



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus Gedimino technikos universiteto
STUDIJŲ PROGRAMOS "EKONOMIKOS INŽINERIJA"
(valstybinis kodas 6121JX051)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF "ECONOMICS ENGINEERING" (state code 6121JX051)
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	6121JX051
Studijų krypčių grupė	Socialiniai mokslai
Studijų kryptis	Ekonomika
Studijų programos rūšis	Universitetinės
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė – 4 metai
Studijų programos apimtis kreditais	240
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Socialinių mokslų bakalauras
Studijų programos įregistravimo data	2011-06-17

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Economics Engineering</i>
State code	6121JX051
Group of study field	Social sciences
Study field	Economics
Type of the study programme	University studies
Study cycle	First
Study mode (length in years)	Full-time – 4 years
Volume of the study programme in credits	240
Degree and (or) professional qualifications awarded	Bachelor of Social Sciences
Date of registration of the study programme	2011-06-17

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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	7
2.3. Teaching staff	10
2.4. Facilities and learning resources	11
2.5. Study process and students' performance assessment.....	12
2.6. Programme management	14
2.7. Examples of excellence	15
III. RECOMMENDATIONS.....	16
IV. SUMMARY	17
V. GENERAL ASSESSMENT	18

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.	Staff Performance Evaluation Scheme (point system awarded for different working tasks)
2.	List of guest lecturers (incoming staff)
3.	List of academic teachers' publications
4.	Teachers questionnaire template
5.	Students questionnaire template
6	Students publications
7	Information about recent changes in the structure of the Faculty of Business Management Departments

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 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 University and its programmes are externally evaluated by SKVC experts. The *Economics Engineering* programme was evaluated by SKVC experts in 2014, which resulted in its accreditation for 3 years.

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. Mieczysław 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 objectives of the bachelor programme *Economic Engineering* are stated in terms of aims, intended learning outcomes and subjects. The list of programme’ intended 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, *Investment Economics* and *International Economic Relations*, have five additional learning outcomes which make a total of 15 learning outcomes for the entire programme.

From analysis and discussions during the site visit, the Review Team acknowledged that most of the intended learning outcomes are possible to achieve by graduates. However, some aims and learning outcomes follows the exact formulations from the Description of the fields of Economic Studies (ministerial order No. V793) and are defined rather in a in very general terms and are difficult to assess if graduates actually achieved them. Example: *“take responsibility for the impact of their business outcomes on society and economical and social development, welfare and environment”*. In the review team opinion, the formulations of learning outcomes in a ministerial order is a framework which the University and the SPC has to translate into programme specific learning objectives which makes sense in a disciplinary context. Otherwise, merely confusion instead of the intended clarity and transparency of the study programme may appear. This confusion was evident during the site visit where the SER-team could not provide clarity on the meaning of such formulations and the relationship between learning outcomes on bachelor and master levels.

The programme belongs to the area of social sciences, field of Economics. The intended learning outcomes are in accordance with the qualification criteria for a first-cycle economics bachelor degree. The aims and learning outcomes are publicly announced on the VGTU homepage. They are also well linked to the mission, vision and objectives of VGTU. The learning outcomes are related to subject fields in the programme in a rather complex matrix

which is a bit difficult to overview. Methodology for Assessing Non-Formal and Informal Acquired Competencies also has been developed.

Since the last external evaluation of the programme in 2014, the number of the intended learning outcomes have been reduced from 22 to 10. This was recommended in the last evaluation and the reduction in numbers is found to be an improvement.

The title of the programme, *Economics Engineering* (the other names used in VGTU documents are: *economical engineering science, engineering economic, economic engineering*) causes confusion and this also was stressed in the previous evaluation. In the 2017 SER this interdisciplinary field of study is defined as: “*Engineering Economics is a field that addresses the dynamic environment of economic calculations and principles through the prism of 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.

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. At the site visit this was confirmed by social partners, alumni and employers who find programme learning objectives well aligned to labour market needs and specific job positions.

In conclusion, the review team finds that in general programme objectives and learning outcomes are in correspondence with labour market and societal needs and legal requirements. However, the title of programme does not correspond with the content of the programme. Some objectives and learning outcomes are too ambitious for a first cycle programme, rather weakly linked to subjects, difficult to assess and poorly defined.

2.2. Curriculum design

The programme is 240 credits and the duration is 4 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. Internal and external stakeholders are

involved in designing, monitoring assessing and developing the programme and its management. They are very supportive of the programme. The Review Team was informed that the programme was benchmarked against similar programme offered by the Karlsruhe Institute of Technology.

In the structure of the programme, three components were identified: general subjects, field of study subjects and specialization part for two specializations: “*Investment Economics*” and “*International Economic Relations*”. The content of the programme includes standard economic modules, such as *Micro-* and *Macroeconomics*, *Advanced Economics*, *Quantitative Modelling* and *Statistics*. These are combined with traditional business disciplines as *Business Fundamentals*, *Management*, *Business Law*, *Financial Management*, *Pricing* and *Accounting*. The study programme provides two (introductory and professional) practices. And the culmination of the study is thesis preparation and its public defence.

The analyzed programme is an interesting offer on the Lithuanian educational market, although the Review Team finds certain its deficiencies. Some courses are based on the syllabuses slightly overlapping in content. This was confirmed during the site visit and teaching staff as well as SPC pays attention to this. Some changes in courses and curriculum have been made in 2016 where seven courses have been replaced. It is to some concern to the review team that especially the courses *Econometrics* and *International Business Economics* have been eliminated from the programme. At the site visit the Review Team was informed that econometrics and quantitative methods were part of other courses but no courses focused solely on quantitative methods. However, it should be stress that although the content may be there, econometrics is traditionally a key component of an economics programme and could, therefore, be more clearly visible from the curriculum itself. Given the strong focus of the programmes on mathematical skills and students’ ability to perform quantitative analysis, this is regarded rather as a weakness.

During the visit the Review Team discussed intensively the issue of equipping students with knowledge of the engineering environment and technological sciences. The study programme includes core courses allowing to develop analytical skills of the graduates, but their application can be difficult due to the lack of subjects developing solid technical competences (for example in technological processes, sectorial technological processes, technological developments). In the program, there are no classes with natural sciences (physics, chemistry, biotechnology). Although the students have a subject called “*Engineering principles*”, the number of contact hours for each topic is small, ranging from 1 (e.g. "electronics and electrical sciences ...") to 5 (e.g. "Energy technology and thermal sciences ..."). This may cause limited possibilities for the use of economic analyzes and tools in specific industries, especially the most up-to-date ones. Possible gains from being part of a technical university seems 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.

In courses like “*History of Economic Theories*” and “*Advanced Economics*”, the content of the course and name of the course did not match. For example, “*Advanced Economics*” classes provide information on economic development, branch economics, and not economic models and theories relevant to the advanced level. Great doubts arouse about the sequence of modules. An example may be “*History of Economic Theories*” taught already in the first semester, while the students have no basic knowledge of micro- and macroeconomics. “*Advanced Economics*” is not preceded by courses on Micro- and Macroeconomics conducted at the intermediate level.

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 (e.g. *Complex Project for Economic Planning, Personal Finance*). This makes the scope of the programme rather locally oriented and potential outreach in terms of the Faculty and the students is limited. It was difficult for the international Review Team to evaluate the academic level of the literature in Lithuanian; also in some of the core economics and business economics courses it was hard to understand why commonly used international literature is not chosen as main readings, although in some of the courses it is listed as additional references.

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 includes, alongside traditional lectures and seminars, 5 term papers, 2 Integrated Projects and 2 practices (introductory and professional practice). 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 intended learning outcomes. At the site visit students confirmed that this was working as intended.

It is evident to the Review Team that curriculum is systematically developing and modified, and this process involves both, internal stakeholders and representatives of employers. Specialisations have been cut, if the interest in them was low. However, the programme is not sufficiently saturated with the content of the Engineering, the titles of some modules do not correspond to their content, the sequence of some subjects raises fundamental doubts, the

distinction between courses offered at the basic and intermediate levels is unclear, the classic courses like “*Econometrics* and “*Industrial Organisations*” are missing.

2.3. Teaching staff

In the period of 2013-2017 teaching staff of 87 professors from 13 different departments has contributed to teaching in the programme. More than 1/3 of the professors are from two departments: Department of Finance Engineering and Department of Economics and Management Enterprises.

The teaching staff of the programme meets the legal requirements and the number of teaching staff is adequate to ensure learning outcomes. In 2016-2017 the ratio of teacher to students was 2.32 which is a high ratio compared to most other Economics and Business Economics programmes.

The academic qualifications of the teaching staff are high with 2/3 of them holding a scientific doctor's degree. 40 % of the teaching staff are either full professors or associate professors and the institutions formal requirements for professor qualifications are appropriate and in compliance with legal requirements.

The academic staff is 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 all staff are or have been actively engaged in research activity and most have also published research articles. 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 and associate professors, do participate in research conferences on a more continuous basis and the university supports this activity in an adequate way.

The professional qualifications of professors and associate 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 Review Team finds this a very good arrangement for continuous development of teachers' qualifications and the visit confirms that it works well and nearly all staff have been on internship in the last 5 five years and appreciates the arrangement.

The pedagogical qualifications of teaching staff are upgraded through training courses offered by the institution. At the site visit the Review Team was informed that teaching staff have to take 8 hours of pedagogical training per year and according to the SER, 63 professors took part in one or more courses during the last five years.

Turnover of teaching staff is low and the continuity of teaching staff in the programme makes a stable basis for development of the programme. Lectures provided by visiting professors and practitioners from business contribute to the quality of the study programme. From the site visit the Review Team learned that students in general were satisfied with the teaching.

The English skills among teaching staff vary and should be an area for further attention by the programme and the institution.

In general, the staffing of the programme is at the very high level to ensure the achievement of the learning outcomes. Academic teachers are very committed to the programme and undertake numerous bottom-up initiatives to modernize the curriculum and teaching and learning processes. They are highly engaged in scientific research programmes. However, the outcome of research activities is less visible in the upper and high level peer review international journals publications with high impact factor. The institution supports continuous training of professors and their internships is a distinctive feature of the University's personnel policy.

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. 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 library facilities and resources are comprehensive with access to necessary online resources and relevant databases. 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 can access primary data collected by the National Statistical Office. 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. 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.

The "LinkMenu Fabrikas" is a positive new invention and works as a kind of creators space for all students at VGTU. 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.

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

The Review Team confirms the SER findings, that the University offers 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.

2.5. Study process and students' performance assessment

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.

The number of applicants have dropped dramatically in the period 2013-2016 and both the total number of applicants and first priority applicants are halved during that period. A special group have been formed to increase popularity of the programme. Whatever the reasons for this reduction in number of applicants, it is key challenge for the programme to ensure volume and quality in the pool of applicants. The senior management and the programme management are aware of that but they have no clear picture of the reasons for this reduction in applicants, besides that there is a general reduction of applicants to higher education. The strategy of how to deal with the challenge is unclear, partly because the reasons are unknown.

The programme Academic Affairs Office provides well-planned study schedules and time-tables which are easily available to students in due time. Students confirm that they receive adequate information in due time.

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. During the site visit the students confirm that they feel invited to take part in research activities.

Social activities like sports, arts, dance and a chorus are organised in student clubs. There is no information in the SER on how many students actually are engaged in social activities.

The Faculty has exchange agreements with 136 universities from 24 countries under the Erasmus+ exchange programme and further a couple of other smaller exchange programmes. Exchange and mobility is absolutely possible for the students but only few students take advantage of the possibilities. This might be because of structural limitations in the programme

in regard of exchange. If the students miss subjects included in the programme because of exchange, they have to study them individually. No semester is devoted in particular to exchange.

Foreign students taking the programme could contribute to an international environment at the programme and support Lithuanian students in training their English skills. This opportunity is not used since the international students are in a separate English-speaking track with only 7 Lithuanian students. The rest of the students in the programme are not exposed to an international environment and do not train their English which become evident when talking to the students during the site visit. The English language skills demonstrated by the student during the site visit were in general not very good and since this qualification is also highly stressed among employers, it is an area of concern for the programme.

Academic support 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. The teaching staff is available to students outside classes during office hours. On average, 30 % of the study time are spend in classes and 70 % are spend on independent work.

The assessment of student achievements is based on publicly available criteria. The assessment criteria are directly linked to the learning objectives. The evaluation method consists of a final exam and one or two other components. 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.

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. According to the students and the teaching staff these forms of assessment works well.

The Review Team was shown a sample of Bachelor's theses and their reviews. Their subjects are compatible with the profile of study programme and its specializations, although some topics are formulated too broadly (examples: *Evaluation of Foreign Direct Investment in Baltic Countries*; *Debt Crisis in European Union Countries: Causes and Consequences for Economic*; *Development of Economic Relations Between Lithuania and Sweden*). The average scientific level of the thesis can be considered as satisfactory.

Graduates are well received by employers and social partners where 95.7 % responded positively in a survey on the question of satisfaction of graduates' qualifications. Graduates still engages in the University and programme activities like career fairs, seminars, trainings and

projects after graduation. At the site visit this is confirmed by employers, social partners and alumni who all are very positive towards the outcomes of the programme and feel engaged in university and programme activities like career fairs, seminars, trainings and projects after graduation. At the site visit this is confirmed by employers, social partners and alumni who all are very positive towards the outcomes of the programme and feel engaged in the continuous development.

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. 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 is 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.

Serious attention has been paid to the last external evaluation of the programme and it has clearly been used to develop the programme. 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 Programme Committee is for the same reason a big group which makes efficient management processes more difficult. A 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 groups size is. 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 this 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 business sector). 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.

III. 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 make 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. The SPC should avoid using the exact formulations from the ministerial order in the programme learning objectives and outcomes.
3. Considerations require a sequence of taught subjects and a clearer distinction between courses offered at basic and intermediate levels.
4. Internationalisation of curriculum, especially regarding international literature and readings should be strengthened.
5. Pay attention to pedagogically upgrading the teaching staff that are in most need for it, not only the ones that demands it.
6. Provide better incentives for Professors and Associate professors to publish systematically in international, peer review journals with high impact factor.
7. Investigate thoroughly the reasons for reduced number of applicants to the programme.
8. 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).
9. Consider potential benefits in terms quality and flexibility of blended learning and digitalisation of teaching and learning.

IV. SUMMARY

The Bachelor programme *Economic Engineering* is a well-established programme which educates useful and competent graduates for the Lithuanian labour market. Programme objectives and learning outcomes are in correspondence with labour market and societal needs and legal requirements. However, the title of programme does not correspond fully with the content of the programme. Some objectives and learning outcomes are too ambitious for a first cycle programme, rather weakly linked to subjects, difficult to assess and poorly defined.

Curriculum is systematically developing and is continuously modified, and this process involves both, internal stakeholders and representatives of employers. Specialisations have been cut, if the interest in them was low. However, the programme is not sufficiently saturated with the content of the Engineering, the titles of some modules do not correspond to their content, the sequence of some subjects raises fundamental doubts, the distinction between courses offered at the basic and intermediate levels is unclear, the classic courses like “*Econometrics* and “*Industrial Organisations*” are missing.

Staffing of the programme is at the high level to ensure the achievement of the learning outcomes. Academic teachers are very committed to the programme and undertake numerous bottom-up initiatives to modernize the curriculum and teaching and learning processes. They are engaged in scientific research programmes, however the outcome of research activities is less visible in the peer review international journals publications. The institution supports continuous training of professors and their internships is a distinctive feature of the University’s personnel policy.

The University offers modern facilities and didactic infrastructure with open access to international bibliometric databases and specialized software suitable for econometric modeling. The digital infrastructure is also of a high standard. The University have furthermore established a creator’s space, LinkMenu Fabrikas, which potentially can support the students training of professional skills, team work and entrepreneurial attitude.

The number of applicants to the programme have dropped dramatically in the period 2013-2016. It is a key challenge for the programme to ensure high number of highly qualified applicants.

In general, student learning is well supported by the programme and the assessment of students’ achievements are done in a valid way. Graduates from the programme are well received by the employers and social partners.

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 – 6121JX051) 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	4
5.	Study process and students' performance assessment	3
6.	Programme management	3
	Total:	17

*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 PIRMOSIOS PAKOPOS
STUDIJŲ PROGRAMOS *EKONOMIKOS INŽINERIJA* (VALSTYBINIS KODAS –
6121JX051) 2017-12-04 EKSPERTINIO VERTINIMO IŠVADŲ NR. SV4-222 IŠRAŠAS**

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V. APIBENDRINAMASIS ĮVERTINIMAS

Vilniaus Gedimino technikos universiteto studijų programa *Ekonomikos inžinerija* (valstybinis kodas – 6121JX051) 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	4
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	17

* 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

Bakalauro studijų programa *Ekonomikos inžinerija* yra gerai išvystyta studijų programa, kuria ugdomi Lietuvos darbo rinkai naudingi ir kompetentingi absolventai. Programos tikslai ir studijų rezultatai atitinka darbo rinkos ir visuomenės poreikius bei teisinį reglamentavimą. Vis dėlto studijų programos pavadinimas neviseškai atitinka studijų programos turinį. Kai kurie tikslai ir studijų rezultatai yra pernelyg ambicingi pirmosios pakopos studijų programai, gana silpnai susieti su dalykais, sunkiai įvertinami ir prastai apibrėžti.

Studijų programos turinys yra sistemingai vystomas ir nuolat keičiamas. Šiame procese dalyvauja tiek vidiniai socialiniai dalininkai, tiek darbdavių atstovai. Specializacijos buvo panaikintos, jei susidomėjimas jomis buvo menkas. Vis dėlto studijų programoje trūksta inžinerijos turinio, kai kurių dalykų pavadinimai neatitinka jų turinio, kai kurių dalykų seka kelia esminių abejonių, nėra aiškus skirtumas tarp pradinio ir aukštesnio lygmenų dalykų, taip pat trūksta tokių klasikinių dalykų kaip *Ekonometrija* ir *Pramonės organizacijos*.

Studijų programos personalo kvalifikacija yra aukšta – taip užtikrinamas studijų rezultatų pasiekiamumas. Dėstytojai yra labai atsidavę programai ir imasi įvairiausių iniciatyvų „iš apačios į viršų“ siekdami modernizuoti studijų programos turinį bei dėstyimo ir mokymosi procesus. Akademinis personalas dalyvauja mokslinių tyrimų programose, tačiau mokslo veiklos rezultatai nėra gerai matomi tarptautiniuose recenzuojamuose žurnaluose. Aukštoji mokykla remia nuolatinį dėstytojų tobulėjimą, jų stažuotės yra išskirtinis universiteto personalo politikos bruožas.

Universitetas siūlo modernius materialiuosius išteklius ir didaktinę infrastruktūrą su atvira prieiga prie tarptautinių bibliometrinių duomenų bazių bei specializuotos programinės įrangos, tinkamos ekonometriniam modeliavimui. Skaitmeninė infrastruktūra taip pat yra aukštos kokybės. Universitetas yra sukūręs kūrėjų erdvę „LinkMenu Fabriką“, kuris potencialiai gali prisidėti prie profesinių studentų gebėjimų, komandinio darbo ir verslumo įgūdžių ugdymo.

Per laikotarpį nuo 2013 iki 2016 metų gerokai sumažėjo stojančiųjų į programą skaičius. Pagrindinis programos iššūkis yra užtikrinti didelį itin gerai pasirengusių stojančiųjų skaičių.

Apskritai studijų programa užtikrina studentų mokymąsi, studentų pasiekimai yra vertinami tinkamai. Programos absolventus vertina ir darbdaviai, ir socialiniai partneriai.

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.

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III. REKOMENDACIJOS

1. Studijų programos pavadinimas ir kai kurie dalykai turėtų būti pakoreguoti atsižvelgiant į programos struktūrą ir paskaitų turinį. Jei norima išlaikyti dabartinį 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 specifika. Studijų programos komitetas turėtų vengti programos tiksluose ir studijų rezultatuose vartoti pažodines, iš ministro įsakymo paimtas formuluotes.
3. Apsvarstyti ir dėstomų dalykų seką, aiškiau atskirti siūlomus pradinio ir aukštesnio lygmens dalykus.
4. Sustiprinti studijų programos turinio tarptautiškumą, ypač įtraukiant į skaitymo sąrašus daugiau tarptautinės literatūros.

5. Daugiau dėmesio skirti pedagoginės kvalifikacijos kėlimui tų dėstytojų, kuriems to labiausiai reikia, o ne tik tų, kurie to reikalauja.
6. Pasiūlyti geresnes paskatas profesoriams ir docentams sistemingsiau publikuoti darbus tarptautiniuose recenzuojamuose aukšto citavimo rodiklio žurnaluose.
7. Išsamiai išnagrinėti sumažėjusio stojančiųjų į programą skaičiaus priežastis.
8. Palengvinti struktūrinėmis priemonėmis studentų dalyvavimą tarptautinių mainų programose, pavyzdžiui, įvedant semestrą be privalomųjų dalykų (pasirenkamųjų dalykų semestrą).
9. Apsvarstyti mišriojo mokymosi bei dėstymo ir mokymosi procesų skaitmeninimo potencialią naudą kokybei ir lankstumui.

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2.7. Išskirtinės kokybės pavydžiai

VGTU siūlo unikalų sprendinį profesorių gebėjimams ugdyti, t. y. profesoriaus stažuotę. Profesorių ir docentų kvalifikacija keliama 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 ją 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 dėstymo papildymo naujausiais moksliniais pasiekimais ir verslo patirtimi. Tai patvirtina ir pačių studentų bei dėstytojų išreikšta nuomonė.

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

Vertėjos rekvizitai (vardas, pavardė, parašas)