



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus Gedimino technikos universiteto

**PROGRAMOS STATINIŲ KONSTRUKCIJOS  
(62402T107, 621H21001)**

**VERTINIMO IŠVADOS**

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**EVALUATION REPORT  
OF STUDY PROGRAMME  
BUILDING STRUCTURES (62402T107, 621H21001)  
at Vilnius Gediminas Technical University**

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## DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Statinių konstrukcijos</i>
Valstybinis kodas	62402T107 (naujas kodas – 621H21001)
Studijų sritis	Technologijos mokslai
Studijų kryptis	Statybos inžinerija
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Antroji
Studijų forma (trukmė metais)	Nuolatinė (2)
Studijų programos apimtis kreditais	120
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Statybos inžinerijos magistras
Studijų programos įregistravimo data	1997 05 19

## INFORMATION ON ASSESSED STUDY PROGRAMME

Name of the study programme	<i>Building Structures</i>
State code	62402T107 (new code – 621H21001)
Study area	Technological Sciences
Study field	Civil Engineering
Kind of the study programme	University studies
Level of studies	Second
Study mode (length in years)	Full-time (2)
Scope of the study programme in credits	120
Degree and (or) professional qualifications awarded	Master of Civil Engineering
Date of registration of the study programme	1997 05 19

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## I. INTRODUCTION

This report presents the findings of an evaluation of the programme *Statinių konstrukcijos* 62402T107 (new code – 621H21001), referred to in English as the programme *Structural Engineering* or more typically referred to by one of its five specializations *Building Structures*. This programme was evaluated against the criteria supplied to the Review Group in the document “Extracts from the Description of the Evaluation Process for Study Programmes and Methodological Guidelines”, with particular reference to Paragraphs 170 to 225.

This report is based on an analysis of the document “Self-Assessment Report, Study Programme 62402T107 Structural Engineering, Vilnius, 2010”, 49 pages (excluding annexes) and information gathered by the Review Team during a site visit to Vilnius Gediminas Technical University on 21 September 2011.

The site visit included:

- discussions with senior faculty administration staff,
- discussions with staff responsible for preparation of Self-Assessment Reports (SAR),
- discussions with teaching staff,
- discussions with students,
- discussions with alumni,
- discussions with employers of recent graduates of the programme,
- 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 SAR. This was in part due to misunderstandings arising through the poor use of written English. The Review Team was satisfied with the clarifications provided during the site visit.

The international Review Team attempted to conduct its meetings entirely in English. However this was simply impractical as many contributors to the discussions did not understand nor speak English. The extent of the need for translation of both questions and answers was inefficient in the use of the time afforded to the discussions. It also greatly reduced the effectiveness of open dialogue, a significant element of any quality evaluation exercise. Nevertheless the Review Group is satisfied that it gathered sufficient data from written and verbal evidence to form its assessment under each of the six evaluation areas and thereby conclude its evaluation.

The study programme *Statinių konstrukcijos* (“Structural Engineering” or “Building Structures”), with state code 62402T107 and new code 621H21001, was given a positive evaluation, with nine recommendations.

## II. PROGRAMME ANALYSIS

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

#### **1.1. Programme demand, purpose and aims**

##### *1.1.1. Uniqueness and rationale of the need for the programme*

The combination of strong technical knowledge and practical skills development provides a route for talented first study cycle graduates to equip themselves with the attributes required for independent professional activities. The comparison with similar master's degree programmes in Lithuania and abroad is clear. It is a very good programme with a clear purpose.

##### *1.1.2. Conformity of the programme purpose with institutional, state and international directives*

Conformity with the strategic plans of the Vilnius Gediminas Technical University for 2009-2011 and draft plan 2010-2012 is clear. Conformity of the programme purpose with state and international directives is not required because the programme does not fall within the state regulated professions. Nevertheless the programme co-ordinators are mindful of the wider international context of the place of such programmes in professional engineering education.

##### *1.1.3. Relevance of the programme aims*

The programme aims are relevant and the 'object-oriented' specialisations are quite appropriate. The programme co-ordinators are clear that the programme builds directly on the undergraduate degree programme (through the 'deepening' master's degree route) and aims to develop independent research skills.

#### **1.2. Learning outcomes of the programme**

##### *1.2.1. Comprehensibility and attainability of the learning outcomes*

The Review Group found that the programme learning outcomes were presented (in Table 10 of the SAR) as a lengthy list of knowledge and practical skills, coded from A1 to D5, which were indistinguishable from similar lists provided for undergraduate programmes. It is understood that this was a prior requirement for all programmes in Lithuania but that a transition to more focussed learning outcomes, written in an appropriate style, is now being introduced. It was evident to the Review Group that the graduate attributes, which result from the programme, are appropriate to equip graduates for the construction industry or further research studies.

##### *1.2.2. Consistency of the learning outcomes*

The outcomes at subject level, presented in the SAR, Tables 11 – 15, for the five specialisations respectively, indicated that many subjects contributed to the same (and numerous) objectives in the list of knowledge and practical skills. This implies a lack of focus, which is contrary to the expectation of learning outcomes in a master's degree programme. The opportunity should be used when converting these tables to well-written learning outcomes, to bring more focus to the prime objective of each subject. The Review Group found that the consistency of the learning outcomes was very good, but this is not reflected in current presentation of outcomes, based as they are on the lengthy list of knowledge and practical skills, coded from A1 to D5. This is further commented on in Section 1.2.3.

##### *1.2.3. Transformation of the learning outcomes*

The process of updating the programme is good. The most recent update was in 2007 and the study subjects were improved, their titles amended and content adjusted. The Review Group

found that some employers would wish to see more detailed material in specific areas (law and administrative regulations) embedded in the learning outcomes of the final thesis. It is therefore recommended that there should be greater stakeholder involvement in the next updating of the programme.

### **1.3. Main strengths and weaknesses of programme aims and learning outcomes**

The aims of this programme are clear. Its comprehensibility and consistency are very good. This master degree programme allows the graduates to choose either to go to the construction industry or to the research field (in a PhD programme).

The update of the programme and its specializations, performed in 2007, shows the concern for innovation. There is also the will to conform to similar programmes in Europe.

The learning outcomes at subject level for the five specialisations, indicated that many subjects contributed to the same (and numerous) objectives in the list of knowledge and practical skills. This implies a lack of focus, which is contrary to the expectation of learning outcomes in a master's degree programme. The opportunity should be used when converting these tables to well-written learning outcomes, to bring more focus to the prime objective of each subject. In the transformation process there should be more room for the stakeholders to give their opinion on the learning outcomes specific to each specialisation.

## **2. Curriculum design**

### **2.1. Programme structure**

#### *2.1.1. Sufficiency of the study volume*

The number of contact-hours and the balance between contact-hours and independent study, 24% and 76% respectively, is appropriate.

#### *2.1.2. Consistency of the study subjects*

The progression from common subjects (across the five specializations) to more specialised subjects, unique to the specialization, is logical. Less clear is why a very wide spread exists of compulsory/ optional subjects. These range from a broad combination of 65%/35% in the specialization *Building Structures* to a narrow combination of 86%/14% in *Computer Technologies of Building Design and Optimisation*. It is surprising that the ethos underpinning the programme design of the specializations in the same programme can be very different.

### **2.2. Programme content**

#### *2.2.1. Compliance of the contents of the studies with legal acts*

Content of the study programme "*Building Structures*" complies with 'deepening' student's competences according to legal requirements for University second level study programmes since 2005.

#### *2.2.2. Comprehensiveness and rationality of programme content*

The comprehensiveness and rationality of programme content is very good. The methodology for programme delivery is a balance of contact-hours and independent study, with a distribution of

24% and 76% respectively, which is appropriate for second study cycle programmes. Some employers would appreciate more project-based learning in the area of application of Lithuanian laws and regulation relevant to the subject matter of the final thesis.

### **2.3. Main strengths and weaknesses of Curriculum design**

The specializations are quite relevant and this programme provides an appropriate continuation of the Bachelor level programmes of the Faculty (or of other Faculties of Civil Engineering). The programme is also perceived as very useful by the profession.

Some employers would appreciate more project-based learning in the area of application of Lithuanian laws and regulation relevant to the subject matter of the final thesis. However a balance must be struck between knowledge and practical skills.

## **3. Staff**

### **3.1. Staff composition and turnover**

#### *3.1.1. Rationality of the staff composition*

The Review Group found that the current situation is satisfactory but noted the age profile of the staff in 3 specializations out of 4, where more than half of the lecturers are over 60 years old. This should be a matter for concern. There is an imminent potential loss of very experienced personnel through retirement. The pedagogical load of staff involved in these master degree specializations also seems high (66%) leaving inadequate time for research. It is therefore recommended that a strategic plan for the future staffing of the programme should now be formulated to ensure adequate resourcing of the programme with suitably qualified personnel for these specializations. The pedagogical load of staff should be reviewed to optimise scientific research output.

#### *3.1.2. Turnover of teachers*

The turnover of full-time lecturers is low.

### **3.2. Staff competence**

#### *3.2.1. Compliance of staff experience with the study programme*

Staff experience is very good. The specialisation supervisors have excellent scientific qualifications.

#### *3.2.2. Consistency of teachers' professional development*

VG TU's regulations in support of the development of both academic and technical staff are very good. However staff mobility has steadily decreased since 2005. The reasons for this need to be investigated and addressed.

### **3.3 Main strengths and weaknesses of staff**

The competence of the teachers and specializations' supervisors is excellent. On the other hand, it is noted that for 3 specializations more than 50 % of the teachers are over 60 years old. Some turnover should thus be organised.

The staff mobility has steadily decreased since 2005; this should also be a matter of concern.

## **4. Facilities and learning resources**

### **4.1. Facilities**

#### *4.1.1. Sufficiency and suitability of premises for studies*

The quality of the premises is very good. Provision for students working on individual tasks is afforded through the reading room of the Department of Civil Engineering and Business Management, the library and a computer room. The library hours are good and reading room access hours are generous, especially the Internet Reading Room. Wireless internet access is installed and becoming more widely available in the buildings.

#### *4.1.2. Suitability and sufficiency of equipment for studies*

The materials provided are good and the equipment has been acquired or upgraded since 2000. A major tender was put in place for acquisition of significant test equipment. Although regular renewal of the existing inventory of equipment is constrained by financial resources, the present state of the laboratories is excellent.

#### *4.1.3. Suitability and accessibility of the resources for practical training*

This is not applicable. The programme has no formal practical training element in industry. This is not unusual in the case of a master's degree programme.

### **4.2. Learning resources**

#### *4.2.1. Suitability and accessibility of books, textbooks and periodical publications*

The resources in place in respect of books, textbooks and periodical publications are good. There is regular investment in books and database subscriptions. Students have easy access to all relevant international journals.

#### *4.2.2. Suitability and accessibility of learning materials*

The materials are very good. Accessibility is constantly being enhanced through web-based tools, including electronic publications, lecture notes uploaded to the web, online ordering of library books, use of electronic databases.

### **4.3. Main strengths and weaknesses of learning resources**

The facilities and learning resources are excellent. All the libraries (with wide access to international journals) and specialized laboratories are efficient supports for the programme. In particular, the investments made by the Faculty for the scientific equipment should be acknowledged.



## **5. Study process and student assessment**

### **5.1. Student admission**

#### *5.1.1. Rationality of requirements for admission to the studies*

The admission requirements are rational and are in accordance with Ministry of Education and Science Lithuania. Applicants are required to have a bachelor's degree in civil engineering with 39 credits in specific subjects. A minimum GPA level for applicants to the programme is not prescribed but it may be stated that the competition scores of the applicants are high.

#### *5.1.2. Efficiency of enhancing the motivation of applicants and new students*

The programme is promoted at Open Days and particular attention is paid to discussions with potential applicants before they conclude their bachelor's degree studies. The role of the project "The Best Graduates of Technical Universities", which is a joint continuous project of two technical universities (Vilnius Gediminas Technical University and Kaunas University of Technology) further enhances promotion of the programme to wider society.

### **5.2. Study process**

#### *5.2.1. Rationality of the programme schedule*

The programme schedule in respect of both student learning and examinations is rational and the workload is well distributed. The last semester is devoted to the preparation and defence of the final thesis.

#### *5.2.2. Student academic performance*

The dropout rates in all specialisations are disturbingly high. It is thought that this is due to students giving up their studies as soon as a job offer is made. Attempts have been made to accommodate these students by alterations in the timetable to suit what effectively become part-time studies.

#### *5.2.3. Mobility of teachers and students*

Teacher mobility is very good but the students' mobility is insufficient due to the fact that most students have full-time jobs. This issue, combined with the drop-out rate problem, needs to be addressed.

### **5.3. Student support**

#### *5.3.1. Usefulness of academic support*

The Review Group was satisfied that academic support to the programme is good, covering thesis supervision, career guidance and individual study programmes (if required). Students expressed satisfaction with the academic and administrative supports.

#### *5.3.2. Efficiency of social support*

The Review Group did not find any particular resource specifically devoted to student welfare, such as a Faculty Student Advisor or Student Counsellor.

Onetime grants are given for active cultural, sports and other public activities for the benefit of the university. An increase in this form of support would be welcome.

The students spoke well of support provided by VGTU Students' Representation, through the class representative structure.

There was general agreement among current students and recent graduates that student accommodation facilities could be improved to enhance study conditions.

## **5.4. Student achievement assessment**

### *5.4.1. Suitability of assessment criteria and their publicity*

The relationship between score, description of knowledge and skills, and the percentage of goals achieved (Table 13 of the SAR) are clearly stated. The formulae used for calculating scores in the case of accumulative evaluations ensure that the students spread their workload evenly and are aware of the marks distribution. All of this information is made known to the students in advance, through announcements at lectures and through the University's website.

### *5.4.2. Feedback efficiency*

Students receive their results in a timely manner and may discuss the results with the lecturer. In addition the feedback is considered at several levels in the University (Departmental, Dean's Office and Rector's Office). Student's use of the anonymous online feedback system was less than optimal because students require more assurance that their comments cannot be traced back through their login username.

### *5.4.3. Efficiency of final thesis assessment*

The procedures for the final thesis assessment are thorough. The topics and supervisors require approval of the Dean. A five-person 'Committee for Qualification Degrees' (CQD) is assembled for considering the defence of final theses. The CQD includes specialists from practice, one of whom chairs the committee. Not more than two-thirds of the membership of the CQD may be drawn from the faculty that hosts the programme.

### *5.4.4. Functionality of the system for assessment and recognition of achievements acquired in non-formal and self-education*

Not applicable in this case. This innovation has not been introduced to the programme yet.

## **5.5. Graduates placement**

### *5.5.1. Expediency of graduate placement*

Graduates of the programme are placed in employment without difficulty. Employers appreciate both their technical knowledge and practical skills. Recent placement levels have reached 90% despite difficult market conditions.

## **5.6. Main strengths and weaknesses of study process and student assessment**

The number of students admitted in the various specializations is reasonable; nevertheless, they should be allowed to change their specialization during the course of their studies. The dropout rates are too high; the efforts from the staff to reduce them should be pursued.

The assessment of the quality of the courses by the students (online feedback) could be improved by direct dialogue, when possible, between the students and the teachers. Greater confidence is required by students in the anonymity of on-line feedback mechanisms before their use will reach the levels achieved in anonymous paper-based questionnaires.

Generally speaking, an increase in grants level and number is desired. In particular, the one-time grants for sports and cultural activities should be increased.

The quality of the dormitories should be enhanced.

There is no specific resource specifically devoted to student welfare, such as a Faculty Student Advisor or Student Counsellor.

The students' mobility is insufficient.

## **6. Programme management**

### **6.1. Programme administration**

#### *6.1.1. Efficiency of the programme management activities*

The programme is well-managed. The overview of Senate, Rector's Office, Faculty Council (including student representation) and Dean assures a quality system is in place. A comprehensive five-level documentation system of policies and procedures is in place, in which a lower-level hierarchical document (for example, description of a module) must comply with the higher-level documents (for example, university-level procedures).

### **6.2. Internal quality assurance**

#### *6.2.1. Suitability of the programme quality evaluation*

A good system is in place and students' surveys are included. The programme quality evaluation system ensures ongoing review of quality together with significant reviews at least every 5 years. External assessment or an order of the Rector may result in more frequent major reviews. All relevant areas are assessed by qualitative and quantitative criteria.

#### *6.2.2. Efficiency of the programme quality improvement*

A very good vision is described. The participation of the students seems well organised (SAR, Paragraph 287 to 291), but more room should be made for direct relationships between the students and the teachers.

#### *6.2.3. Efficiency of stakeholders participation.*

The efficiency of stakeholder participation is good. There are several opportunities for the social partners to engage with the programme. The Department reports that greater involvement of alumni is becoming evident. The close relations with the Lithuanian Builders' Association is particularly beneficial in maintaining regular input, for example through membership of the Faculty's Committee for Academic Affairs and involvement in Committees for Qualification Degrees.

### **6.3. Main strengths and weaknesses of programme administration**

Altogether the management of this programme is very good. A comprehensive five-level documentation system of policies and procedures is in place. The programme quality evaluation system ensures ongoing review of quality together with significant reviews at least every 5 years.

The efficiency of stakeholder participation is good and close relations with the Lithuanian Builders' Association is particularly beneficial in maintaining regular input, for example through membership of the Faculty's Committee for Academic Affairs and involvement in Committees for Qualification Degrees.

The participation of the students in programme quality improvement seems well organised but more room should be made for direct relationships between the students and the teachers to improve measures that will help decrease the students' dropout rate.

### III. RECOMMENDATIONS

#### 3.1.

For the transformation of the learning outcomes, it is desirable that the stakeholders be more involved.

#### 3.2.

The programme is one of 'deepening' and so it is appropriate that students acquire through this programme a very good scientific knowledge. However the creative skills which would encourage students to build their capability to innovate, and transfer specific scientific knowledge from one specialist application to evolving technology should be encouraged.

#### 3.3.

A requirement to have an appreciation of relevant Lithuanian law and administrative aspects of project management should be embedded in the learning outcomes of the final thesis.

#### 3.4.

In view of the age profile of the staff in 3 specializations out of 4, where more than half of the lecturers are over 50 years old, there is an imminent potential loss of very experienced personnel through retirement. It is therefore recommended that a strategic plan for the future staffing of the programme should now be formulated to ensure adequate resourcing of the programme with suitably qualified personnel for these specializations.

#### 3.5.

Notwithstanding current good standards of teaching, international best practice indicates that more formal collegial evaluation of teaching, instead of informal evaluation of teacher's work by department staff, is recommended. This could be implemented by using certain evaluation criteria.

#### 3.6.

The student's dropout rates are too high; all efforts to reduce them should be encouraged.

#### 3.7.

Teachers' and students' mobility abroad should be encouraged through the help of programmes such as the Erasmus programme. For the teachers, the level reached some 5-6 years ago could be a good target for the near future.

#### 3.8.

The University should consider providing a professional resource specifically devoted to student welfare, such as a Faculty Student Advisor or Student Counsellor

#### 3.9.

Student accommodation facilities should be improved to enhance study conditions.

#### IV. GENERAL ASSESSMENT

The study programme Building Structures (state code – 62402T107, new code – 621H21001) is given **positive** evaluation.

*Study programme assessment in points by fields of assessment.*

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	3
2.	Curriculum design	4
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
	<b>Total:</b>	<b>20</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.

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