



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus Gedimino technikos universiteto
STUDIJŲ PROGRAMOS "EKONOMIKOS INŽINERIJA"
(valstybinis kodas 6211JX068)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF "ECONOMICS ENGINEERING" (state code 6211JX068)
STUDY PROGRAMME
at Vilnius Gediminas technical university

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Išvados parengtos anglų kalba
Report language – English

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Ekonomikos inžinerija</i>
Valstybinis kodas	6211JX068
Studijų krypčių grupė	Socialiniai mokslai
Studijų kryptis	Ekonomika
Studijų programos rūšis	Universitetinės
Studijų pakopa	Antroji (magistro)
Studijų forma (trukmė metais)	Nuolatinė – 1,5 metų
Studijų programos apimtis kreditais	90
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Ekonomikos magistras
Studijų programos įregistravimo data	2013-05-20

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Economics Engineering</i>
State code	6211JX068
Group of study field	Social sciences
Study field	Economics
Type of the study programme	University studies
Study cycle	Second (Master)
Study mode (length in years)	Full-time – 1,5 years
Volume of the study programme in credits	90
Degree and (or) professional qualifications awarded	Master of Economics
Date of registration of the study programme	2013-05-20

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The Centre for Quality Assessment in Higher Education

CONTENTS

I. INTRODUCTION.....	4
1.1. Background of the evaluation process	4
1.2. General.....	4
1.3. Background of the HEI/Faculty/Study field/ Additional information	5
1.4. The Review Team.....	5
II. PROGRAMME ANALYSIS	6
2.1. Programme aims and learning outcomes.....	6
2.2. Curriculum design	8
2.3. Teaching staff	10
2.4. Facilities and learning resources	11
2.5. Study process and students' performance assessment.....	13
2.6. Programme management	15
2.7. Examples of excellence	16
III. RECOMMENDATIONS.....	17
IV. SUMMARY	18
V. GENERAL ASSESSMENT	19

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.	Teachers questionnaire template
2.	Students questionnaire template
3.	Students publications
4.	List of academic teachers' scientific publications
5.	List of incoming visiting professor at the Economics Engineering Study Program
6.	Information about recent changes in the structure of the Faculty of Business Management Departments

7.	Staff Performance Evaluation Scheme (point system awarded for different working tasks)
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1.3. Background of the HEI/Faculty/Study field/ Additional information

With about 10,000 students and 900 academic teachers, the VGTU is one of Lithuania's largest higher education institutions. The university's mission emphasises such things as its commitment to educate at an international level creative and competitive human resources open to the latest scientific and technological achievements who observe cultural values and participate in the development of Lithuania and the region in the global context. Technology-oriented programmes are predominant among 100 fields of study that the University offers. However, the University also provides an extended offer of social sciences programmes. The higher education institution takes pride in its modern research centres, as well as in well-developed links with business and foreign universities. The HEI's quality assurance system is based on ISO 9001:2008. The University and its programmes are externally evaluated by SKVC experts.

The organisational structure of the University includes 10 faculties, with the Faculty of Business Management being one of them. There are 6 departments operating within the Faculty. Economic Engineering offers Master's degree and Bachelor's degree programmes and is coordinated by the Department of Economic Engineering. Its mission is to conduct top-quality research and prepare highly qualified specialists at national and international level. The Department employs 3 professors, 12 associated professors and 13 lecturers. The SPC composed of 3 student representatives and 1 employer representative is directly responsible for the monitoring and development of the study programme.

The self-evaluation report was prepared by SPC members and representatives of students and business following the report template as provided by SKVC.

Therefore, it has to be concluded that the University provides appropriate conditions relating to research, teaching, human resources and infrastructure, in which to create a modern interdisciplinary programme combining two scientific disciplines; Economics and Engineering.

1.4. The Review Team

The review team was completed according *Description of experts' recruitment*, approved by order No. V-41 of Acting Director of the Centre for Quality Assessment in Higher Education. The Review Visit to HEI was conducted by the team on 16th October 2017.

1. **Prof. dr. Mieczyslaw Socha (team leader)** *Professor Emeritus of the University of Warsaw, the Department of Macroeconomics and Foreign Trade, Poland.*
2. **Assoc. Prof. dr. Laivi Laidroo**, *Vice-Dean for Academic Affairs of School of Business and Governance of Tallinn University of Technology, Estonia.*
3. **MSc. Jakob Ravn** *Director of Teaching & Learning Dep. of Copenhagen Business School, Denmark.*
4. **Dr. Tadas Gudaitis**, *Director of UAB "Swedbank investicijų valdymas", Lithuania.*
5. **Mr. Vasaris J. Prunskas**, *student of Business School of Vilnius University, Lithuania.*

II. PROGRAMME ANALYSIS

2.1. Programme aims and learning outcomes

The master study programme belongs to the area of social sciences, field of Economics. The aims of the study programme are formulated in very broad terms: *“Prepare masters of Economics, who are adapt and use the latest knowledge of economic theories, economic process management, and economical engineering sciences. To form, assess and independently make effective decisions in economic policy, based on systematic, critical and constructive thinking; to create and (or) adapt modern models of economics forecasts and the methods of research in practice, the coordination principles for economic analysis processes, and enterprises/companies and establishments’ business....”* That’s because some aims and learning outcomes follows the exact formulations from the ministerial Description of the fields of Economic Studies. In the Review Team opinion, the formulations of learning outcomes in a ministerial Descriptor is a framework which the University and the SPC has to translate into programme specific learning objectives which makes sense in a disciplinary context. The objectives of the study programme and its intended learning outcomes are presented in the form of a matrix in which individual subjects are assigned to each one of them. The objectives of the study programme and the intended learning outcomes have been formulated also at the level of two specialties: *Finance Economics* and *Global Economics*.

The list of programme’ learning outcomes, 10 in total, is comprehensive and the learning outcomes are grouped into five categories: Knowledge, Research abilities, Special skills, Social skills and individual skills. Each of the two specializations has five additional learning outcomes which make a total of 15 learning outcomes for the entire programme. In the previous years, the number of learning outcomes was much bigger and amounted to 22 for the study programme and 6-7 for each specialty. The intended learning outcomes are further specified in the syllabuses for

each subject. Interviews held during the site visit prove that internal and external stakeholders were engaged in the formulation of those outcomes.

According to the institutions internal evaluations, the employers' and social partners' opinion of the programme learning objectives is, that they are corresponding well to labour market and societal needs. The polls from employers and social partners are in general positive to the implementation and results of the programme. This was confirmed by the alumni and employers during the site visit. The aims and learning outcomes defined and publicly announced on the VGTU homepage. Methodology for Assessing Non-Formal and Informal Acquired Competencies also has been developed.

The Review Team confirms that aim and learning outcomes are well linked to the vision, mission, and strategy of VGTU. However, some programme aims are formulated in a rather ambitious way. For example, Master's degree programme graduates are supposed to "*create and (or) adapt modern models of economics forecasts and the methods of research in practice*" (SER p. 9). According to Lithuanian Qualification Framework, knowledge creation is attributed to level VIII, i.e. graduates of doctoral studies. At the seven level of study students is able to "*...carrying out applied research in professional activity and creative application of theoretical knowledge and results of scientific research*". Additionally, the learning outcome Z2 promises "*...application knowledge of classical economic theories and models, engineering sciences and interdisciplinary research*" and learning outcome SG1 promises "*student will be able to solve atypical exercise in economic engineering, implementing novelties*" but, as shown further on, the study programme contain very few Engineering Sciences elements. Due to the fact that the intended learning outcomes are formulated in such a vague way paying little attention to precision, the distinctive feature of the programme is not clearly defined, and the learning outcomes verification is limited. It may also detract from the attractiveness of the programme in the eyes of candidates and fail to reflect the needs of the labour market. That seems to be partly proven by previous specialization "Service Economics" is being closed down and the number of enrolled students is not increasing during past 2 years.

The learning outcomes are related to subject fields in the programme in a rather complex matrix which is a bit difficult to overview. Some of the learning outcomes are weakly linked to specific subjects or learning activities in the programme and it is difficult to assess if graduates actually obtain this ability. For example, in the classes entitled „*Theory of Globalization*”, none of the topics directly refers to the theory of globalization, but only "The essence of globalization and its reflection in contemporary theories" is discussed (3 hours lecture). There are legitimate doubts as to whether or not the intended learning outcomes specified in certain syllabuses are achievable in light of the fact that topics to be covered within a particular course have not been

clearly defined and not enough hours have been allocated for their presentation. E.g.: only one hour is allocated to deliver a lecture in “Comparative Analysis Regions Economies” entitled “*The European Union in the context of the World Economy: tendencies and priorities in economic development*”. Also, Study Programme Committee should give consideration to the fact, that in some syllabuses the formulation of the subject’s learning outcomes is the same like for the study program’s learning outcomes (see syllabus of the Practice of Research Activity).

The title of the programme, *Economics Engineering* (the other names are used in the VGTU documents are: *economical engineering science, engineering economic, economic engineering*), cause confusion, especially purpose of using word “engineering”. It is a serious concern for the Review Team if this title is the best label for the programme since “the prism of engineering” is not clearly recognisable in the programme description or the course syllabuses. At the site visit this confusion is supported by discussions with all stakeholders which hold different views on this issue and Senior Management and teaching staff does to a large extent equals engineering with common economic terms as decision making, optimisation, mathematical skills, forecasting, comparative economics and risk management. To some teaching staff, engineering is also related to the Information Technology part of the courses. To the Review Team this is not an engineering component of an Economic programme per se. This view is furthermore supported by employers’ representatives who expresses confusion by this title when originally presented for it. Additionally, the same concern was shared by the previous Review Team of Bachelor programme “Economics Engineering” in 2014. However, no changes were done on this concern.

In conclusion, the Review Team confirms that most of the study programme aims, learning outcomes are in accordance with the qualification criteria for a second-cycle economics master degree, comply with legal requirements, are related to the labour market needs and the University strategy. However, some objectives and learning outcomes are too poorly defined and difficult to assess at the programme and modules levels. The title of programme does not correspond with the content of the programme.

2.2. Curriculum design

The programme is 90 ECTS credits and the duration is 1.5 years of full time study. The structure of the programme, ratio of general and subject specific course modules and number of contact hours are all in compliance with legal requirements. Two specializations *Finance Economics* and *Global Economics* are offered from 2017. Previously, third specialisation *Service Economics* was offered. Students from the beginning of the study choose specialization.

The programme consists of three parts. In the first one, oriented towards the development of scientific research competencies, students study such subjects as *Quantitative and Expert Solution Methods*, *Methodology of Scientific Research*, *Research Activity Practise and Contemporary Economics*. In the second part, within the chosen specialty, they deepen their knowledge and specific competencies. The third part involves conducting research and preparing the master thesis. Due to the resignation of the *Service Economics* specialization the programme has been modified during the last two years.

In principle, curriculum design is well documented and appropriate to the qualifications offered. The structure of the programme, ratio of general and subject specific modules and number of contact hours and ECTS are all in compliance with legal requirements. Internal and external stakeholders are involved in designing, monitoring assessing and developing the study programme and its management. They are very supportive of the programme.

The scope of the programme is sufficient to achieve the learning outcomes and the content of the programme corresponds to the latest academic, and technological achievements. However, the Review Team has found some weaknesses in its structure and implementation. First, the Engineering component of the study is even less evident (almost non-existing) than in the undergraduate study. Possible gains from being part of a technical university seem not to be fully exploited in the curriculum and this might be an opportunity of developing the programme into a more nationally and internationally distinct programme. Also, the experience of other institutions offering similar programs, such as the Karlsruhe Institute of Technology, VGTU partner, could be better utilized.

Nota bene at the Review Team meeting with social partners, employers suggested introducing the courses providing the knowledge of specificity of industries and industrial branches. Second, selection of majors/specialities and their connection with labour market needs require more attention. As specialities related with the fields as finance and global economy, which are constantly changing and developing, the graduates shall acquire advance knowledge and skills in the field in order to be competitive in labour market. However, no classes offering advanced knowledge have been clearly identified. Sometimes, notwithstanding the fact that this is a second-cycle programme, basic introduction is offered, e.g.: *Contemporary Economics* course aim is “to provide students with the basic knowledge of Contemporary Economics” and its compulsory recommended reading contains textbooks used by first year students of Bachelor’s degree programmes. The list of topics discussed during these classes contains various forms of non-tangible capital (knowledge economy, intellectual capital, social capital, human capital, relationship capital, clustering), however, with no reference to specific economic theories. Fourth, in the material provided to the Review Team, there were signs of significant

presence of Lithuanian sources that for some courses were also the main readings. This makes the scope of programme very locally oriented and potential outreach in terms of Faculty and students is limited. The syllabuses do not include many newest research articles from international journals. At the site visit the teaching staff informed the Review Team that they extensively used journal articles as additional readings. The Review Team finds it good that journal articles are used but would rather like to see as an integrated part of the syllabuses as compulsory readings.

Study methods include, alongside traditional lectures and seminars, term papers, integrated projects. These methods are intended to support learning of the individual subjects (term papers), integration of subjects (integrated projects) and integration of theory and practice (practices). This focus on integration of subject knowledge across disciplines and relating subject knowledge to practice supports the students' achievement of the intended learning outcomes. At the site visit students confirmed that this was working as intended.

In conclusion, the Review Team finds that the curriculum fulfils the formal requirements for second-cycle studies, and ensures sufficient level of achieved learning outcomes. However, the content the programme is lacking contents explicitly referring to technological sciences, and in some classes the theoretical framework for the second-degree programme is insufficiently exposed.

2.3. Teaching staff

In the period of 2013 – 2017 teaching staff of 28 professors has contributed to teaching in the programme. More than 2/3 of the professors are from two departments: Department of Social Economics and Management of International Economics and Management. The academic qualifications of the teaching staff are high with 100% of them holding a scientific doctor's degree.

The teaching staff of the programme meet the legal requirements and the number of teaching staff is adequate to ensure learning outcomes. In 2016-17 the ratio of teacher to students was 1.16 which is a question of efficiency from university management point of view to staff usage and running programme as such. Turnover of teaching staff is low and the continuity of teaching staff in the programme makes a stable basis for development of the programme.

The academic staff are required to publish research papers and they are partly assessed on behalf of research publications and other scientific work. In general, the publication lists do show that most of the staff are or have been actively engaged in some research activity, although many do not publish research papers on a continuous basis. The publication records show a high research productivity although many of the publications are not published in peer review

international journals with high impact factor. A lot of the senior faculty, full professors do participate in conferences on a more continuous basis.

The professional qualifications of professors are raised at least every 5th year in an internship in order for them to obtain practical experience in the subject(s) they teach. This is a mandatory activity and during the internship they are supposed to renew teaching materials and getting up-to-date knowledge on practice, tools, industry trends etc. The pedagogical qualifications of teaching staff are upgraded through training courses offered by the institution. It does seem to be an optional activity for teaching staff to participate in these offerings but according to the SER, 43% professors took part in one or more courses during the last five years. Additionally, mandatory trainings on innovation teaching methods are held every year (at least 8 academic hours per year).

Many visiting professors are engaged in the teaching process, usually providing short courses. It helps to increase the level of internationalization of the study program, expose students on various teaching techniques and methods, and facilitates the future cooperation in research area. The expansion of this practice requires improvement in students' English language skills.

The Review Team confirms, that the University worked out comprehensive personnel policy in area of recruitment, evaluating and supporting academic teachers in developing their didactic and research skills. The number and the quality of teaching staff ensure the achievement of the objectives and learning outcomes of the programme. The system upgrading the qualifications of academic teachers deserves a special distinction. Students expressed high level of satisfaction from the teachers' services. More effort is needed to increase the number of high level scientific publications in international peer review journals with high impact factor.

2.4. Facilities and learning resources

The Faculty has 15 ordinary classrooms and 3 computerized classrooms which accommodate the need of teaching facilities in terms of student seats. In addition, a collaborative makerspace is available for students to join interdisciplinary projects and start-ups.

Computers and software programs and packages are available to students in the 3 computerized classrooms. The sufficient hardware and software for a programme this size is in place. Students can use various specialised software for econometric modelling. The University offers a rich set of specialized software programs useful for students' research work and preparation of thesis, among them: Bentley project system, Statistica, Autocad, ArcGIS, Maple, Matlab, SolidWorks, Sugar CRM, Zoho, Wiki. An interactive board (CleverBoard3) supplied

with modern Mimio interactive teaching technology offers new possibilities, a.o. saving in electronic form all notes and sharing them with others.

The teaching and research infrastructure provides students with access to a number of global bibliometric databases and other necessary for Master study online resources. SER provides information about 22 fixed-term and 31 subscribed databases with almost 300 thousand titles of e-books and 23 thousand titles of electronic journals. The Review Team acknowledged that students have access to primary data collected by the Lithuanian Office for Statistics. In an open space of the Library thousands of printed copies of scientific publications are available for readers. VGTU publishes several own journals on economics sciences. Regrettably, the University guarantees no regular access to international primary databases reflecting real economic processes occurring in households, companies and industries.

The resources are also accessible from outside the campus. Reading rooms, some with computers, are available and two of the seats are also accessible for students with special needs.

Facilities and resources for digital learning are available through the Moodle platform which is comprehensively used in most courses.

Recently, students have been offered an opportunity to develop their project management skills by cooperating with other specialists working in a modern interdisciplinary research Centre called “LinkMenų Fabrikas”. It is potentially a place where the students can train their professional skills and support an entrepreneurial attitude. As it is now, “LinkMenų Fabrikas” is only used by relatively few of the students from this programme and it can be even more integrated into specific courses and events.

The Review Team confirms the SER findings that the University provides students to sufficient resources and services offering modern facilities and didactic infrastructure with open access to international bibliometric databases and specialized software suitable for econometric modeling.

Facilities and learning resources are sufficient for achievement of learning outcomes. Some weakness of the material base is the lack of students access to international databases with primary data characterizing real economic processes at the level of households, enterprises and industries. This limits the possibilities for conducting original empirical research of a comparative nature and consequently the preparation of innovative Master's theses and valuable publications. In addition, there are too few textbooks and monographs in economics at the advanced level.

2.5. Study process and students' performance assessment

The adopted recruitment criteria are exhaustive and do not contain discriminatory provisions detrimental to the principle of equal opportunities during the candidate recruitment process. Admission to the programme is based on a competitive order of scores. The admission is carried out in accordance with the procedures for general admission to Lithuanian higher education institutions and in compliance with enrolment rules approved by the University senate.

During the 2013-2016 period the number of admitted students gradually increased, however the total admitted amount of student is still relatively low (15 students were admitted in 2016). The numbers of potential students, who have applied for studying in the programme with first priority have also gradually increased, however some potential students have not started studies in case they needed to pay for studies. This is mainly caused by a number of unfavorable external circumstances and processes, such as decrease in birth rates, economic migration, strong competition on the education services market or the decline of the classic form of part-time programmes and increasing cost of study. During the site visit the Review Team was informed that another reason could be large share of demanding subjects required high mathematical skills.

It seems that the effectiveness of recruitment for the programme undergoing evaluation has remained unsatisfactory for some years. The Faculty and Programme management should boost promotional activities to increase the effectiveness of student recruitment processes. It might otherwise turn out that the continuation of the programme will prove impossible in the near future. One of the consequences of keeping a small number of students will be the high costs of implementing this programme of study.

The organisation of the education process is appropriate. The Academic Affairs Office provides well-planned study schedules and time-tables which are easily available to students in due time. Classes for full-time students take place in the afternoon providing the opportunity for students to pursue studies with full-time employment. Around 80% of the graduates from the programme have been already employed during the studies. Only two graduates were registered as unemployed.

The teaching/learning methods that are applied include student independent learning as well as active forms of working with students. On average, 20 % of the study time are spend in classes and 80 % are spend on independent work. They enable students to achieve their intended learning outcomes in the field of knowledge, skills and social competences. The small size of student groups favours personal relations type master-student which would be impossible in mass education. This creates good background for students-centred learning.

The assessment of student achievements is based on publicly available criteria. The methods of verifying and assessing learning outcomes that are applied within the programme under evaluation are consistent with its intended learning outcomes. Evaluation includes not only the final result of the study process – that is the preparation and presentation of theses – but also individual stages marked by credits and examinations in particular subjects. The other components are cumulative grades of the practical tasks included in the syllabus and interim settlement of the theory within the term. The continuous assessment throughout the semester is used to motivate students to learn continuously. Committees assessing Master's theses presentations include social partner representatives and the presentations of theses are open to general public. In the Review Team opinion, the system of verifying and evaluating interim and final learning outcomes is well designed and transparent.

The Review Team was shown a sample of Master's theses and their reviews. Their topics and competence level are diversified. A number of them are descriptive rather than analytical and they use relatively simple methods of statistical inference or econometric modelling. There are also theses whose line charts are based on three observations only. The number of pages is frequently over 100. Some reviews are laconic and superficial. The Review Team encourages Study Programme Committee and relevant departments to reflect on the quality of theses and reviews.

Academic support is very well developed, it takes primarily place in lectures, seminars, and tutorials but also covers announcements of learning material, syllabus, objectives, learning outcomes, summaries of lectures, student tasks, the evaluation system, self-assessment tasks, examination questionnaires and more on the Moodle platform. Tutorials to students are provided and students are tutored before exam of each subject. Formative assessment and feedback is provided on term papers and course papers but also assessment methods like self-assessment and peer-assessment are used in the programme. Teaching staff is available to students outside classes during office hours.

Extra-curricular academic activities are offered to students in terms of participation in research seminars, quest researchers presentations, entrepreneurship projects, research conferences held at the university and being part of the research societies. The students with research interests are encouraged to prepare articles for publication.

Students can participate in lectures provided by practitioners and foreign visiting professors. Also, students have good opportunities to participate in international exchange programmes. However, it seems that international possibilities provided by the University are not fully used in the programme as during the analysed period no students have participated in exchange programs. No semester is devoted in particular to exchange. Additionally, international

and local students tend to study in separate groups. Although the reasons for it depend not only on the academia, the University, Faculty, Programme management and teaching staff should together create conditions for higher level of internationalisation of study process.

Relative to this area of evaluation, the Review Team found that the University, Faculty and the SPC developed comprehensive procedures and has done much good work in the areas of organization of teaching and learning, its methods, learning outcomes assessment, academic support to students and internationalization. However, more effort is needed in the marketization of the program, its internationalization, and improvement of the Master thesis quality.

2.6. Programme management

The structure for programme management at VTGU includes the Studies Committee, the Rectors office, the Senate, the FBM Council, the department heads and the Programme Committee. The division of roles and responsibilities are clearly divided between these actors and the main body for implementation and quality assurance of the programme is the Programme Committee. The Programme Committee consists of a mix of staff, students and social partners.

The VTGU quality assurance system is well established and procedures are highly regulated in resolutions and Rector's orders. Data are collected systematically and used for informed decision making. The infrastructure for quality management are thus in place.

The key stakeholders are involved in the main quality processes. Students are as key stakeholders involved in the Programme Committee, in monthly meetings with administration and academic staff and by filling in student satisfaction surveys annually and after each term. Administration, academic staff, social partners, private and public labour market representatives and alumni are all involved in the continuous development processes. All stakeholders do confirm that their inputs are being used. It is more difficult to see from the SER, if the continuous data from student surveys, student achievements, graduate employability etc. have an impact on decisions on course and programme level. During the site visit, the Review Team was told that these data was looked into on a regular basis and from employers and alumni that they felt that their input made a difference.

Managing the programme is rather complex since a lot of departments are involved and the group of teaching staff is big. The SPC is for the same reason a big group which makes efficient management processes more difficult. An SPC with more than 10 people is challenging as a managing body since decisions are hard to reach and it is furthermore difficult to meet as larger the group's size is. Additionally, it is important to define clear roles, responsibilities and activities of each SPC member, with clear value-added result. These challenges were also evident at the site visit where the very large groups held different views on several aspects, i.e.

what constituted the Engineering part of the programme and how learning outcomes were interpreted.

2.7. Examples of excellence

The VGTU offers unique solutions for Professors' skills upgrading named Professors' Internship. The professional qualifications of professors and associate professors are updated every 5th year. The main objective of the Internship is to raise practical experience in the subject(s) they teach. This can be done in the form of a paid staying at a foreign university, corporation or other institution. It is mandatory, but the actual use of the possibilities depends largely on an individual initiative on how to organize it (visit another university or staying in industry). In the opinion of the Review Team, this form of qualification upgrading works very well and contributes to the enrichment of the teaching process with the latest scientific achievements and industry experience. This is confirmed by the opinions of students and academic teachers themselves.

II. RECOMMENDATIONS

1. The title of the study program and some courses should be adjusted to the programme structure and the lecture content. In the case of maintaining the current name of the programme, it is necessary to enrich the curriculum with the content of Engineering and other technical sciences. We highly recommend to develop a clear narrative of this programme and makes an effort in communicating this narrative to all primary stakeholders.
2. Intended learning outcomes should be more closely linked to the specificity of the field of study and the second cycle of study. The SPC should avoid using the exact formulations from the ministerial order in the programme learning objectives and outcomes.
3. In order to fully adjust courses to the level of the second cycle the Review Team recommends to reconsider the syllabuses and update curriculum with topics offered at the advanced level.
4. Internationalisation of curriculum, especially regarding international literature and readings should be strengthened.
5. Better incentives for Professors and Associate professors to publish systematically in international, peer review journals with high impact factor should be provided.
6. In order to ensure sustainability of the study programme investigate thoroughly the reasons for reduced number of applicants to the programme and improve the recruitment practices.
7. Provide students with access to relevant international database with primary data characterising economic processes at the micro levels.
8. The Review Team commends to consider introducing the requirements of wider application of modern econometric modeling methods in Master's theses.
9. Make it structurally easier for students to take part in international exchange programmes, for example by having a semester without mandatory courses (an electives semester).

IV. SUMMARY

The Master programme *Economic Engineering* is a well-established programme which educate useful and competent graduates for the Lithuanian labour market. The programme aim and learning outcomes are in accordance with the qualification criteria for a second-cycle economics master degree, comply with legal requirements, are related to the labour market needs and the University strategy. However, some objectives and learning outcomes are too poorly defined and difficult to assess at the programme and modules levels. The title of programme does not correspond with the content of the programme.

Curriculum fulfils the formal requirements for second-cycle studies, and ensures sufficient level of achieved learning outcomes. However, the content the programme is lacking topics explicitly referring to technological sciences, and in some courses the theoretical framework for the second-degree programme is insufficiently exposed.

University worked out comprehensive personnel policy in area of recruitment, evaluating and supporting academic teachers in developing their didactic and research skills. The number and the quality of teaching staff ensure the achievement of the objectives and learning outcomes of the programme. More effort is needed to increase the number of high level scientific publications in international peer review journals with high impact factor.

Facilities and learning resources are sufficient for achievement of learning outcomes. Some weakness of the material base is the lack of students' access to international databases with primary data characterizing real economic processes at the level of households, enterprises and industries. This limits the possibilities for conducting original empirical research of a comparative nature and consequently the preparation of innovative Master's theses and valuable publications. In addition, there are too few textbooks and monographs in economics at the advanced level.

Study process and students' performance assessment has been described by comprehensive procedures. SPC and Faculty management has done much good work in the areas of organization of teaching and learning, its methods, learning outcomes assessment, academic support to students and internationalization. However, more effort is needed in the marketization of the program, its internationalization, and improvement of the Master thesis quality.

The University Quality Assurance system is well-established and the procedures are followed and used. Data from diverse stakeholders are collected and taken into account and all stakeholders feel that their input is being used to develop the quality of the programme.

V. GENERAL ASSESSMENT

The study programme *Economics Engineering* (state code – 6211JX068) 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	2
2.	Curriculum design	2
3.	Teaching staff	3
4.	Facilities and learning resources	3
5.	Study process and students' performance assessment	3
6.	Programme management	3
	Total:	16

*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:

Prof. dr. Mieczysław Socha

Team leader:

Grupės nariai:

Assoc. Prof. dr. Laivi Laidroo

Team members:

MSc. Jakob Ravn

Dr. Tadas Gudaitis

Mr. Vasaris J. Prunskas

**VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETO ANTROSIOS PAKOPOS
STUDIJŲ PROGRAMOS *EKONOMIKOS INŽINERIJA* (VALSTYBINIS KODAS –
6211JX068) 2017-12-04 EKSPERTINIO VERTINIMO IŠVADŲ NR. SV4-223 IŠRAŠAS**

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Vilniaus Gedimino technikos universiteto studijų programa *Ekonomikos inžinerija* (valstybinis kodas – 6211JX068) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	2
2.	Programos sandara	2
3.	Personalas	3
4.	Materialieji ištekliai	3
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	16

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

2 - Patenkinamai (tenkina minimalius reikalavimus, reikia tobulinti)

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

4 - Labai gerai (sritis yra išskirtinė)

<...>

IV. SANTRAUKA

Magistro studijų programa *Ekonomikos inžinerija* yra gerai išvystyta studijų programa, kuria ugdomi Lietuvos darbo rinkai naudingi ir kompetentingi absolventai. Programos tikslas ir studijų rezultatai atitinka antrosios pakopos magistro laipsnio kvalifikacinius kriterijus, tenkina įstatymų reikalavimus, yra susiję su darbo rinkos poreikiais ir universiteto strategija. Vis dėlto kai kurie tikslai ir studijų rezultatai yra pernelyg prastai apibrėžti ir sunkiai įvertinami programos ir dalykų lygmenyse. Studijų programos pavadinimas neatitinka programos turinio.

Programos turinys tenkina formaliuosius antrosios studijų pakopos reikalavimus ir užtikrina pakankamą pasiektų studijų rezultatų lygmenį. Vis dėlto studijų programos turinyje trūksta temų, konkrečiai susijusių su technologiniais mokslais, kai kuriuose dalykuose nepakankamai atskleistas antrosios studijų pakopos studijų programos teorinis pagrindas.

Universitetas yra parengęs išsamią personalo politiką, apimančią akademinio personalo (dėstytojų) samdą, vertinimą ir rėmimą, skirtą personalo didaktiniams ir mokslinių tyrimų vykdymo įgūdžiams ugdyti. Dėstytojų skaičius ir kokybė užtikrina studijų programos tikslų ir studijų rezultatų pasiekiamumą. Daugiau pastangų reikėtų įdėti norint padidinti aukštos kokybės mokslinių publikacijų skaičių tarptautiniuose recenzuojamuose aukšto citavimo rodiklio žurnaluose.

Materialieji ir mokymosi išteklių yra pakankami studijų rezultatams pasiekti. Viena iš materialinių išteklių silpnybių yra prieigos studentams prie tarptautinių duomenų bazių su pirminiais duomenimis, apibūdinančiais realius ekonominius procesus namų ūkių, įmonių ir pramonės šakų lygmenimis, nebuvimas. Tokios prieigos studentams nebuvimas riboja galimybes atlikti originalius lyginamojo pobūdžio empirinius tyrimus bei pažangių magistro laipsnio baigiamųjų darbų ir vertingų publikacijų rengimą. Be to, bibliotekoje yra per mažai pažengusiųjų lygmens vadovėlių ir monografijų ekonomikos tema.

Studijų procesas ir studentų pasiekimų vertinimas aprašyti išsamiose procedūrose. SPK ir fakulteto vadovybė yra nuveikę nemažai gero darbo dėstyto ir mokymosi organizavimo, metodų, studijų rezultatų vertinimo, akademinės paramos studentams ir tarptautiškumo srityse. Vis dėlto papildomų pastangų reikia įdėti populiarinant studijų programą, didinant jos tarptautiškumą ir gerinant magistro laipsnio baigiamųjų darbų kokybę.

Universiteto kokybės užtikrinimo sistema yra gerai organizuota, procedūrų laikomasi ir jos taikomos. Universitetas renka duomenis iš įvairių socialinių dalininkų ir į juos atsižvelgia, be to, visi socialiniai dalininkai jaučia, jog jų indėlis yra panaudojamas studijų programos kokybei gerinti.

<...>

III. REKOMENDACIJOS

1. Studijų programos pavadinimas ir kai kurie dalykai turėtų būti pakoreguoti atsižvelgiant į programos struktūrą ir paskaitų turinį. Jei norima išlaikyti dabartinę studijų programos pavadinimą, būtina studijų programos turinį papildyti inžinerijos ir kitų technologijos mokslų turiniu. Vertinimo grupė itin rekomenduoja sukurti aiškų šios programos naratyvą ir pasistengti komunikuoti jį visiems pagrindiniams socialiniams dalininkams.

2. Numatomus studijų rezultatus reikėtų glaudžiau susieti su studijų krypties ir antrosios studijų pakopos specifika. Studijų programos komitetas turėtų vengti programos tiksluose ir studijų rezultatuose vartoti pažodines, iš ministro įsakymo paimtas formuluotes.
3. Siekiant iš esmės pakoreguoti dalykus, kad šie atitiktų antrosios studijų pakopos reikalavimus, vertinimo grupė rekomenduoja persvarstyti dalykų turinį ir atnaujinti studijų turinį pažengusio lygmens temomis.
4. Sustiprinti studijų programos turinio tarptautiškumą, ypač įtraukiant į skaitymo sąrašus daugiau tarptautinės literatūros.
5. Pasiūlyti geresnes paskatas profesoriams ir docentams sistemingiau publikuoti darbus tarptautiniuose recenzuojamuose aukšto citavimo rodiklio žurnaluose.
6. Siekiant užtikrinti studijų programos tvarumą, būtina išsamiai išnagrinėti sumažėjusio stojančiųjų į programą skaičiaus priežastis ir pagerinti priėmimo praktiką.
7. Suteikti studentams prieigą prie aktualių tarptautinių duomenų bazių su pirminiais duomenimis, apibūdinančiais ekonominius procesus mikrolygmenyje.
8. Vertinimo grupė rekomenduoja pagalvoti apie galimybę įvesti reikalavimus dėl platesnio šiuolaikinių ekonometrinio modeliavimo metodų taikymo magistro baigiamuosiuose darbuose.
9. Palengvinti struktūrinėmis priemonėmis studentų dalyvavimą tarptautinių mainų programose, pavyzdžiui, įvedant semestrą be privalomųjų dalykų (pasirenkamųjų dalykų semestrą).

<...>

2.7. Išskirtinės kokybės pavydžiai

VGTU siūlo unikalų sprendinį profesorių gebėjimams ugdyti, t. y. profesoriaus stažuotę. Profesorių ir docentų kvalifikacija keliami kas 5 metus. Stažuotės pagrindinis tikslas yra tobulinti praktinę dalyko (-ų), kurį (-iuos) dėstytojas dėsto, patirtį. Tai padaryti galima mokamo vizito užsienio universitete, bendrovėje ar kitoje įstaigoje forma. Tokia stažuotė yra privaloma, tačiau realios galimybės ja pasinaudoti iš esmės priklauso nuo asmeninės iniciatyvos tokią stažuotę organizuojant (vizitas į kitą universitetą ar verslo sektoriaus įmonę). Vertinimo grupės nuomone, ši kvalifikacijos kėlimo forma yra labai gera ir prisideda prie dėstytojų proceso papildymo naujausiais moksliniais pasiekimais ir verslo patirtimi. Tai patvirtina ir pačių studentų bei dėstytojų išreikšta nuomonė.

<...>

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

Vertėjos rekvizitai (vardas, pavardė, parašas)