



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus technologijų ir dizaino kolegijos
TRANSPORTO INFORMACINIŲ SISTEMŲ PROGRAMOS
(653E15002)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF TRANSPORT INFORMATION SYSTEMS (653E15002)
STUDY PROGRAMME

at Vilnius College of Technology and Design

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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	Transporto informacinės sistemos
Valstybinis kodas	653E15002
Studijų sritis	Technologijos mokslai
Studijų kryptis	Informatikos inžinerija
Studijų programos rūšis	Koleginės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (3), iššęstinė (4)
Studijų programos apimtis kreditais	180 ECTS kreditų
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Informacinių sistemų inžinerijos profesinis bakalauras
Studijų programos įregistravimo data	2005-05-23, No. ĮSAK-911

INFORMATION ON ASSESSED STUDY PROGRAMME

Name of the study programme	Transport information systems
State code	653E15002
Study area	Technological Sciences
Study field	Informatics Engineering
Kind of the study programme	College studies
Level of studies	First
Study mode (length in years)	Full-time (3 years), part-time (4 years)
Scope of the study programme in credits	180 ECTS credits
Degree and (or) professional qualifications awarded	Professional Bachelor of Information Systems Engineering
Date of registration of the study programme	2005-05-23, No. ĮSAK-911

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The Centre for Quality Assessment in Higher Education

CONTENT

I. INTRODUCTION.....	4
II. PROGRAMME ANALYSIS	5
1. Programme aims and learning outcomes.....	5
2. Curriculum design	6
3. Staff	7
4. Facilities and learning resources	8
5. Study process and student assessment.....	8
6. Programme management	9
III. RECOMMENDATIONS	11
IV. SUMMARY	12
V. GENERAL ASSESSMENT	13

I. INTRODUCTION

The Lithuanian Centre for Quality Assessment in Higher Education has invited four experts and one representative of students (hereinafter called Expert Team) from Estonia, Latvia, and Lithuania, to review and assess the *Transport information systems* professional bachelor college study programme (state code 653E15002, study field of Informatics engineering, hereinafter called Programme) at the Vilnius College of Technology and Design (further VCTD). The programme (both full-time and part-time) is organized by the Department of Railway Infrastructure and Information Systems (hereinafter called Department) of Petras Vileisis Railway Transport Faculty (hereinafter called Faculty). Institutional structure of VCTD enables to involve required teachers from other faculties and departments of VCTD. *Transport information systems* is the only study programme in the study field of Informatics Engineering, organized by VCTD.

The Expert Team visited the Faculty on September 17, 2012.

First, the Expert Team met the administrative staff of the Faculty represented by Tatjana Volynceva, Deputy Director for Finance, Nijole Kikutiene, Director, Anna Limanovskaja, Deputy Director for Academic Affairs, Ana Aleknaviciene, Head for Strategic Development and Diana Radzeviciute, Head for Quality Assurance. They answered questions regarding rentability of the programme and organizational issues. It was mentioned, that they use different study form in order to increase rentability. Approximately 50% of teachers are coming from profession.

Next a meeting with staff (6) responsible for preparation of the self-evaluation report was conducted. At this meeting, the Expert Team was given answers to the questions concerning less uncovered issues in the self-assessment report.

After that, a meeting with 9 members of teaching staff, teaching the subjects of Transport Information Systems, Transport Logistics, Transport Insurance, Enterprise Economics, Accounting, Information Technology, Practics, Program Engineering, Digital Electronics, Computer Graphics, took place. 8 of them were lecturers, 1 associate professor possessing doctor degree. Teachers expressed mostly positive opinion on programme structure, workload, exchange visits, etc.

The Expert Team also conducted interviews with some students of the Programme. The group consisted of 7 full-time part-time students, among them 3 2nd-year undergraduates, and 4 3rd-year undergraduate students. The Expert Team was familiarized with students' attitude towards the Programme; the students expressed mostly positive opinions, and also pointed to some possible improvements to the Programme and learning environment.

The Expert Team had possibility to observe various support services (classrooms, computer services, library) as well as to familiarize with students' final works.

Finally the Expert Team met 9 graduates and 7 social partners and employers of the Programme students. They expressed a positive attitude about the Programme.

At the conclusion of the visit, the Expert Team conducted a meeting with staff of the Faculty and introduced general remarks of the visit and highlighted some strengths and weaknesses of the Programme.

The findings of the Expert Team are reflected in the following chapters of this document. The self-evaluation report submitted by 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

The Programme aims and learning outcomes (LO) are mostly rather well defined, except a too broad description of LO 5 (“*Will be able to apply integrated information systems in the activities of transport companies: to analyze and evaluate transport company activity and its information systems, to study the market, organize information system planning, implementation and maintenance*”), covering a broad variety of subjects from market research to implementation and maintenance. Possibly, it would be more clear to split this LO into 2-3 smaller ones.

The programme aim is publicly accessible on VCTD website (www.vtdko.lt), however LOs listed in the self-evaluation report, are not explicitly presented there. Aims and learning outcomes of the Programme are also not available in English on the VCTD website. Not all teachers and students seem to have complete information about the Programme LOs.

Programme LOs correspondence to LOs, recommended by the “*General Regulation on Technology science (engineering) studies*” document No. ISAK–734 dated April 29, 2005, is rather limited – mostly, proprietary subject LOs definitions are being used, and general LOs as well as LOs specific to Informatics Engineering, as specified in the above mentioned document, are not reflected. Mostly, Programme LOs correspond to the *Regulation of Informatics study field* document, which gives recommendations for Informatics study programmes in Physical Sciences, whilst this Programme is positioned in Technology Sciences, Informatics Engineering.

International academic recommendations for study programmes (including LOs), e.g. ACM Curricula Recommendations (<http://www.acm.org/education/curricula-recommendations>) were not used.

Design of the Programme was initiated by social partners from Lithuanian Railways, and the LOs correspond to the professional requirements of this field of activity.

Students and Alumni give their opinion on the Programme via private communication with Faculty staff. It would be useful to have formalized procedures for involving them in periodical analysis of Programme aims and LOs.

Programme LOs meet qualification requirements the 6th level of European Qualifications framework and Lithuanian Qualifications framework. LOs of the Programme are also consistent

with the academic requirements of the order of the Minister of Education and Science of the Republic of Lithuania No. V-501 dated April 9, 2010 “*Description of general requirements for the first cycle study and entire study programmes awarding a degree*”, as well as its amendment No. V-501 dated April 9, 2010, and they correspond to the college level of studies.

Links between Programme LOs and individual study subjects are explicitly specified. Specification of these links could be shown in more detail by pointing not only to study subjects, but, also to corresponding study subject LOs. Also, in some cases, additional links between LOs of separate subjects and LOs of the Programme could be specified – e.g. the “*Human safety*” subject is linked not only to the Programme LO “*Administration of computer networks*”, but, also, to the Programme LO “*Operation of computer technical equipment and software*”.

2. Curriculum design

To the best of knowledge of the experts’ team, the curriculum design of the Programme meets academic requirements of the order of the Minister of Education and Science of the Republic of Lithuania No. V-501 dated April 9, 2010 “*Description of general requirements for the first cycle study and entire study programmes awarding a degree*”, as well as its amendment No. V-501 dated April 9, 2010.

However, it is not clear, how the Programme meets the requirements of the “*General Regulation on Technology science (engineering) studies*” document No. ISAK-734 dated April 29, 2005 - e.g. the requirement to have at least 18 ECTS credits for studies of engineering basics.

Logical sequence of subjects in the programme is rational. Course descriptions include prerequisites for each subject. Module structure is not applied in the Programme.

The content of subjects is consistent with the college level of studies, it corresponds to the 6th level of *European Qualifications framework* and *Lithuanian Qualifications framework*.

Alumni and social partners mention wide content of the programme as an advantage.

The content and methods of the subjects/modules are largely appropriate for the achievement of intended LOs set, however, contents of separate subjects could be improved – e.g., the Program Engineering subject could include knowledge on software lifecycle management.

Students of the Programme state, that there are too many written assignments for the subjects of the Programme.

It would be reasonable to review the content of the subject *Physics* in order to concentrate more and expand material on the topics that are of the greatest importance for achieving the Programme LOs.

There are topics, relevant to the formulated LOs and recommended by the ACM Curricula Recommendations or *General Regulation on Technology science (engineering) studies*, which are not covered by the Programme – such as software life-cycle management, software

specification techniques in Software engineering, human-computer interaction, digital circuits, internet technologies.

It is desirable to link the Programme and especially study subject LOs with LOs recommended by relevant regulating or recommending documents, such as “*General Regulation on Technology science (engineering) studies*” document and ACM Curricula Guidelines.

3. Staff

The Programme is provided by staff, mainly having Master education. There are 5 teachers with Doctor degree teaching 6 subjects in the programme – 2 of them with the degree in Social sciences, 2 – in Physical Sciences, and 1 in Technology Sciences (Informatics Engineering). All these subjects are listed in the study field subject group, therefore, the formal legal requirement of 10% holders of a scientific degree teaching in study field is satisfied.

Teaching staff (except 2 of 25) have over 10 year practical experience in the field of the subjects taught.

More teachers at doctoral level, especially teaching computing core subjects would be recommended for increasing the quality of the programme. Teachers should develop their skills in spoken English language.

Teacher load is considered normal as regulated by corresponding VCTD orders. In some cases, individual teachers supervised 8 student thesis, while others – less. This workload could be better distributed among the teacher staff.

In year 2007 there were 22 permanent teachers and 7 invited teachers from another institutions. In year 2012 - 11 teachers are from faculty, 10 teachers – from another faculties, 4 invited teachers. The turnover is normal to ensure adequate provision of the programme.

Approximately 1/3 of Programme teachers are involved in academical mobility.

Practically all members of the staff have prepared and published some kind methodical material in the area of their subjects taught.

The teaching staff participates both in applied and scientific research. 3 scientific degree holders and 3 Masters working in the Programme participate in scientific research in the field of their subjects taught. Participation of 4 faculty staff members in applied projects and consulting activities is explicitly mentioned in the self-analysis documents. Recommendation would be to involve more of the teaching staff in research activities.

4. Facilities and learning resources

The auditorium space is sufficient. Alumni and social partners (esp. Lietuvos gelezinkeliai) participate in laboratory establishment and supply them with necessary equipment.

In general, hygienic conditions are not excellent. Students express wish to have more comfortable furniture for auditoriums, bigger sports hall.

An elevator would be desirable, in particular, for disabled people.

Material resource requirements for all study subjects are listed. Legal up-to-date software is used for most subjects, however this software mainly covers only basic software categories (MS Windows, MS Office, Borland C++, MS C++, NET). Specialized software used for separate subjects includes Adobe 3ds Max designer, AutoCAD and Arcgis software. Lack specialized IS software, e.g no information about such IS software as Oracle, etc.

Students also express the need for better computers and better software in some laboratories.

The institution has adequate arrangements for students' practice, mainly in Lietuvos Gelezinkeliai, different Logistics companies. Majority of places for students practice are proposed by department and only few students find the practice places by themselves.

Some of the teaching materials noted as mandatory in severalcourse descriptions, are not accessible at VCTD library. In some cases (e.g. Computer Networks), the teaching material list could also includes newer publications. Mainly teaching material in Lithuanian is specified. It is recommended to include more teaching materials in English. Use of a virtual learning environment (Moodle) has already started for some subjects, but its' use should be expanded..

5. Study process and student assessment

However, the average admission score of 9-9.5 is rather low, and the minimum admission score is 3-4. Maybe it would be reasonable to set a lower limit for the admission score.

The drop-out is on average around 25% of the admission volume, mainly in the first year. The institution plans and executes preventive measures.

Students express a need for a better study schedule – 1 day free per week.

Preparation of final projects is well reglamented, tasks are approved by the Head of Department. About half of the projects are directly related with transport, and another half – to the design of information systems in other areas of activity. Recommendation could be to formulate more final project tasks directly related to transport problem solving. Though larger part of final projects contain certain applied research, however, student research activities could be more intensive.

Students express a need for more international contacts and more intensive participation in Erasmus programmes.

Consultation schedules are available. Consultation in electronic space is mentioned, mainly using e-mail. Individual consultation schedules are available for foreign students.

Virtual learning environment is used only for some objects. Students don't know much of it and are using very little.

Accumulated mark methodology is being used, this allowing equal distribution of learning and assessment efforts over the whole semester.

Most of the Alumni which have finished studies in period 2008-2012 have jobs according their speciality. 75% of alumni working in the field of their specialty is a rather high achievement. Most social partners are from transport/logistics.

6. Programme management

Responsibilities for decisions and monitoring of the implementation of the programme are related to the Programme Study committee of 7 members. The necessary papers regarding the activities of Study Programme Committee are in place.

Programme implementation is discussed in the Department meetings taking part in half-year frequency. It is not shown, how the information for these meetings is collected from all stakeholders, e.g. from social partners. Social partner responses show, that this part of information might be not taken into account adequately.

Documentation of the Study Committee and the Department shows, that the results of Programme evaluation are used for the improvement of the Programme.

The Programme was designed taking into account the demand and suggestions of the main social partner – “Lietuvos Gelezinkeliai”. Currently, they give their opinion on the Programme via private communication with Faculty staff. It would be useful to have formalized procedures for involving them and other social partners in periodical analysis of Programme and its development planning.

Students participate in the improvement of the Programme by defining elective subjects and filling surveys on the quality of all programme subjects. However, it would be useful to have formalized procedures for their more active involvement them in periodical Programme analysis and development planning.

The internal quality assurance measures of the Programme meet VCTD internal strategy on study programme quality assessment. Surveys are used to get students and Alumni opinion on separate Subjects, their contents and teaching methods. However, it is not clear how efficiently these surveys are applied – what is the response rate, how many subjects are covered. Data from

these surveys is analysed in Department meetings. It is not clear, how sensitive personal information regarding individual teachers is handled.

III. RECOMMENDATIONS

1. Define in more detail links between the Programme LOs and separate study subjects by showing links to corresponding subject LOs. Review the content of study subject LOs, taking into account documents, such as “*General Regulation on Technology science (engineering) studies*” document and ACM Curricula Guidelines (<http://www.acm.org/education/curricula-recommendations>).
2. Update the website of the institution, publicising both the aim and the learning outcomes of the Programme in Lithuanian and English.
3. Attract more teachers with doctoral degree for teaching core subjects.
4. Increase the activity of teaching staff in research work.
5. Review the recommended learning material lists, making sure that obligatory textbooks for all the study subjects are either available at the library or accessible in online form.
6. Use of the electronic learning environment (Moodle) should be expanded for a larger number of subjects.
7. Expand students’ involvement in applied research, also going beyond their final thesis.
8. Improve quality system by closing all feed-back loops, especially by developing formal means of getting social partners’ periodical input.

IV. SUMMARY

Vilnius College of Technology and Design (VCTD) actively supports and implements the main strategy requirements of the rapidly developing knowledge society. The *Transport information systems* professional bachelor college study programme is aimed at providing specialists with higher non-university education being able to combine knowledge and skills in information technologies and transport sector needs.

The Programme aims and learning outcomes are rather clearly defined, but their public visibility should be improved – only the aim of the Programme, but not the learning outcomes are presented on the website of the institution. Also, it is desirable to show the links between the Programme LOs and study subjects in more detail by pointing to corresponding study subject LOs. Also, it is desirable to review the study subject LOs, taking into account the recommendations of “*General Regulation on Technology science (engineering) studies*” document and ACM Curricula Guidelines.

The curriculum design is largely rational and adequate to the learning outcomes set. However, there are relevant topics, which might be better covered in the Programme – such as software life-cycle management, human-computer interaction, digital circuits, internet technologies, as suggested in the recommendations of “*General Regulation on Technology science (engineering) studies*” document and ACM Curricula Guidelines.

The qualification and practical experience of the staff is sufficient for the execution of the Programme, however it is recommended to increase the proportion of holders of scientific degree, especially teaching core computer science study subjects. Though some of the teaching staff is involved in applied and scientific research, these activities should be much more expanded.

VCTD has good infrastructure, implemented together with their social partners, mainly Lietuvos Gelezinkeliai. Library is rich in professional literature, however not all the textbooks specified in the main literature lists for separate subjects are available. More literature in English, especially open source textbooks should be used.

The organization of the study process is good, though international exchange, student involvement in research activities and the use of electronic learning environment could be expanded.

Study programme management and quality assurance system is in place. The quality system could be improved by introducing a more formal system of periodical social partner feedback collecting.

V. GENERAL ASSESSMENT

The study programme *Transport Information Systems* (state code – 653E15002) at Vilnius College of Technologies and Design 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	3
4.	Material resources	3
5.	Study process and assessment (student admission, study process student support, achievement assessment)	3
6.	Programme management (programme administration, internal quality assurance)	3
	Total:	18

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

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

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

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

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