STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus Gedimino Technikos Universiteto

INFORMACINIŲ SISTEMŲ PROGRAMŲ INŽINERIJOS STUDIJŲ PROGRAMOS (621E15002) VERTINIMO IŠVADOS

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EVALUATION REPORT

OF *INFORMATION SYSTEMS SOFTWARE ENGINEERING* (621E15002) STUDY PROGRAMME

at Vilnius Gediminas Technical University

Grupės vadovas: Team Leader:	Prof. Vladimir Oleshchuk
Grupės nariai: Team members:	Prof. Jüri Kiho Dr. Lina Kankevičienė Adomas Svirskas Paulius Simanavičius

Vilnius
2012

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	Informacinių sistemų programų inžinerija
Valstybinis kodas	621E15002
Studijų sritis	Technologijos mokslų studijų sritis
Studijų kryptis	Informatikos inžinerija
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Antroji
Studijų forma (trukmė metais)	Nuolatinė (2 metai)
Studijų programos apimtis kreditais	120 kreditų
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Informatikos inžinerijos magistras
Studijų programos įregistravimo data	2007-09-26

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INFORMATION ON ASSESSED STUDY PROGRAMME

Name of the study programme	Information Systems Software Engineering
State code	621E15002
Study area	Technological Sciences
Study field	Informatics Engineering
Kind of the study programme	University studies
Level of studies	Second
Study mode (length in years)	Full-time (2 years)
Scope of the study programme in credits	120
Degree and (or) professional qualifications awarded	Master in Informatics engineering
Date of registration of the study programme	26-09-2007

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CONTENTS

I. INTRODUCTION

The Lithuanian Centre for Quality Assessment in Higher Education has invited four independent experts and one representative of students (hereinafter called Expert Team) from Estonia, Lithuania, Norway and the Netherlands to review and assess the higher education second cycle study (Master) programme *Information Systems Software Engineering* (state code 621E15002, informatics engineering study field) at Vilnius Gediminas Technical University (hereinafter VGTU). The full-time study programme *Information Systems Software Engineering* (further Programme) is arranged by the Faculty of Fundamental Sciences, VGTU, coordinated and conducted by the Information Systems Department (further also: Department).

The Expert Team visited the Faculty on October 24-25, 2012[1].

On October 24, the Expert Team met the administrative staff (4) of the Faculty represented by the Dean, Vice Dean, and a representative of the university administration. General issues, such as the history of the faculty, structure, financing, quality improvement measures, and reasons for students' intake decrease and dropouts, etc. were discussed.

On October 25, a meeting with staff responsible for preparation of the Self-Analysis Report (4) was conducted. At this meeting, the Expert Team was given clear and exhaustive answers to the questions concerning less uncovered in the self-assessment report issues. After that, a meeting with 6 members of teaching staff of the Programme took place.

The Expert Team conducted also interviews with some students (9). The Expert Team was familiarized with students' attitude towards the Programme; the students expressed mostly positive opinions about the Programme. The Expert Team had possibility to familiarize with students' final works. Finally, in separate meetings, the Expert Team met 5 former graduates and 7 social partners. They have expressed positive attitudes about the Programme.

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[1] During this period (October 24-25) the Expert Team had actually a joint visit concerning 3 study programmes at the Faculty. Some of the meetings with the Programme stakeholders were performed jointly.

At the conclusion of the visit, the Expert Team conducted a meeting with staff of the Faculty and presented general remarks related to the visit and highlighted some strengths and weaknesses of the programme under review.

In the following, the findings of the Expert Team are outlined. The Self-assessment report submitted by the Faculty, the observations made at the time of the visit, and the supplementary material received during the visit form the basis of these assessments.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

Information about study programme is publicly accessible in the section "Studijų programos" of the University website both in Lithuanian and English. The Programme aims, generally, are based on professional requirements, public needs and the needs of the labour market. The Department has developed the programs and performed their execution, involving other subjects where necessary (stakeholders, students, etc.). The general structure and management of the education policy from the side of the Faculty are well organized and adequate.

In the self-assessment report, the learning outcomes of the study Programme are not described appropriately. In the descriptions of the study subjects a number of learning outcomes of study subjects are sometimes too big (for example, the study subject *Advanced information systems* has 36 learning outcomes). Nevertheless, the Programme aims and learning outcomes are consistent with the type and level of studies and the level of qualifications offered. The name of the Programme, its learning outcomes, content and the qualifications offered are compatible with each other.

2. Curriculum design

The *Information Systems Software Engineering* study programme meets the requirements of the Lithuanian legal acts and normative documents, the Statute of Vilnius Gediminas Technical University, and regulatory documents governing the development of study programs and procedures of studies.

The Programme provides necessary IS, business, IT management, program engineering knowledge. The content of subjects is sufficiently detailed, the topics are in line with modern relevant issues, achievements of practice and science; development trends are based on the results of the research performed by the faculty and lecturers as well as relevant literature. The

content of the subjects is consistent with the type and level of the studies. The methods of the subjects/modules are appropriate for the achievement of the intended learning outcomes.

Final thesis are based on scientific or applied self-research, knowledge application. Student research skills are trained during preparation of statements, term papers, final theses, formulating conclusions and collecting material for their reports, and participating in conferences. Students present the results obtained during the preparation of the final work in a scientific conferences.

However, more overall practice in the field is needed to teach students to apply theoretical knowledge in practice. The content of study subjects should be updated to provide more skills in business process modeling and simulations (e.g., by using IBM WebSphere software for business process modeling), add Business process management concepts to the Information system course. Higher percentage of final works should be conducted in collaboration with companies. The Programme should focus more on future trends by including up-to-date software and on development of teamwork skills. Subjects prerequisites needed for study subjects should be more specific (not just all previously studied modules of this master program).

3. Staff

The academic staff responsible for the Programme meets formal legal requirements. The main lecturers who teach subjects specific to the study program of the study programme are permanently employed by Vilnius Gediminas Technical University and they are appointed to positions by way of public tendering procedures for the time of 5 years as established in the University Statute. A part of academic staff responsible for the programme of *Information Systems Software Engineering* is rather young teachers (37.5% belong to the age group of 31-40)**.** The Experts Team acknowledges that young doctors have enough experience (approximately 9 years) to teach such specific subjects as Information Technology security methods, Advanced information systems, Systems engineering and etc.

The qualifications of the teaching staff are adequate to ensure learning outcome. Lecturers of the *Information Systems Software Engineering* study programme take active part in the research, including research through Lithuanian and international projects funded by the Lithuanian State Science and Studies Foundation, the Science Council, and the EU. This is confirmed by the large number of published scientific articles. During the assessment period a total of 117 articles were published.

There are 3 professors, 5 associate professors and 2 lectors. The number of the teaching staff (10) is adequate to ensure learning outcomes.

Until 2010 the lecturers of Mathematics and Informatics Institute were participated in the training of students of this program. Now the *Information Systems Software Engineering* study programme is carried out by the lecturers of the Information Systems Department of the Faculty of fundamental sciences. However, the change of the study programme lecturers during the assessment period was not significant and the staff is able to ensure an adequate provision of the Programme.

The higher education institution creates conditions for the professional development of the teaching staff necessary for the provision of the programme. Many educators of the *Information Systems Software Engineering* study programme improved their qualifications participating in training, seminars/courses in Lithuania and abroad. In fact, each lecturer in the Information Systems Department involved in the *Information Systems Software Engineering* study programme at least once during the five-year term is raising his/her qualification by taking the traineeships in IT companies or research centers.

4. Facilities and learning resources

The premises for studies are adequate both in their size and quality. The number of available computers is sufficient to perform the exercise tasks provided in the Programme. The classrooms are also equipped with additional network access for connecting the students' personal laptops. Rooms used for studies meet occupational safety and hygiene requirements. All VGTU study programmes are available for students with physical disabilities – the University is equipped with a special ramp, a special parking space and the building has the latest comfortable appliances.

The Faculty also operates the wireless network EDUROAM (Educational Roaming) which is available to all university students with personal laptops or smart phones. Vilnius Gediminas Technical University Computer Centre provides parallel computing resources in VILKAS cluster for students and teachers, access to the LitGrid distributed computing network and the cloud computing service. The study process also uses the virtual IT Security Lab TELE-LAB for IT security practical applications.

The Faculty of Fundamental Sciences of VGTU has a sufficient material basis for implementing the postgraduate studies of the *Information Systems Software Engineering* programme. Students can access the Publications Information Reading Room, which offers various informatics

literature, computer-based workstations etc. There are good working conditions for teachers (rooms, workplaces for self-learning).

The University students and lecturers also have access to publications in more than 20 international scientific databases (Science Direct, Ztralblatt MATH, Cambridge Journals, EndNote WEB, Project Euclid, RefWorks etc.) subscribed by the library of Vilnius Gediminas Technical University. Students can access books and methodological electronic texts of publications prepared by the VGTU lecturers. The library is really big and students feel that they have enough study material.

Computer classrooms of the Faculty of Fundamental Sciences are fully equipped with computer and needed software. The material base is substantial.

5. *Study process and student assessment*
The admission procedure is complete, adequate and well organized; the admission requirements are well founded.

The research activities are reflected in the Programme, especially during the preparation of the final thesis. In the final work a master student must demonstrate the ability to perform the research in the selected field and present his/her research results according to the approved requirements of the university.

Knowledge assessment system is criterion-proportional and according to it, the students' knowledge level is assessed according to the criteria set by the lecturer, and each grade meets certain learning outcomes achieved. However, Moodle has to be used actively to improve efficiency of the study process. The master theses supervising should be distributed more evenly.

Students have opportunities to participate in student mobility programmes. However, the mobility of students is limited due to the fact that they are working.

The University provides students with academic and social support. They get social support if they are in need of financial support. Furthermore they are able to take loans to pay for their studies. The support is also provided by the student representation office, which represents academic and other interests of students.

Knowledge assessment system is criterion-proportional and according to it, the students' knowledge level is assessed by the criteria set by the lecturer, and each grade meets certain learning outcomes achieved. However, student dropout rate is too high (approximately 30%), and measures should be introduced to decrease it. The dropout rates are because of students are getting involved in the labour market.

6. Programme management

Responsibilities for decisions and monitoring of the implementation of the Programme are clearly allocated. The general structure and management of education policy from the side of the Faculty are well organized and adequate.

The quality of the study module content is the responsibility of the department which has prepared it. The content of the studies modules is evaluated every 2-4 years and approved by the department meetings and the faculty academic committees. Good contacts and collaboration with the graduates make it possible to improve the quality of the programs.

There seems to be good co-operation between the Department and Lithuanian IT companies such as UAB Enova verslo sprendimai (business solutions), UAB Torres Solutions, UAB nSoft. The faculty maintains business relations with Infobalt Association, Communications Regulatory Authority of the Republic of Lithuania, Information Society Development Committee IBM Lietuva, Oracle Lietuva, UAB Affecto, UAB Sintagma, UAB Blue Bridge, UAB Exigen Services Lietuva, UAB Alna, UAB ERP, UAB Baltic Amadeus. However, more systematic and frequent feedbacks are desirable to increase involvement of stakeholders.

III. RECOMMENDATIONS

1. Improve subject descriptions: identify learning outcomes of the study programme; in the descriptions of study subject optimize a number of learning outcomes of study subjects; identify links between the study subject and the programme learning outcomes; divide the list of Bibliography into two parts: main and additional bibliography. In the main part not more than 5 sources should be recommended.

2. Introduce measures to reduce dropout rate and increase graduation rate: increase student's motivation, improve academic support for weak students, for students, who do not have the background of IT from previous bachelor's studies; help students with deficiencies, such as individual differentiation of study tasks during the introduction course to IT science etc.

3. Add Business process management concepts to the Information system course.

4. Provide more focus on practice to make studies more project-oriented and develop teamwork skills; regularly update future trends and provide more free subjects in the curriculum.

5. Provide an extended English abstract (at least 1-2 pages) in all master theses.

6. Increase students' mobility.

IV. SUMMARY

The higher education second cycle study (Master) programme *Information Systems Software Engineering* (state code 621E15002, informatics engineering study field) is provided by Vilnius Gediminas Technical University. The full-time study programme is arranged by the Faculty of Fundamental Sciences, coordinated and conducted by the Information Systems Department.

The most positive aspects are: very good contacts and collaboration with the graduates with positive implication on the quality of the program; good relations between teaching staff and students, study materials, organization of the programme (evening classes), material resources, faculty internal development and control.

The issues, which could be improved, are: too low level of graduates (in 2011 only 27 % of the admitted students completed studies, until 2012 the number of graduates has not increased); the dropout percentage from the program is too high, students feel difficult to combine job and studies.

V. GENERAL ASSESSMENT

The study programme INFORMATION SYSTEMS SOFTWARE ENGINEERING (state code – 621E15002) at Vilnius Gediminas Technical University is given **positive** evaluation.

Study programme assessment in points by fields of assessment.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	3
2.	Curriculum design	3
3.	Staff	4
4.	Material resources	4
5.	Study process and assessment (student admission, study process student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	3
	Total:	**20**

*1 (unsatisfactory) - there are essential shortcomings that must be eliminated;

2 (satisfactory) - meets the established minimum requirements, needs improvement;

3 (good) - the field develops systematically, has distinctive features;

4 (very good) - the field is exceptionally good.

Grupės vadovas:
Team Leader: Vladimir Oleshchuk

Grupės nariai: Jüri Kiho
Team members:
Lina Kankevičienė

Adomas Svirskas

Paulius Simanavičius

Studijų kokybės vertinimo centras

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INFORMACINIŲ SISTEMŲ PROGRAMŲ INŽINERIJOS STUDIJŲ PROGRAMOS (621E15002) VERTINIMO IŠVADOS

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Išvados parengtos anglų kalba
Report language – English

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The Centre for Quality Assessment in Higher Education

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11. Provide an extended English abstract (at least 1-2 pages) in all master theses.

12. Increase students' mobility.

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VILNIAUS GEDIMINO TECHNIKOS UNIVERSITETO ANTROSIOS PAKOPOS STUDIJŲ PROGRAMOS *INFORMACINIŲ SISTEMŲ PROGRAMŲ INŽINERIJA* (VALSTYBINIAI KODAI – 621E15002, 62407T108) 2013-01-07 EKSPERTINIO VERTINIMO IŠVADŲ NR. SV4-3 IŠRAŠAS

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V. APIBENDRINAMASIS ĮVERTINIMAS

Vilniaus Gedimino Technikos universiteto studijų programa *INFORMACINIŲ SISTEMŲ PROGRAMŲ INŽINERIJA* (valstybinis kodas – 621E15002) vertinama teigiamai.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	**3**
2.	Programos sandara	**3**
3.	Personalas	**4**
4.	Materialieji ištekliai	**4**
5.	Studijų eiga ir jos vertinimas	**3**
6.	Programos vadyba	**3**
	Iš viso:	**20**

* 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

Aukštojo mokslo antrosios pakopos studijų (magistrantūros) programą „Informacinių sistemų programų inžinerija" (valstybinis kodas 621E15002, informatikos inžinerijos studijų sritis) įgyvendina Vilniaus Gedimino technikos universitetas. Nuolatinių studijų programą rengia Fundamentinių mokslų fakultetas, koordinuoja ir vykdo – Informacinių sistemų katedra.

Teigiami šios programos aspektai: teigiamą įtaką programos kokybei turi stiprūs ryšiai ir bendradarbiavimas su absolventais; geri dėstytojų ir studentų santykiai, studijų medžiaga, programos organizavimas (užsiėmimai vakarais), materialieji ištekliai, fakulteto vidaus plėtra ir kontrolė.

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Dalykai, kuriuos būtų galima patobulinti: per žemas absolventų skaičius (2011m. tik 27 proc. iš priimtų studentų baigė studijas, o iki 2012m. absolventų skaičius nepadidėjo); programos nebaigusiųjų procentas yra per didelis, studentams sunku derinti darbą ir studijas.

III. REKOMENDACIJOS

1. Tobulinti dalykų aprašus: identifikuoti programos studijų rezultatus; studijuojamo dalyko aprašymuose optimizuoti studijuojamų dalykų studijų rezultatų skaičių; nustatyti ryšius tarp dalyko ir programos studijų rezultatų; bibliografijos sąrašą padalyti į dvi dalis: pagrindinį ir papildomą. Pagrindinėje dalyje turėtų būti rekomenduojami ne daugiau kaip 5 šaltiniai.

2. Įvesti priemones, kurios sumažintų iškritusiųjų skaičių ir padidintų baigusiųjų rodiklį: padidinti studentų motyvaciją, pagerinti akademinę paramą silpniems studentams, taip pat studentams, kurie nėra įgiję IT pagrindų ankstesnėse bakalauro studijose; padėti studentams, kurie turi trūkumų, pavyzdžiui, individualiai diferencijuoti studijų užduotis įvadinio kurso į IT mokslą metu ir t. t.

3. Į „Informacinių sistemų" kursą įtraukti verslo procesų valdymo sąvokas.

4. Daugiau dėmesio skirti praktikai, kad studijos būtų daugiau orientuotos į projektus, ugdyti komandinio darbo įgūdžius; nuolat atsižvelgti į naujoves ir įtraukti daugiau laisvai pasirenkamų dalykų į programą.

5. Visuose magistro baigiamuosiuose darbuose pateikti išplėstas santraukas anglų kalba (ne mažiau nei 1-2 puslapius).

6. Didinti studentų mobilumą.

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Paslaugos teikėja patvirtina, jog yra susipažinusi su Lietuvos Respublikos baudžiamojo kodekso[1] 235 straipsnio, numatančio atsakomybę už melagingą ar žinomai neteisingai atliktą vertimą, reikalavimais.

Vertėjos rekvizitai (vardas, pavardė, parašas)

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[1] Žin., 2002, Nr.37-1341

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