessment of their academic performance is clear, adequate for an Engineering programme and are available to public. Most of the graduates are employed within first half a year after graduation and work according to achieved speciality. Student's mobility level and their involvement in research activities needs to be improved.

Responsibilities for management of the programme are clearly stated with continuous data collection and analysis. Outcomes of internal and external evaluations of the programme are used for the improvement of the programme. However, it is recommended to take more active actions with stakeholders' involvement in programme management, curriculum design and definition of learning outcomes according market needs would be appreciated. Overall organisational structure of the college need to be revised, as currently all 10 programmes are supervised by single existing faculty. Recommendation would be to eliminate Faculty as management unit, or to introduce more faculties.

V. GENERAL ASSESSMENT

The study programme *Civil Engineering* (state code – 653H20001) at Kaunas Technical College is given **positive** evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation of an area in points*
1.	Programme aims and learning outcomes	3
2.	Curriculum design	3
3.	Teaching staff	3
4.	Facilities and learning resources	3
5.	Study process and students' performance assessment	3
6.	Programme management	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.

Grupės vadovas: Team leader:	Prof. Roode Liias
Grupės nariai: Team members:	Prof. Rui Ramos
	Prof. Wojciech Gilewski
	Prof. Nikolaos Theodosiou
	Mr Artiomus Kuranovas
	Ms Milena Medineckienė

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Kauno technologijos universiteto studijų programa *Statybos inžinerija* (valstybinis kodas – 653H20001) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	3
2.	Programos sandara	3
3.	Personalas	3
4.	Materialieji ištekliai	3
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

Studijų programos tikslai ir studijų rezultatai apibrėžti tinkamai, yra aiškūs ir viešai prieinami, grindžiami akademiniais ir profesiniais reikalavimais, visuomenės ir darbo rinkos poreikiais. Studijų rezultatai nukreipti į žinių įgijimą, jų taikymą, gebėjimus atlikti tyrimus, specialiųjų, socialinių ir asmeninių gebėjimų ugdymą ir atitinka studijų programos tikslus ir pavadinimą. Tačiau kolegijos tinklalapyje anglų kalba pateikti studijų tikslai iš dalies arba visiškai skiriasi, palyginti su pateiktaisiais savianalizės suvestinėje (toliau – SS). Šią neatitiktį reikia pašalinti ir užtikrinti, kad visuose oficialiuose dokumentuose ir duomenų šaltiniuose tekstas sutaptų. Ekspertams vertinti pateiktų baigiamųjų darbų kokybę, jų temas ir turinys atitinka statybos inžinerijos bakalauro lygį. Rekomenduojama įtraukti daugiau mokslinių tyrimų veiklos ir rengiant baigiamąjį darbą naudoti daugiau tarptautinės literatūros ir kitų šaltinių.

Studijų programos sandara atitinka teisės aktų nustatytus reikalavimus. Dalykams dėstyti taikomų metodų turinys yra tinkamas numatytiems studijų rezultatams pasiekti ir atitinka šių studijų rūšį ir lygį. Studijų programos turinys turėtų būti nuolat atnaujinamas, plečiamas ir gerinamas atsižvelgiant į naujausius mokslo ir technologijų pasiekimus ir darbo rinkos poreikius. Taip pat rekomenduojama du kartus patikrinti, ar nepersidengia (nesikartoja) skirtingų dalykų turinys ir studijų rezultatai, studentus supažindinti su Europos projektavimo dokumentais (*Eurocodes*). Alumnai ir darbdaviai taip pat nurodė, kad reikia daugiau BIM, LEAN, „Six Sigma“, CAD/CAM žinių ir praktinių įgūdžių juos naudoti.

Studijų programą vykdančios dėstytojos atitinka teisės aktų keliamus reikalavimus ir kvalifikaciją. Dėstytojų skaičius yra tinkamas studijų rezultatams pasiekti. Dėstytojai pakankamai motyvuoti ir lojalūs, o tai rodo, kad aukštoji mokykla sudaro sąlygas dėstytojams kelti profesinę kvalifikaciją, kurios reikia programai vykdyti ir socialinei pagalbai teikti. Palyginti su ankstesniuoju vertinimu, dėstytojai yra jaunesni, kolegija pritraukia absolventų ir juos įtraukia į dėstytojų procesą. Kartu būtina pabrėžti, kad reikia gerinti judumą ir profesionalų kaitą, juos įtraukti į mokslinius tyrimus, tiesiogiai susijusius su studijų programa. Reikia gerinti dėstytojų užsienio kalbų įgūdžius, taip pat jų vartojimą dėstant ir mokslinių tyrimų veikloje, kelti kvalifikaciją, kas padėtų pritraukti

studentų iš užsienio, daugiau lektorių įtraukti į mainų programas ir vietos studentams sudaryti galimybes lavinti savo bendravimo įgūdžius užsienio kalba. Reikia pasistengti, kad studentai būtų geriau pasirengę studijoms užsienyje pagal mainų programas.

Akivaizdu, kad po ankstesniojo vertinimo dėta daug pastangų, skirta investicijų, tačiau dar daug reikia atlikti, pavyzdžiui, atnaujinti vidaus ir išorės materialiąją bazę, kompiuterių ir testavimo techninę ir programinę įrangą, plėsti socialines ir skaitymui skirtas erdves, studentams skirtas automobilių statymo vietas. Informacija, pateikta savianalizės suvestinėje ir gauta susitikimo su studentais metu, rodo, kad vidinės ir išorinės praktikos organizuojamos įtraukiant privačias ir valstybės bendroves. Studentai ir dalininkai susitikimuose minėjo, kad daugiau dėmesio reikia skirti praktinių įgūdžių formavimui ir žinioms atliekant praktinius darbus. Bibliotekos išteklių iš esmės yra tinkami studijų programos tikslams ir studijų rezultatams pasiekti. Tačiau per interviu absolventai ir studentai pabrėžė, kad reikėtų plėsti skaityklos patalpas ir pailginti bibliotekos darbo valandas. KTK vadovybė taip pat turėtų pasirūpinti, kad kolegijos pastate veiktų valgykla arba kavinė ir tai būtų socialinė vieta, kur studentai ir dėstytojai galėtų praleisti laiką tarp arba po paskaitų; tokia kavinė būtų akademinio gyvenimo ir aplinkos dalis.

Studijų vadyba užtikrina studijų rezultatų pasiekimą. Priėmimo į studijų programą reikalavimai aiškūs ir pagrįsti. Studentai turi galimybę dalyvauti studentų judumo programose, mokslinių tyrimų, meno ir taikomųjų tyrimų veikloje. Akademinį pasiekimų vertinimas yra aiškus ir tinkamas inžinerijos studijų programai, prieinamas viešai. Dauguma absolventų įsidarbina per pirmąjį pusmetį po studijų baigimo ir dirba pagal įgytą specialybę. Reikia gerinti studentų judumo lygį ir jų dalyvavimą mokslinių tyrimų veikloje.

Atsakomybė už studijų programos vadybą nurodyta aiškiai, duomenys nuolat renkami ir analizuojami. Studijų programos vidinio ir išorinio vertinimo rezultatai naudojami studijų programai tobulinti. Rekomenduojama dalininkus aktyviau įtraukti į studijų programos vadybą, programos sudarymą ir studijų rezultatų apibrėžimą, atsižvelgiant į rinkos poreikius. Apskritai, reikia peržiūrėti kolegijos organizacinę struktūrą, kadangi šiuo metu visas 10 studijų programų prižiūri vienintelis egzistuojantis fakultetas. Rekomenduojama fakultetą kaip struktūrinį padalinį naikinti arba įkurti daugiau fakultetų.

<...>

III. REKOMENDACIJOS

1. Suvienodinti studijų tikslus ir studijų rezultatus visuose oficialiuose dokumentuose ir šaltiniuose.
2. Daugiau dėmesio skirti studentų ir dėstytojų užsienio kalbų įgūdžiams gerinti ir galimybei vartoti užsienio kalbą (tiek bendrinę, tiek techninę).
3. Du kartus patikrinti skirtingų dalykų aprašus, jų turinį ir studijų rezultatus, siekiant išvengti pasikartojimų.
4. Studijų programos vadovybė turėtų aktyviau stengtis įtraukti statybos bendroves į studijų turinio sudarymą, praktinius mokymus, taikomųjų mokslinių tyrimų veiklos užsakymą ir dalyvavimą joje, taip pat reikia, kad dėstytojai motyvuotų studentus naudoti mokslinius tyrimus rengiant kursinius darbus ir baigiamuosius darbus, rengiantis konferencijoms ir rašant straipsnius žurnalams.
5. Dvigubai padidinti studentų ir dėstytojų judumo lygį. Kolegija turi garantuoti didesnę atvykstančių studentų aktyvumą. Todėl reikia peržiūrėti kolegijos interneto svetainę anglų kalba, nes trūksta nemažai informacijos, ji nėra pateikta arba pateikta ne visa apimtimi, vis dar pasitaiko teksto lietuvių kalba ir t. t. Rekomenduojama organizuoti tarptautines savaites, išplėsti studentų galimybes rinktis aukštąją mokyklą specialiajai praktikai atlikti ir studijuoti, gerinti motyvaciją (kolegija, socialiniai partneriai skirtų papildomą stipendiją, praėjusiais metais mainų programose dalyvavę studentai pasidalytų patirtimi ir t. t.).

6. Ateityje reikia skirti investicijų vidaus ir išorės materialiajai bazei renovuoti, techninei ir programinei įrangai atnaujinti, ypač laboratorijų įrangai (laboratorijoms, įrangai ir įrankiams, kurie daugiausiai skirti kelių inžinerijai, išskyrus kai kuriuos fundamentaliuosius testus statybos inžinerijai).

Studentai ir alumnai minėjo, kad reikia išplėsti skaityklos plotą ir pailginti jos darbo valandas, atnaujinti studentams skirtas didesnes erdves. Kolegijos pastate nėra veikiančios valgyklos arba kavinės, o tai yra socialinės vietos ir akademinės aplinkos dalis, todėl ekspertai rekomenduoja kavinę įrengti, kad ja naudotųsi studentai, kolegijos dėstytojai ir vadovybė bei socialiniai partneriai.

7. Reikėtų patikslinti studijų turinį siekiant išvengti, kad dalykuose nepersidengtų (nesikartotų) mokomasis turinys, studentus supažindinti su Europos projektavimo standartais (*Eurocode*), perdirbamų atliekų naudojimu, valdymo sistemomis („Six Sigma“, LEAN), daugiau dirbti su Pastato informacinio modeliavimo (BIM) projektavimu.
8. Rekomenduojama peržiūrėti kolegijos organizacinę struktūrą, nes visas 10 studijų programų prižiūri vienintelis fakultetas/katedra ir nėra aišku, ar katedros iš viso reikia.

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

Vertėjos rekvizitai (vardas, pavardė, parašas)