



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus Gedimino technikos universiteto
STUDIJŲ PROGRAMOS *FINANSŲ INŽINERIJA*
(valstybinis kodas - 621N30007)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF *FINANCE ENGINEERING*
(state code - 621N30007) STUDY PROGRAMME
at Vilnius Gediminas Technical University

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Išvados parengtos anglų kalba
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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Finansų inžinerija</i>
Valstybinis kodas	621N30007
Studijų sritis	Socialiniai mokslai
Studijų kryptis	Finansai
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Antroji
Studijų forma (trukmė metais)	Nuolatinės – 1,5 m., iššęstinės – 2 m.
Studijų programos apimtis kreditais	90 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Finansų magistras
Studijų programos įregistravimo data	2013-08-14

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Finance engineering</i>
State code	621N30007
Study area	Social sciences
Study field	Finance
Type of the study programme	University studies
Study cycle	Second
Study mode (length in years)	Full-time (1,5 years), part-time (2 years)
Volume of the study programme in credits	90 ECTS
Degree and (or) professional qualifications awarded	Master of Finance
Date of registration of the study programme	2013-08-14

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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	Publikacijų sąrašas
2	Groups of scientific researchers of Financial Department
3	Older learning outcomes
4	Priority research activities

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

The Programme is implemented by Department of Finance Engineering, Faculty of Business Management (FBM) of the Vilnius Gediminas Technical University, one of the largest universities in the country. The most important structural unit organizing the research and responsible for studies is faculty that empowers departments for certain tasks. The self-assessment report was

prepared by the Committee of Study Programme with 10 members from different departments, 1 student representative and 1 social partner.

The evaluation report is based mainly on the information covered in the Self-evaluation report. The Programme has not been evaluated externally before.

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 28/10/2016.

1. **Prof. Dr. Zoltán Sipos (team leader)** *Chairman of Institute of Economics and Management Sciences at King Sigismund College, Hungary.*
2. **Prof. Dr. Stephan Schöning,** *SRH University of Applied Sciences, Calw, Professor, Germany.*
3. **Prof. Dr. Enn Listra,** *Founding Dean of the School of Business and Governance of Tallinn University of Technology, Estonia.*
4. **Mrs. Giedrė Gečiauskienė,** *Danske Bank A/S Lithuania branch – Head of Markets Lithuania, Lithuania.*
5. **Ms. Ugnė Jakubauskaitė,** *student of ISM University of Management and Economics, Lithuania.*

II. PROGRAMME ANALYSIS

2.1. Programme aims and learning outcomes

Aims and learning outcomes of the programme are established and publicly accessible - they can be found on the internet site of the university and the link to the online resource is provided in the SER. Programme aim (referred to as objective in the SER, as provided in the page 8) is relatively well defined. However, the description of the aim may be considered as overly sophisticated and essentially having little coherence with economic reality. The aim fails to substantiate, what aims other than finance related the programme establishes. Therefore, either programme name should be adjusted in order to convey finance related aims, or then the programme aim should be extended to establish financial engineering significance and role in the programme. Aims are also provided for both of the specializations (SER, pages 9 and 10) and they are clear and well defined.

Learning outcomes meet legal requirements and are defined following the recommendations of the Descriptor of the study field of finance. Different sets of learning outcomes are described for the

programme and two different specializations of the programme - *Investment management* and *Value engineering*, which makes the whole presentation of learning outcomes quite complex. All three sets of learning outcomes in full as presented in the SER are publicly accessible online. Following groups of learning outcomes are provided and assessed in each of three sets of learning outcomes: knowledge and its application, research skills, special skills, social skills, personal skills.

Learning outcomes are quite broad in all three sets. Having no additional information on the curriculum it would be very difficult to understand the scope of the programme and what specific skills the student is expected to gain and demonstrate at the completion of the programme. Learning outcomes descriptions for both specializations are very similar and somewhat unclear, however, in general learning outcomes of the *Investment management* specialization are slightly better defined than the learning outcomes of the *Value engineering* specialization.

Learning outcomes that are not mentioned below are currently presented in overly complex manner, which makes it difficult for any stakeholder to clearly understand the scope of the programme and different specializations: (1) Knowledge and its application learning outcomes group is limited to Investment theory, practice and investment management principles and methods (Investment management specialization) and value chain as well as environmental impact of value creation (Value engineering specialization). As it became evident during onsite visit interviews, these are of course not the only areas in which the knowledge is expected to be gained within either of the specializations. Therefore, current intended learning outcomes do not fully cover all areas of the programme scope. (2) Research skills: it is not clear from the description, whether participants of the programme are expected to learn to create relevant investment models or only learn to use them (Investment management specialization), and for Value engineering specialization this part is defined in a confusing manner and requires clarification. (3) Special skills: it is unclear whether creating new investment instruments is in the scope of Investment management specialization, or only the ability to make new investment instruments work is among learning outcomes, and this causes certain confusion while interpreting this particular learning outcome. (4) Social skills: ability to incorporate uncertainty and risk conditions in Investment management specialization is self-explanatory and unnecessary, as there is no such an environment as certain and risk-free in the investment universe.

SER and onsite visit interviews suggest very strong presence of research and academic focus in the programme. This is also represented in aims and learning outcomes. It is a strong advantage of the programme and it corresponds with the requirements of the second cycle study programme. Students, graduates and social partners made clear during onsite visit interviews that the programme

complies with the requirements of labour market needs, public needs and professional requirements, thus it can be concluded, that the scope of the programme and its specializations satisfies market needs. Yet, the scope should be more clearly presented in the learning outcomes.

Overall, programme name, aims and learning outcomes are compatible with each other, and compatibility can be increased by adjusting learning outcomes. The name of the programme currently does not correspond with internationally recognizable definitions: instead of "finance engineering", "financial engineering" is internationally used and common. During onsite visit programme management explained certain translation restrictions that are stipulated by Lithuanian language commission, however usage of internationally acceptable name would allow better represent the programme within international community. Most probably, Lithuanian financial system's demand for "financial engineers" is too small for the existence of such a programme. For example, the title "financial analysis" would describe the contents more precisely.

Programme aims and learning outcomes are broadly consistent with the type and level of studies and the level of qualifications offered, and the consistency could be improved by adjusting learning outcomes.

Theses sample review during onsite visit as well as SER Annex 4 (List of final theses) showed that their quality corresponds with the requirements for second cycle study programme. Although parts of thesis constitute empirical research, a number of theses is also aimed at scientific research. Grading is relatively skewed to the highest grades side (the average of grades for theses provided in the SER Annex 4 is 9.14 and 11 theses out of 14 were evaluated either 9 or 10), which suggests that grading system can be improved. Reference lists in most cases are sufficient. Some English literature is used; however, more attention and focus to English resources is required. According to the observations by VGTU, **students are encouraged to use various research tools and methods in the theses and the courses exist in the programme to introduce different research methodologies.** However, scientific research methods used in theses seem to be limited: students and programme staff (supervisors) clearly prefer Multimoor research tool above others. This approach limits students' ability to compare different research methods and choose their own preferences.

2.2. Curriculum design

VGTU programme Finance engineering consists of two specializations: Investment management and Value engineering. Earlier in 2016 the third specialization Management of personal finance had been cancelled due to the lack of applications. It is questionable if programme split into two specializations is sensible as according to the last data provided about graduates, only 14 students

graduated during the last period according to the list of master theses as provided in the Annex 4 of the SER (graduation year not identified) of which 10 had been enrolled in Investment management specialization and only 4 - in Value engineering specialization.

The curriculum design meets legal requirements. The university has presented for evaluation two different versions of the programme both designed for full-time and also part-time studies (the programme's versions are described comparatively in the table below). In the case of all versions the volume of the programme (90 ECTS, SER pp. 11-14) satisfies the requirement. Only bachelors of social sciences who have passed required courses are admitted to the programme and consequently, there is no need for bridging courses.

Study subjects are spread evenly and their themes are not repetitive. According to the study plans (SER, pp. 13-14) the number of 6-7 ECTS study subjects per semester is 5 for full-time version of the programme, the master thesis work is spread over all semesters of studies, with the work load of 3 ECTS during first and second semester and 24 ECTS during the last semester. In the case of part-time studies, the volume of studies is 19 – 21 ECTS per semester, the work load of the master thesis is spread over three semesters (24 ECTS during the last semester). No major repetitions are present in the subjects described in Annex 1. "Descriptions of course units". However, the topics of equity valuation, VaR (Value at Risk) and portfolio management are represented in more than one subject, creating the threat of overlapping in teaching material.

The content of the subjects is consistent with the type and level of the studies but presented in unusual combinations inside of subjects. The programme as a whole is biased towards the existing resources in the school – for example, the school uses locally developed tool Multimoor instead of internationally and commercially more widely used tools of analysis.

The content and methods of newer version of the programme are appropriate for the achievement of the intended learning outcomes; the relationships between ILO-s and contents of the programme are described in SER, pp. 8 -10. The SER does not explain how the ILO-s and subjects are connected in old version of the programme but the explanation given during the meeting about the changes in programme (specializations and subjects) convinced experts that the ILO-s have been achieved also in older version on at least satisfactory level.

However, the old version of the programme contains 6 subjects with unusual titles and the new version - also 6 subjects with unusual titles (typed in italic in the Table below). For example, Google search with the course title "Anatomy and engineering of the value" gives only one result, the same course from VGTU. The proportion of unusual titles used in the programme does not

allow getting internationally comparable understanding about the contents of the programme by the stakeholders without careful and time-consuming reading of all contents of course descriptions. Also, as a result, the graduates from the programme will have problems when benchmarking their studies internationally.

OLD		NEW	
<i>Specialization – Personal Finance Management/ Investment management/ Value Engineering</i>	<i>Optional courses (by specialisation)</i>	<i>Specialization – Investment management/ Value Engineering</i>	<i>Optional courses (for all)</i>
<i>Object and Methods of Finance Engineering</i>		Financial Engineering	Financial Systems
Methodology of Scientific Research*		Methodology of Scientific Research*	<i>Engineering of Profit and Risk</i>
Management Accounting of Contemporary Activities		<i>Quantitative and Expert Solution Methods</i>	<i>Anatomy and Management of Sustainable Development</i>
<i>Specialization – Investment Management</i>		<i>Specialization – Investment Management</i>	
Investment Instruments and Markets*	Measurement of the Value and the Risk of Investment Instruments	Investment Instruments and Markets* (with Course Project)	
Management of Financial Investment*	<i>Integrated Management of Assets and Liabilities</i>	Management of Financial Investment* (with Course Project)	
Research Activity Practice	Investing Psychology	Research Activity Practice	Investing Psychology
Investment Projects	Analysis of Investment Possibilities	<i>Analysis of Investment Possibilities (with Course Project)</i>	
<i>Specialization – Value Engineering</i>		<i>Specialization – Value Engineering</i>	
<i>Integrated Management of Value and Risk</i>	<i>Anatomy and Engineering of the Value*</i>	<i>Anatomy and Engineering of the Value* (with Course Project)</i>	
<i>Chain of Value Creation*</i>	Quantitative and Expert Solution Methods	<i>Chain of Value Creation* (with Course Project)</i>	
Research Activity Practice	<i>Risk Anatomy and Management</i>	Research Activity Practice	
Projects on Value Creation*	Finance of International Business	Projects on Value Creation* (with Course Project)	
<i>Specialization – Personal Finance Management</i>			
Economy and Finance of Personal Welfare			
Personal Finance Risk Management			
Research Activity Practice			
Projects on the Personal Career			

The scope of the programme is sufficient to ensure achieving learning outcomes. If evaluated separately, the two versions of the programme seem to be more close to two separate programmes than to two versions of the same programme (The versions have only 5 same compulsory courses and one coinciding optional course, coinciding courses are denoted by * in the table above). While old version has three specializations and different sets of optional courses for each specialisation, the new version has two specialisations and same set of 2+2 optional courses for both specialisations (see Table above).

The basic components of finance education are present in the programme and the social partners agreed that programme reflects the labour market needs. The topics are in some cases even too detailed and basic framework of finance may remain uncovered. For example, one would expect to see a course “Corporate Finance” in the curriculum (the course is not mentioned among the entrance requirements, SER, p. 20).

The content of the programme reflects the latest achievements in science. The professors participate actively in research but the share of high level publications outside of Lithuania is low. The university publishes three journals included into Web of Science with the topics close to the themes of the programme. Recently published textbooks are referred to in the subject descriptions bringing the textbook level of scientific input into the programme.

2.3. Teaching staff

According to the SER (see p. 14), the programme was delivered by 17 (2014/15: 14) teachers, during the evaluation period, 15 (12) of these are from the Department of Finance Engineering.

The study programme within the teaching staff evaluation area complies with legal requirements:

- No less than 80% of all study subjects’ teachers must have a scientific degree; out of them, no less than 60% of major study field teachers’ exercised research activity has to comply with their taught study subjects. The first requirement is fulfilled in full, as according to SER (see p. 15 and annexes 2 und 3) all study subjects’ teachers have a scientific degree (100%). According to the information given in the SER (see p. 17, table 13), the second requirement is fulfilled, too (82%).
- The requirement that no less than 20% of major study field subjects’ volume has to be taught by teaching staff members holding a Professors academic degree is also fulfilled. According to the SER (see p. 15, table 10 and annexes 2 and 3), there are 4 Professors in the

programme (24% of total teaching staff in 2015/2016, 28% in 2014/2015) teaching about 40 ECTS.

The qualifications of the teaching staff are adequate to ensure learning outcomes: the qualifications of the teachers are presented clearly in the documentation accompanying the SER (see annex 3). Teachers of this programme have an average teaching experience of 14 years (experts' calculation based on annex 2). Few lecturers from outside the university teach their practical field. According to the students and the graduates the experts met, teachers in general are highly motivated and very supportive of the students of the programme.

The number of the teaching staff is adequate to ensure learning outcomes, because on average, the ratio of students to teaching staff is about 2 (experts' calculation based on number of staff and admitted students in table 14, counting the half of 16 students from 2014 and 18 students enrolled in 2015).

The teaching staff turnover is on the level that enables adequate provision of the programme; the SER (see p. 15) indicates that the turnover of teaching staff during the evaluation period was low and the number of staff was increased slightly (plus 3). The age profile of the teaching staff is reasonable and balanced: In 2015/2016 42 % fell within the group of 30-39 year-olds, 23% within the group of 40-49, 23% within the group of 50-59, and 12% within the group of 70-79 (see table 11).

The higher education institution creates conditions for the professional development of the teaching staff necessary for the provision of the programme. Attending conferences, international mobility and research activities are actively supported and demanded by the department (see SER, p. 16-17). During the last 5 years, 12 teachers participated in international scientific conferences. 4 of these conferences took place in foreign countries and 5 were organized at VGTU. 7 teachers went abroad for teaching (to France, Germany, USA, Turkey, Italy, Latvia, Belgium, Poland, Hungary, Portugal and Finland) and also 7 teachers participated in scientific research projects. The SER (see 17) indicates that the teaching skills of the staff are developed regularly and 23% of teachers have attended additional qualification trainings during the evaluation period. Some of these trainings were arranged abroad (Germany, Romania and Belgium). Teachers are obliged to make an internship in the Lithuanian or foreign company or research centre once during their 5-year contract time. However, against the international background of the study field, the experts suggest to reconsider the attitude towards delivering courses in English language, as courses are prepared and the language skills of the staff seem to be sufficient.

The teaching staff of the programme is highly involved in research directly related to the study programme being reviewed. According to the SER (see pp. 15-17) and a publication list given to the experts group during their visit, almost all study field teachers have publications. They have contributed to at least 27 internationally visible publications in scientific journals. The experts were impressed by the quantity and quality of the research activity of the teaching staff. To the opinion of the review team, these efforts should be properly recognized and acknowledged by the university, e.g. by a stronger presentation of the research activities on the main homepage of the university.

2.4. Facilities and learning resources

The premises of VGTU for studies are adequate both in their size and quality: The University has a selection of small, medium and large rooms available for the implementation of the programme. The experts group had the opportunity to examine the facilities and learning resources in the VGTU and are satisfied that the number of rooms and the facilities in them are adequate for the programme. All rooms comply with occupational safety and hygiene requirements. The premises are adequate in terms of size and quality for the delivery of the programme. The building of the VGTU in general is in very good condition and provides a favourable learning environment. VGTU is located close to the centre of Vilnius which makes the faculty easily accessible by public transport and there also are enough parking lots.

The teaching and learning equipment (laboratory and computer equipment, consumables) are adequate both in size and quality for delivering the programme: most of the rooms are equipped with a multimedia projection system and there is wireless access to the internet in all facilities. The software installed includes the latest standard software. Additional software for financial planning and trading strategies is available. Students have access via Moodle to the materials provided by the lecturers. Appropriate software licenses are in place for all software.

Within this MA programme, students' practice as a compulsory study element is not required.

Teaching materials (textbooks, books, periodical publications, databases) are adequate and accessible. The teaching materials are adequately specified in the subject descriptions. These sources are available for the students in sufficient numbers at the library. The SER (see pp. 19-20) and the evidence collected by the experts during the visit indicates that the library of the VGTU supports the fulfilment of programme. In total, there are 529.954 units of 110.396 traditional titles. However, only a smaller part of these (7.865 publications) dedicated for the programme and only two hard copy foreign journals. This library stock is supplemented with 1329 e-books, 473 e-journals, and 27 databases relevant to the programme. The library gives access to Lithuanian and

various international online literature databases. These include EBSCO, Springer Link and Cambridge University Press. Students can also access these sources outside of the VGTU. During the site visit, the experts team reviewed the library facilities of the VGTU and came to the conclusion that it serves all needs of students and lectures.

2.5. Study process and students' performance assessment

Student admission to the programme is operated in compliance with general admission procedure for Lithuanian higher education institutions, admission rules are approved by the Council of the university. The SER indicates that admission to this programme covered both Lithuanian and English languages (SER, p. 20), according to the information in English, however the university's public internet site lacks information in English about the programme or it provides not as much information as it is presented in Lithuanian language. With 14 of staff it makes one student per staff member, which is highly questionable proportion. Admissions were total 18 students respectively in 2014 and 20 in 2015 (SER, page 21, table 14). Apparently, part of the students admitted failed to graduate.

The programme has state-funded and non-state-funded student places. During last three years the number of students, who were admitted to the full-time studies dropped-out almost by 70%. In the first year of the implementation of the programme (2014), 18 students were admitted and in 2016, 5 students were admitted. It is suggested by the university that the decline is partly attributable to the decreasing trends of student admission to all Lithuanian higher education institutions, negative long-term demographic trends and an economic situation in the country (SER, p. 21). On the other hand, the programme managed to keep relatively stable average competition score. In 2016, the lowest competitive mark to the position of state funded studies was 10,65 while in 2015 it was 10,68. Data on student drop-out is the following: in 2014 and in 2015 respectively one student dropped out from the programme.

VGTU has regulations and procedures in place to ensure a productive study process. Full-time students have lectures in the afternoon providing the opportunity for students to pursue studies with full-time employment, while the academic classes of part-time studies take place on Saturdays (SER, p. 22). A part of the classes is delivered in the virtual environment with possibilities to access all university databases by not being at the university. Students can communicate and find all relevant material, which is related to the study process on Moodle platform. The credits of course units consist of theoretical, practical, individual work and tutorial hours.

Students are encouraged to participate in research activities, through the scientific practice, using the software of laboratory or having the tutorial of applying cloud computing for final works or scientific research (SER, p. 22). Students have the possibility of participating in three fields of research. During the first semester students have course of social research methods, where they draft their first scientific publications. The expert team was impressed how much attention is given for the participation in the research activities. According to SER (Annex 1) in the part of recommended literature of the subject descriptions it is suggested that students use textbooks in their study process. However the information from the meetings with professors and students revealed that the students frequently invoke only publications or articles, while they are not that much encouraged to use any books. The use of published textbook materials is very important as a basis on which to build the interaction that is necessary for effective learning.

The programme ensures the ability to participate in international exchange programmes. During the last few years only an inconsiderable number of students have participated in study programmes abroad and students from abroad have come to study in the VGTU. At present, the programme is taught only in Lithuanian. The number of students, who participate in student mobility programmes, is dropping significantly. 86 students departed to the educational institutions of foreign partners in 2014, 64 - in 2015 and 9 - in first term of academic year 2016 (SER, p. 23). During the meeting with the expert team students stated that they withdraw the opportunity to go on exchange programmes, because they have jobs and other responsibilities. The faculty of Business Management has impressive list of foreign researchers paying short-term visits and reading lectures. However, very few of these visiting professors have expertise in finance. Regardless of many signed agreements with other universities (the Faculty of Business Management (FBM) has 139 contracts with universities from 24 countries under the ERASMUS+ exchange programme, additionally students may also use the opportunities provided by other exchange programmes (e.g. EUKLA and BALTECH) with 95 agreements signed (SER, p. 23)), or attempt to promote the exchange programmes for current students, VGTU has to use the opportunity to introduce more internationalism into daily routine of the programme – by inviting more guest lecturers, sending students to conferences, etc.

Students of the programme are provided with continuous academic and social support. At the beginning of the academic year administration and lecturers of VGTU or other structures organize training where all necessary information is provided. After each semester, meetings of student representatives with administration are organized, however the staff has to observe students' opinions more closely and consider additional (to the website) channels for the feedback about taken measures, because students seem to observe little progress. The social support system is

provided to the students of the programme: students may be awarded incentive scholarships for study results, one-off incentive scholarships and grants from VGTU and the FBM scholarships and grants fund, social grants (allocated by State Studies Foundation), individual scholarships (SER, p. 23).

The assessment of students is carried out in accordance with the guidelines of the Ministry of Education and Science. Each course unit is completed with the examination and/or assessment of student's individual work (project). The assessment instruments used include final examinations, mid-term tests, course projects, class presentations, individual assignments and group assignments. Each subject syllabus is publicly available to students and contains information on the assessment methods and criteria for each subject. The thesis topics do not vary too much, however VGTU provides an opportunity to prepare thesis with the Research Laboratory of Business Planning and Environment Economics (SER, p. 22).

So far, only one generation of graduates has graduated from the programme in full-time studies. It is indicated in SER, that about 80 percent of the graduates from the Programme have been already employed during their studies (SER, p. 26). Graduates indicated that after acquiring their Master degree they had been promoted in their current workplaces. Former students work in local companies, core activities of which are directly related with financial managers' responsibilities. However, it is important to highlight that only one generation of graduates has yet graduated from this programme.

2.6. Programme management

The university has submitted an excellent SER; responsibilities for decisions and monitoring of the implementation of the programme are clearly allocated. The main structural decision-making units at VGTU level include VGTU Studies Committee, the Rector's Office and the Senate, while at FBM programme level, these are the Programme Committee and the FBM Council. Responsibilities of executives of the programme are described in the basic documents of the university. Quality management system of the general university processes is well documented and thoroughly regulated. In 2014, the delegates of the FBM visited two universities abroad and obtained valuable experience of international academic quality.

Quality assurance system of the university and FBM is having the following main elements:

- Regular development and evaluation of study programmes;
- Systematic evaluation of student achievements;

- Improvement of teachers' pedagogical competences, basically by creating favourable conditions for that;
- Providing resources for the studies and cultural, academic, social support for students;
- Providing career planning services to graduates;
- Student participation in assuring the quality of studies. (SER pages 27-28.)

Internal quality assurance measures are effective and efficient. Quality assurance system does give an efficient support to the programme. Responsible member of the expert group has seen documents of the quality management system, e.g. questionnaires filled out by students on courses and lecturers. Social partners also referred to feedback they have provided and professional help they offered to the Programme.

Information and data on the implementation of the programme are regularly collected and analysed. Relationships with social partners are living, regular and efficient, with a proper advisory function as well. Social partners (the experts team was given an opportunity to meet 9 of them) suggested to the management to increase the application of IT methods in analysis and more intensive use of databases in some courses. They also suggested to teach more up-to-date applications from IT methods to the analysis of financial changes on the market. Some social partners came from banks and brokerage (investment) firms.

Graduates also revealed positive opinions (3 of them were present), but it is necessary to mention that only one generation of graduates has graduated from the programme. The optimism of the managers is also a positive element of the programme management.

The evaluation and improvement processes involve stakeholders. Nevertheless, these favourable relationships with social partners are highly informal. There is no formal, regulated committee for the social partners to support the programme development. An Advisory Board formed of external partners may be more effective with a formal, regular approach of operations.

Students regularly evaluate the courses and their feedback is available both for professors and management. Considering the high level of delightedness of students with the programme, and the positive opinion review team received from the social partners and alumni, there is no doubt about the level of the programme and its graduates.

The outcomes of internal evaluations of the programme are used for improvement (there has not been any external evaluation carried out yet). Guided by stakeholders, the management of the programme has developed a methodologically strong and competitive master programme. Again, the contribution of social partners and their (basically informal) relations with the management can

be mentioned, basically related to the emphasis in advising put on mathematical and IT methods and their increasing importance in educational programme.

Related to the name (title) of the programme, the word “engineering” has called forth a major discussion during the onsite visit and after it, among the expert team members. Review team is aware of many “financial engineering” programmes but simple Google search of “finance engineering” reveals the fact that no other programme would appear as a result except that of VGTU’s. Review team also understands that this name is used as a brand name for a mathematics-based masters’, with a strong methodological part and analytical spirit, offering more competitive competences to graduates but it is misleading internationally. This very special orientation is really emphasized in the “Programme aims and learning outcomes” chapter.

The programme does not encourage the usage of textbooks, but only databases supplied by the libraries and other resources. Review team has an opinion that textbooks must belong to the basic educational materials also in the case of practice-oriented master programmes.

2.7. Examples of excellence

The review team is impressed by the quantity and quality of the research activities of the teaching staff. This includes the efforts to involve students into research activities as well.

III. RECOMMENDATIONS

1. The name (title) of the programme and some subjects in it may deserve a re-consideration from the programme management.
2. The aims of the programme could be phrased in more clear form.
3. Two specialisations should be more clearly distinguished on the level of learning outcomes
4. It is recommendable to re-consider the usage of textbooks and more widely used analysis tools in the programme.
5. A more formal, coordinated approach to organize relationships with social partners may help fully use the potential of this relationship.
6. More English language courses would improve the international awareness of the programme. VGTU has to use the opportunity to introduce internationalism into daily routine.
7. The meeting with the faculty members during onsite visit revealed, that the support from top management towards the programme is weak and the area is not considered as a priority in VGTU. University management should reconsider their attitude and policies towards the area of knowledge of the programme and should take sufficient care, whilst setting the priorities, so that all structural units of the university were treated on equal terms.
8. The steps should be taken to improve students' attraction to the programme.

IV. SUMMARY

Aims and learning outcomes of the programme Finance engineering meet legal requirements and are publicly accessible. Aims of the programme and two specializations are relatively well defined. Learning outcomes are consistent with the scope of the programme and specializations, however some learning outcomes are unnecessarily too complex, other learning outcomes require better definition and clarification to increase consistency with the scope of the programme and specializations. The name of the programme does not comply with internationally common and recognized notion of financial engineering. The scope of the programme and two specializations satisfies market and labour market needs. Research is strongly supported by the programme and is represented in aims and learning outcomes. Programme aims and learning outcomes are broadly consistent with the type and level of studies and the level of qualifications offered.

The curriculum design satisfies the basic requirements of master degree programmes in all of its parts and is following in its contents the market demand for financial specialists. The level and contents of the subjects fits the level required for the master degree programmes. However, the present title does not fit exactly with the contents of the programme and the use of highly unusual titles for the subjects makes international comparisons of the subjects and programme complicated both for the stakeholders and for the students. Also, the programme's content is biased towards the use of existing resources in the faculty and the course descriptions do not mention the use of internationally and commercially widespread tools of analysis.

It was evident to the review team that teaching staff was dedicated and supportive to the students. The qualifications and number of staff are more than sufficient for the delivery of the programme and the achievement of its learning outcomes. The existing language skills of teaching staff should be used more intensively within the study programme. Provisions are made for the professional development of staff. The experts were impressed by the amount and quality of research and publications. The experts hope that this area will be recognized more by the university.

The VGTU facilities and learning resources in general are in very good condition and provide a favourable learning environment for the provision of the programme. Adequate rooms and equipment are available and suitable arrangements are in place for practice training in the area of investment planning. The computer equipment is generally up-to-date and software with appropriate licences is in place including the latest standard software. During the onsite visit, the experts team reviewed the library facilities of the VGTU and came to the conclusion that it serves all needs of students and lecturers.

Students are provided with very thorough and complete information on their study process and student performance is relatively good. The assessment process is managed well and students of the programme have continuous academic and social support provided. The programme ensures the ability to participate in international exchange programmes, but students stated that they tend to miss the opportunity to go on exchange programmes, because they have jobs and other responsibilities. The review team was impressed how much attention is devoted to students' participation in the research activities: students are encouraged to participate in research activities, through the scientific practice, using the software of laboratory or having the tutorial of applying cloud computing for final works or scientific research. During the first semester students are provided with course of social research methods, where they draft their first scientific publications. However, inviting foreign lecturers or sending students to conferences could improve the studies' internationalism even more. According to SER, about 80 percent of the graduates from the programme have been already employed during their studies. So far, only one generation of graduates has graduated from the programme in full-time studies.

Programme management has achieved a lot with the innovative and special master programme. Quality management system operates on a high level. Relationships with stakeholders are intensive, but are not regulated or institutionalized. The name of the programme may be reconsidered, as it may mislead international stakeholders. The emphasis put on methodology in the programme needs to be communicated intensively. Textbooks should be reconsidered as basic readings for the students. However, some problems seem to be connected with impaired relationship of the faculty with the top management of the university.

V. GENERAL ASSESSMENT

The study programme *Finance engineering* (state code – 621N30007) 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	3
3.	Teaching staff	4
4.	Facilities and learning resources	4
5.	Study process and students' performance assessment	4
6.	Programme management	3
	Total:	21

*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:	Zoltán Sipos
Grupės nariai: Team members:	Stephan Schöning
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**VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETO ANTROSIOS PAKOPOS
STUDIJŲ PROGRAMOS *FINANSŲ INŽINERIJA* (VALSTYBINIS KODAS – 621N30007)
2016-12-22 EKSPERTINIO VERTINIMO IŠVADŲ
NR. SV4-253 IŠRAŠAS**

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V. APIBENDRINAMASIS ĮVERTINIMAS

Vilniaus Gedimino technikos universiteto studijų programa *Finansų inžinerija* (valstybinis kodas – 621N30007) vertinama teigiamai.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	3
2.	Programos sandara	3
3.	Personalas	4
4.	Materialieji ištekliai	4
5.	Studijų eiga ir jos vertinimas	4
6.	Programos vadyba	3
	Iš viso:	21

* 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)

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IV. SANTRAUKA

Studijų programos *Finansų inžinerija* tikslai ir numatomi studijų rezultatai atitinka teisės aktų reikalavimus ir yra viešai skelbiami. Programos tikslai ir abi specializacijos palyginti gerai apibrėžtos. Numatomi studijų rezultatai dera su programos ir specializacijų apimtimi, tačiau kai kurie studijų rezultatai pernelyg sudėtingi, o kitus reikėtų aiškiau apibrėžti, kad jie labiau atitiktų programos ir specializacijų apimtį. Programos pavadinimas neatitinka įprastos tarptautiniu mastu pripažintos finansų inžinerijos sąvokos. Programos apimtis ir abi specializacijos atitinka rinkos ir darbo rinkos poreikius. Šioje programoje labai remiami moksliniai tyrimai, jie atsispindi programos tiksluose ir numatomuose studijų rezultatuose. Programos tikslai ir numatomi studijų rezultatai atitinka studijų rūšį, pakopą ir kvalifikacijų lygį.

Programos sandara (visos jos dalys) atitinka pagrindinius magistrantūros programoms keliamus reikalavimus, o jos turinys atitinka finansų specialistų paklausą rinkoje. Dalykų lygis ir turinys atitinka reikalaujamą magistrantūros programų lygį. Tačiau dabartinis programos pavadinimas ne visiškai atitinka jos turinį; dėl labai neįprastų dalykų pavadinimų ir socialiniams dalininkams, ir studentams sunku palyginti juos su tarptautiniais dalykais bei programomis. Be to, programos turinys yra orientuotas į esamų fakulteto išteklių naudojimą, o dalykų aprašuose neminimas tarptautinėje ir komercinėje erdvėje plačiai paplitusių analizės priemonių naudojimas.

Ekspertų grupė aiškiai matė, kad dėstytojai atsidavę studentams ir jiems padeda. Dėstytojų skaičius ir kvalifikacija didesni nei pakanka, kad būtų vykdoma ši studijų programa ir pasiekti numatomi studijų rezultatai. Šios studijų programos dėstytojai galėtų intensyviau panaudoti savo kalbų mokėjimo įgūdžius. Užtikrinamas dėstytojų profesinis tobulėjimas. Mokslinių tyrimų ir publikacijų skaičius padarė įspūdį ekspertams. Jie tikisi, kad universitetas labiau pripažins šią sritį.

VGTU materialiujų išteklių padėtis iš esmės labai gera; turimi ištekliai užtikrina šiai studijų programai palankią mokymosi aplinką. Yra pakankamai patalpų ir įrangos, sudaryti tinkami susitarimai dėl praktinio investicijų planavimo mokymo. Kompiuterinė įranga iš esmės šiuolaikiška, turimos programinės įrangos, įskaitant naujausio standarto įrangą, licencijos. Per vizitą ekspertų grupė apžiūrėjo VGTU bibliotekos įrangą bei fondus ir padarė išvadą, kad biblioteka tenkina visus studentų ir dėstytojų poreikius.

Studentams teikiama labai išsami informacija apie jų studijų eigą; studijų rezultatai palyginti geri. Vertinimo procedūra atliekama gerai. Šios studijų programos studentai nuolat gauna akademinę ir socialinę pagalbą. Programa užtikrina galimybę dalyvauti tarptautinėse mainų programose, bet studentai pareiškė, kad jie linkę nepasinaudoti šia galimybe, kadangi dirba ar turi kitų įsipareigojimų. Ekspertų grupei padarė įspūdį didžiulis dėmesys, skiriamas studentų dalyvavimui mokslinių tyrimų veikloje; priemonės, skatinančios juos dalyvauti šioje veikloje, yra mokslinė praktika, naudojimasis laboratorijos programine įranga, konsultavimas, kaip naudotis debesų kompiuterija rengiant baigiamuosius darbus ar atliekant mokslinius tyrimus. Pirmąjį semestrą studentams dėstomi *Socialinių mokslinių tyrimų metodai* (dalykas), kai jie rengia pirmąsias mokslines publikacijas. Tačiau studijų tarptautiškumas dar labiau padidėtų pasikvietus užsienio lektorių ar išsiuntus studentus į konferencijas. Vadovaujantis savianalizės suvestine, maždaug 80 proc. šios programos absolventų studijų metu jau dirbo. Iki šiol yra tik viena šios studijų programos (nuolatinės studijų formos) absolventų laida.

Programos vadovybė daug pasiekė, kad ši magistrantūros programa būtų naujoviška ir išskirtinė. Kokybės vadybos sistema veikia labai gerai. Ryšiai su socialiniais dalininkais intensyvūs, bet neregamentuoti arba oficialiai nustatyti. Programos pavadinimą būtų galima persvarstyti, nes jis gali būti painus tarptautiniams socialiniams dalininkams. Dėmesys metodologijai turėtų būti intensyviau komunikuojamas. Vadovėliai turėtų būti laikomi pagrindiniais studentų skaitiniais. Tačiau susidaro įspūdis, kad kai kurios problemos kyla dėl sutrikusių aukščiausiosios universiteto vadovybės ir fakulteto santykių.

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III. REKOMENDACIJOS

1. Programos vadovai turėtų persvarstyti studijų programos *Finansų inžinerija* pavadinimą ir kai kuriuos dalykus.
2. Programos tikslai galėtų būti aiškiau suformuluoti.
3. Dvi programos specializacijos galėtų būti aiškiau atskirtos studijų rezultatų lygmeniu.
4. Rekomenduotina persvarstyti vadovėlių ir plačiau taikomų analizės priemonių naudojimą šioje programoje.
5. Formalesnis, labiau koordinuotas požiūris į santykių su socialiniais partneriais organizavimą gali padėti pasinaudoti visomis šių santykių suteikiamomis galimybėmis.
6. Daugiau dalykų, dėstomų anglų kalba, padidintų šios programos tarptautiškumą. VGTU turi pasinaudoti galimybe diegti tarptautiškumą į kasdienę veiklą
7. Per vizito metu vykusius susitikimus su dėstytojais paaiškėjo, kad aukščiausiosios vadovybės pagalba programai yra silpna, o ši sritis nelaikoma VGTU prioritetu. Universiteto vadovybė turėtų persvarstyti savo požiūrį į šios programos pažinimą ir su tuo susijusią politiką ir, nustatydamas prioritetus, pakankamai pasirūpinti, kad visiems universiteto struktūriniams padaliniais būtų taikomos vienodos sąlygos.
8. Reikėtų imtis priemonių, kurios padėtų pritraukti daugiau studentų šią programą.

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