



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus Gedimino technikos universiteto  
**STUDIJŲ PROGRAMOS**  
*STATYBOS TECHNOLOGIJOS IR VALDYMAS (612J80003)*  
**VERTINIMO IŠVADOS**

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**EVALUATION REPORT**  
*OF CONSTRUCTION TECHNOLOGIES AND MANAGEMENT*  
*(612J80003)*

**STUDY PROGRAMME**  
at Vilnius Gedinimas technical University

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Išvados parengtos anglų kalba  
Report language - English

## DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Statybos technologijos ir valdymas</i>
Valstybinis kodas	612J80003
Studijų sritis	Technologiniai mokslai
Studijų kryptis	Statybų technologijos
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirma
Studijų forma (trukmė metais)	Nuolatinė (4), iššęstinė (6)
Studijų programos apimtis kreditais	240
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Statybų technologijų bakalauro laipsnis
Studijų programos įregistravimo data	1997-05-21

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## INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Construction Technologies and Management</i>
State code	612J80003
Study area	Technological sciences
Study field	Construction technologies
Type of the study programme	University studies
Study cycle	First
Study mode (length in years)	Full time (4), Part time (6)
Volume of the study programme in credits	240
Degree and (or) professional qualifications awarded	Bachelor of Building Technologies
Date of registration of the study programme	May 21 <sup>st</sup> , 1997

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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. Along with the self-evaluation report and annexes, the following additional documents have been provided by the HEI before, during and/or after the site-visit:

No.	Name of the document
1.	Examples of student questionnaires
2.	Timetable of students
3.	Department action plans
4.	List of incoming/visiting teachers

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

This report presents the findings of an evaluation of the bachelor programme Statybos technologijos ir valdymas (612J80003). This four year full-time (6 years part-time) programme leads to a Bachelor of Construction Technologies and Management qualification.

This report is based on an analysis of the document “Study Field of Construction Technologies. Study Programme Construction Technology and Management (612J80003). Self-Assessment Report, Vilnius, 2016” (consisting of 39 pages main text, excluding annexes) and information gathered by the Review Team during a site visit to Vilnius Gediminas Technical University on 15 November 2016.

The site visit included:

- discussions with senior faculty administration staff,
- discussions with staff responsible for preparation of Self-Evaluation Reports (SER),
- discussions with teaching staff,
- discussions with students,
- discussions with employers of graduates and alumni,
- inspection of student coursework including final year projects,
- inspection of teaching premises and equipment including auditoria, library, computing facilities and laboratories.

The Review Team found it necessary to get clarification of some issues reported in the SER and was satisfied with the clarifications provided during the site visit.

It is worth mentioning that the same Review Team also evaluated the master of Construction Technologies and Management (621J80003), the bachelor of Urban Engineering (612H27001), the masters of Urban Planning and Engineering (621H27001), Road Safety Engineering (621H22001) and Civil engineering (621H20002). Many common aspects were present in these programmes. Therefore, the corresponding evaluation reports may contain some duplicate comments due to identical data, situation or concerns in order to be read independently.

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 Mr. Pranas Stankus in discharging its responsibilities to SKVC.

#### **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 15/11/2016.

- 1. Prof. Philippe Bouillard (team leader)** Head of BATir (Civil, Architectural and Urban Engineering) department at Université Libre de Bruxelles, (Belgium);
- 2. Prof. Alfred Strauss**, Head of the Institute of Structural Engineering at University of Natural Resources and Life Sciences (Austria);
- 3. Prof. Tõnu Meidla**, Head of Department of Geology at Faculty of Science and Technology in University of Tartu (Estonia);
- 4. Prof. Juan Martinez**, Professor of Civil Engineering at (Institut National des Sciences Appliquées (INSA) of Rennes (France);
- 5. Dr. Mindaugas Gikys**, Director of joint stock company AIF (Lithuania);
- 6. Mr. Simonas Bulota**, PhD Student in Material Science at Kaunas University of Technology (Lithuania).

## **II. PROGRAMME ANALYSIS**

### ***2.1. Programme aims and learning outcomes***

Based on the interviews and the analysis of the self-evaluation report, the Review Teams has come to the conclusion that the bachelor programme “Construction Technologies and Management” is set up to prepare creative and competent graduates in construction technology. The programme is well suited to deliver the qualified professionals.

The aims and intended learning outcomes of the programme are announced at VGTU web site, Information system of Ministry of Education and Science of the Republic of Lithuania “AIKOS”, Association of Lithuanian Higher Education Institutions (LAMA BPO). Learning outcomes also are provided in the diploma supplements of graduates. In principle, aims and intended learning outcomes are visible to all target groups. It can also be confirmed that the programme aims and learning outcomes are in principle well defined, clear and publicly accessible.

Based on the interviews with various concerned parties in the course of the evaluation process, the Review Teams was also able to verify that VGTU aims to attain flexible upgrading and continuous improvement of study programmes and the entire study process, in order to keep abreast with developments at other universities throughout Europe. This continuous process should be maintained and extended to learning outcomes. Regarding the interpretation and formulation of the latter, the development and introduction of a training course is recommended. Such a training course together with the continuous upgrading process will ensure consistency of the programme learning outcomes

The Review Team confirms that the study programme is directed at students who (a) wish to understand problems of engineering management of construction, (b) wish to learn how to solve engineering management problems by applying modern measures, (c) wish to contribute to the practical preparation and execution of the construction of buildings and structures as well as refurbishment projects, (d) wish to employ state-of-the-art digital technologies.

Based on the research of the Review Team, it can be confirmed that similar study programmes are implemented at universities in the United Kingdom and the USA. The programme is consistent and relevant for the academic and public needs and the needs of the labour market. It is on par with international standards. However, the definition of the learning outcomes as

designed by the programme developer seems to be subject to different interpretations and opinions, which even leads to misunderstandings. The learning outcomes can be considered as top down approach, taken from standard formulation tables.

The Review Team recommends formulating the learning outcomes as a bottom-up approach where teaching and learning objectives are clearly identified. All content should be transparent and easy to find and recognise. It should be presented in a form that is accessible to members of academia and the interested public as well as representatives of the labour market.

Based on both the programme documentation and the discussions with the parties, it can be deduced that the social skills would be better targeted by the course descriptors to the program.

The Review Team also suggests strengthening round table discussions with social partners in order to further develop the social aspects of the programme.

## ***2.2. Curriculum design***

The full-time study programme on construction management consists of 224 ECTS credits (in the main course 188 credits and 36 credits are outside the schedule: 16 credits for practical training. This complies with the general regulations for technological science (engineering) studies required university undergraduate study programmes (210–240 credits). The curriculum design meets the legal requirements and the study subjects and/or modules are spread evenly.

The bachelor study programme on construction technology and management offers specialisations: Construction Economics and Business, Construction Technology and Management. The bachelor programme is entirely appropriate. The curriculum is of high standards but could be improved as suggested by the social partners by considering current needs in construction law, building information modelling (BIM), energy efficiency and life cycle assessment. Also, the laboratory work for students could be incorporated explicitly in the study plan.

The structure of the study programme is divided into a full-time option, a part-time distance learning option and a part-time curriculum for college graduates. The part-time option according to legal external documents has an official a duration of 6 years.



Based on the self-evaluation report and the provided documents, the Review Team has come to the conclusion that the volumes of subjects during the semesters are well balanced. The study plan demonstrates a logical sequence of subjects that ensures consistent shift from auditorium work to individual student work and research. In general, the documentation allows the conclusion that the topics of the subjects are compatible with the intended learning outcomes.

The interviews with the students showed that the main teaching formats of the study programme are lectures, seminars, workshops, student individual work, problem-based learning, blended learning, team working, students' initiated workshops, role-based learning, discussions, problem solving, and heuristic formats. This variety in the teaching methods can be considered as very positive.

The study programme on construction management is developed with respect to the general regulations for technological science (engineering) studies (order of the Minister of Education and Science of Lithuania Republic 29-04-2005, no. ISAK-734). The programme content is in alignment with the main requirements of the relevant legal acts.

The programme is generally comprehensive. It includes subjects that are relevant, helpful and appropriate to each specific area of construction management. However, a more careful fine-tuning focusing on construction law, building information modelling BIM, energy efficiency and life cycle assessment would be desirable, as already mentioned.

### ***2.3. Teaching staff***

The teaching staff comprises 9 professors, 39 associate professors, 13 lecturers, 5 assistants and 6 doctoral students (72 in total). There is convincing evidence that the staff is adequate for maintaining the programme and their qualifications are fully meeting and exceeding the legal requirements. The profiles of the staff members are clearly related to the subjects taught within the curriculum. The fact that several staff members are regularly applying for the professional licences is confirming their adequate professional qualification. Involvement of practitioners and people who are professionally active outside the VGTU is indicative of availability of practical experience among the teaching staff.

The meetings and documents provided clear evidence of commitment of the staff members and sufficient quality of staff to ensure the learning outcomes. The staff members have demonstrated

that there is some awareness on the learning outcomes, however, it was insufficiently demonstrated that the staff members are readily and systematically using learning outcomes for the programme development.

The number of involved staff members is high, considering the number of taught courses. As the number of taught courses per semester is kept under control, the number of teaching staff is adequate to ensure the learning outcomes. A remarkably fast increase of the number of part-time contracts could be noted over the last five years. The full-time staff comprised 90% in 2009 but in 2016 their number has dropped to 60% (26 part-timers and 3 lecturers with no contract are reported). The leadership of involved departments explains this with the industrial involvement of the members of teaching staff and stresses the value of such part-time industry positions as an additional quality measure. However, wide involvement of the staff members in industry was unconvincingly argued during the site visit.

The staff involved in teaching is relatively young (average age 46 years). The age structure of the staff is clearly indicative of sustainability of the programme. The fact that the departments involved in teaching are listed among the strongest in VGTU is noteworthy and is further ensuring the quality of teaching. The exceptionally high competence and qualifications of the teaching staff safeguard the successful implementation of the well-designed programme.

Although the staff/student ratio has been continuously increasing over the last five years (from 0.12 to 0.36), some of the members of teaching staff are still too heavily loaded, because of uneven teaching load. The teaching load of the staff, considering all programmes and levels, is higher than 50% of working time in 17 full-time staff members (including three professors), occasionally reaching 84%.

The available evidence shows that staff turnover is not high. Only six professors have less than five years of pedagogical experience and four of them are PhD students. Although the staff members reported very strict faculty appraisal procedures, this is not fully confirmed by the information the Review Team could collect from the self-evaluation report and public information sources (Thomson Reuters Web of Knowledge). This is emphasising the importance hiring new qualified staff with research capacity and industrial experience. Competitiveness of the overall salary level of staff members requires however further attention.

The professional development of staff members is supported by international mobility, mainly within the Erasmus+ Programme, and domestic training. The staff members have to improve their teaching skills on a regular basis taking a few hours of lectures every year, in order to ensure and support the development of new teaching methods. It should also be noted that the development measures are insufficiently supporting active use of learning outcomes as a programme development method.

According to VGTU Description of Teaching Staff Internships, each employee has to spend at least one month in an industrial company during the five-year tenure period. This internship is usually domestic. According to the data provided by the institution, only 28 members of teaching staff passed this internship over the five-year period. Considering the long pedagogical experience of the majority of staff members, the number of internships should have been remarkably higher during this period if the regulations were strictly followed. The situation may be partly influenced by the fact that several people are already involved in industrial companies. The value of such internship may be questioned in such cases and the strict regulations of internship might be reconsidered.

The VGTU is actively involved in the Erasmus+ activities and received visiting lecturers from several countries. At the same time, the exchange is rather 'asymmetrical' and only a limited number of foreign specialists are coming to VGTU, compared to the figures of outgoing mobility. Increasing staff/student ratio is likely positive from the point of view of professional development of the staff and could potentially facilitate the mobility programme. However, this potential is not realised as the intensity of mobility has remained fairly stable over the last years.

The department is regularly organising international conferences. Majority of staff members are involved in various professional societies in Lithuania and abroad.

In general, the staff members reported about limited time for research. Although there are examples of very good or even exceptional research performance and publication among staff members, this is associated with reduced teaching load of these people. The research activity should be actively promoted among staff members and publication in leading non-domestic international journals needs to be further stimulated. It is noteworthy that the number of large international scientific and education projects in the departments involved in teaching shows a decreasing trend. Strengthening the research projects in the department and bringing them to the

attention of the students might further diversify the programme and offer new insights to the students.

The evidence provided above shows that exceptional competence and qualifications of the teaching staff safeguards the successful implementation of the programme.

#### ***2.4. Facilities and learning resources***

VGTU makes auditorium rooms, dedicated laboratories, reading rooms within the library and specialised databases and software available to the students. 25 auditorium rooms are available with some recently renovated. Modern and operational multimedia equipment, including internet connection, is available in the rooms, sometimes sponsored by social partners. Health and safety conditions of auditorium rooms are complying with the regulations. The students have the opportunity to work in the main computer room with 20 workplaces. 3 additional computer rooms are available as well. The Review Team considers that the premises are sufficient and suitable to deliver the programme.

The students are trained to perform experiments in the laboratories. The laboratory equipment and measurement instruments are relevant for the study process. The equipment is maintained operational and sometimes renewed. The lab sessions are however often demonstrative only and the Review Team encourage increasing the number of hands-on sessions. The safety conditions in laboratories should however be improved by clearly demarcating restricted areas where appropriate. A further attention should be given to training the students to health and safety issues in laboratories, beyond getting their signature on a standard form. Lab sessions should include assignments on risk analysis.

The students are trained to use specialised software as well. The list of software is extensive. The programmes are up-to-date and useful for the construction market. A better attention should be given however on further implementing the BIM software and collaborative approach in the study programme.

The departments have established collaboration with the Lithuanian Real Estate Development Association, the Lithuanian Builders Association, the Lithuanian Association of Consulting Companies and other social partners. Internships are available within the companies to ensure the practical training of the students and the staff. This is highly appreciated by the review panel.

The Faculty of Civil Engineering organises periodically (every three years) research international conferences "Modern Building Materials, Structures and Techniques" where students have the possibilities to get in contact with the new knowledge and resources. Such practise is a very positive aspect.

The departments have developed relevant collaboration with the social partners and are making effort to support the students in getting in contact with practical case-studies.

VGTU has a Central Library with 11 reading rooms and 330 working places. The Central library offers very flexible working time and access to databases, books, journals and other e-resources. The Central library is also providing printing, scanning, binding services.

Recent books and journals are available in English and Lithuanian both in the Central library and reading rooms. There are also some specialised books in Lithuanian published by VGTU which also edit their own scientific journals.

The teachers are using handouts, slide presentations, videos, special equipment and software. The teachers and students are using the learning management system Moodle. The Review Panel appreciates the large use of Moodle but recommends considering further its possibilities and other internet tools, beyond the basic information transfer. The number of resources available in Lithuanian and English are suitable for the study process. In all the facilities review panel observed are of a very high standard not only at national but at international level as well.

### ***2.5. Study process and students' performance assessment***

The admission to the Construction Technology and Management bachelor programme is restricted to students who hold a secondary education certificate. There is no entrance exam and all applicants are rated by competitive points obtained by weighting the secondary education exams marks. General admission is organised in accordance to general admission requirements of particular year by the Association of Lithuanian Higher Schools for General Admission (LAMA BPO) – authorised by the Ministry of Education and Science of the Republic of Lithuania. The exams and their weighting factor which are taken into consideration during the admission are: Lithuanian language (20%), mathematics (40%), physics (20%) and foreign language (20%).

Considering the number of applications (220 in 2014, 128 in 2015 for full-time studies), there is a significant decrease of interest for the study programme. In 2014-2015, the average competition score decreased from 8.6 to 6.88. Decreased interest and competition score indicate that the admission procedure should be improved through strengthening of measures to promote the programme and its role in the future Lithuanian economy. It is recommended to involve all the stakeholders since they are sharing this concern.

The programme is available for full-time, part-time and part-time for college graduates studies. Part-time college graduates studies are dedicated to acquire university education for graduates with non-university degree. The schedule for both classes and examinations is rational. Drop-out rates for full-time students are stable, for 2015 less than 20%. Drop-out rates for part-time students are unstable varying from 80% to 30%. During the study process full time students do not interact with part time students during their classes, lab works or project works, which is regrettable.

Students have the opportunity to participate in Young Scientist Conference “Science – Future of Lithuania” which is hosted by VGTU. However participation in conference is not very popular – 2 students participate in such conference from 2011 to 2015. Student coursework relies mostly on local scientific papers. Most of the bachelor thesis are driven by the industry and are project oriented. The average mark for two years of the final thesis prepared by full-time students of Construction Technology and Management specialisation is very good - 8.43 from 10.

Student mobility is encouraged by VGTU International Relations Office. Students share their experience gained in Erasmus exchange with students from the same study group. Numbers shows clear tendency of decreasing number of outgoing students. From 2010 till 2016 year number of outgoing students decreased from 11 to 1 student. It is recommended to urgently analyse the current barriers, propose and implement appropriate solutions.

The students have access to good multiple sports, health and cultural facilities. There is an active VGTU Students Association which organises various events and activities and represents the students inside and outside of university. Accommodation is provided to non-resident students. VGTU Carriers and Integration Office provides individual and group consultations for students

about career opportunities, including during Career days. Multiple scholarships are available for students based on study, merit or social circumstances. Student loans are subsidised by state.

The assessment system is based on a 10 points grading system. It is very clear and publicly available. It could be improved by elucidating the grade significance consistently with the learning outcomes. Students can receive informal feedback about their grades and an appeal procedure is available. In order to encourage Erasmus mobility, the University defined a clear relationship between ECTS and University grading systems. The final grade is a weighted result of exam, course project, course work, integrated project, report and final project marks.

The average percentage of graduates in who get an employment is very good and reaches 84%; however this number represents first and second cycles together. The employers have indicated satisfaction with the approach and are satisfied with the graduate attributes. This may conclude that the programme is preparing specialists relevant and needed for labour market.

## ***2.6. Programme management***

The bachelor in Construction Technology and Management is supervised by VGTU Department of Construction Technology and Management (Faculty of Civil Engineering) in collaboration with many other departments (Department of Construction Economics and Property Management and Department of Construction Materials mainly). The programme is managed by a study programme committee where each department is represented together with student and social partner representatives. Further approval by Faculty study committee, Faculty and University Council is required for the changes to be implemented, which is usual.

VGTU has implemented an information system “Alma Informatika” to collect all data related to the study programmes, but there is still a need to further develop the database to include information from graduates (first employment, surveys) and social partners.

Since 2007, an automated student surveying system has been successfully operating in the university information system. Two student surveys on the course units are organised annually: after each term (winter and spring) exam sessions. The survey results reveal the students have a very high level of satisfaction about the courses and teachers. However, the low rate of responses requires further actions to foster student participation.

The internal quality assurance system of the university is based on European Standards and Guidelines for Quality Assurance in Higher Education. VGTU has implemented consistent procedures regarding programme management, students' assessment, staff training, study resources, career services, and students' participation. The Review Team is acknowledging such procedures and encourages VGTU to continuously improve their implementation and quality.

The main responsibility for the programme quality assurance belongs to the study programme committee and the faculty study committee. The Review Team acknowledges that internal quality measures have been implemented but their effectiveness should be better substantiated by evidence in the self-evaluation report.

The bachelor in Construction Technology and Management has been accredited by SKVC for 6 years in 2009. The Review Panel confirms that the recommendations have been properly analysed and that many improvements have been implemented. The quality assurance loop, from self-analysis and systematic data collection to implementing a plan of actions, should be strengthened. The Review Panel recommends further to systematically collect information and data on the programme and review it periodically by focusing more on feedback and developing and implementing a coherent plan of actions. Finally, a better attention should be paid to communicating the changes to the stakeholders, particularly if they have been surveyed.



### III. RECOMMENDATIONS

1. Whereas the learning outcomes are available, the Review Panel noticed that they are not yet playing a central role in the study process and recommends developing a systematic formal way to periodically reviewing them involving all the stakeholders (students, graduates, social partners and teaching staff).
2. Review Panel recommends developing training and workshops for the Teaching staff in order to enhance the coherence between learning outcomes, methods and assessment.
3. The Review Panel appreciated the large use of the learning management system Moodle but recommends considering further its possibilities and other internet tools, beyond the basic information transfer.
4. In terms of internationalisation, the Review Panel noticed a very large consensus of the need and relevance of students' international exchanges offered by the Erasmus+ programme but their number remains low. It is recommended to urgently analyse the current barriers, propose and implement appropriate solutions.
5. In this regard, the Review Panel would like to repeat the previous evaluation recommendation to improve the students' level in English language by offering courses, learning activities, study material and assigning coursework in English.
6. Regarding the number of students, the Review Panel recommends to intensify the efforts to increase the visibility of the programme involving all the stakeholders.
7. In terms of quality assurance, the Review Panel recommends to systematically collect information and data on the programme and review it periodically.
8. The safety conditions in laboratories should be improved by clearly demarcating restricted areas where appropriate and training the students to risk analysis.

#### **IV. SUMMARY**

This four year full-time (six year part-time) programme leading to a Bachelor of Construction Technologies and Management offers three specialisations: Construction Economics and Business, Construction Technology and Management. The programme is consistent with the aims and learning outcomes and with the type and level of studies and the level of offered qualifications. The curriculum design meets the legal requirements and the study subjects and/or modules are spread evenly. The content of the modules is generally appropriate for the intended learning outcomes. The staff is well qualified to deliver the programme and staff –student ratio is exceptionally good. The staff is properly engaged in research, professional bodies and self-continuous development, though not always evenly. The facilities in terms of classrooms, libraries, reading rooms, computer rooms are very appropriate. The study process and student assessment are generally adequate. The Bachelor in Construction Technology and Management is supervised by VGTU Department of Construction Technology and Management (Faculty of Civil Engineering). It is managed properly by a study programme committee and the quality assurance is in place.

However, the Review Team has identified possible improvements. A better attention should be given to the implementation and review of the learning outcomes by fostering a collaborative approach with all stakeholders and offering appropriate training for the staff. The internationalisation should be extended, starting by offering learning opportunities to improve the English level of the students, fostering Erasmus exchange and enlarge the staff involvement in international projects. Further actions should be taken to make the programme more visible. Safety conditions in the laboratories require a better attention.

## V. GENERAL ASSESSMENT

The study programme *Construction Technologies and Management* (state code – 612J80003) at Vilnius Gediminas Technical University 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	4
3.	Teaching staff	4
4.	Facilities and learning resources	4
5.	Study process and students' performance assessment	3
6.	Programme management	3
	<b>Total:</b>	<b>21</b>

\*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. Philippe Bouillard (team leader)

Grupės nariai:  
Team members:

Prof. Alfred Strauss

Prof. Tõnu Meidla

Prof. Juan Martinez

Dr. Mindaugas Gikys

Mr. Simonas Bulota