



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

Vilniaus technologijų ir dizaino kolegijos
AUTOMOBILIŲ TECHNINIO EXPLOATAVIMO STUDIJŲ
PROGRAMOS (653E21002)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF ROAD VEHICLE OPERATION
(653E21002) STUDY PROGRAMME
at Vilnius College of Technologies and Design

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Išvados parengtos anglų kalba
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DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Automobilių techninis eksploatavimas</i>
Valstybinis kodas	653E21002
Studijų sritis	Technologijos mokslų studijų sritis
Studijų kryptis	Transporto inžinerija
Studijų programos rūšis	koleginės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (3); Iššęstinė (4)
Studijų programos apimtis kreditais	180
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Automobilių transporto inžinerijos profesinis bakalauras
Studijų programos įregistravimo data	2010-08-26 , 1-01-89

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Road vehicle operation</i>
State code	653E21002
Study area	Technology Sciences
Study field	Transport engineering
Kind of the study programme	College Studies
Study Cycle	First
Study mode (length in years)	Full-time (3); Part time (4)
Volume of the study programme in credits	180
Degree and (or) professional qualifications awarded	Professional Bachelor of Automobile Transport Engineering
Date of registration of the study programme	2010-08-26 , 1-01-89

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I. INTRODUCTION

Vilnius College of Technologies and Design (hereinafter–VCTD) was established in 2008 by merging Vilnius Technical College and Vilnius Construction and Design College. VCTD is a state higher education institution which prepares specialists in the study areas of technology, arts and social sciences. Studies in VCTD are oriented to the practical application of knowledge, practical connections with the industrial and business worlds. The Study programme *Road vehicle operation (AIKOS database)* (state code 653E21002, *Technical Exploitation of Automobiles* – according Self–evaluation report) is implemented in the faculty of Technical Sciences. The general presentation of VCTD, mission and its management is clearly described.

In 2010 last external assessment of the study programme was carried out by an international group of experts. The general assessment recommended that there should be less duplication between coursework and final projects, and that the final projects should be wider in scope, and contain more mechanical design content; the curriculum should be reviewed to include more transport system studies; in accordance with the General Regulations, the college should deliver the appropriate number of credits in Chemistry in the core of the program; a staff replacement strategy be devised; laboratory learning resources should be enhanced; other ways than just scholarships explored to motivate students; that the College should provide more support to encourage more student mobility and consider introducing a formal, transparent system, for the accreditation of prior and/or informal learning. Based on the external assessment results, the study program *Road vehicle operation* has been accredited until 31-12-2013.

Self-Evaluation team was formed (Order No. 1-333, 14-11-2012). The team is lead by Lecturer Petras Kaikaris, Head of the Automobile Transport Department. It is composed of 6 academic staffs and 1 student.

External assessment of Vilnius College of Technologies and Design study programme has been conducted by an international expert group through analysis of the self-evaluation report and on site visit; meetings with the administrative staff of the Technical faculty, the group of preparation of the self-evaluation report, teaching staff of the study programme, current students of the programme and social partners.

The expert group has analysed the programme aims and learning outcomes, curriculum of the programme, quality assurance (management) of the programme, study process, staff and the learning environment.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The demand and necessity of current program, registered on 30-08-2002, is clearly verified by the research and sociological study mentioned in SER. *Road vehicle operation* study programme is focused on the need of highly skilled, transport engineering specialists for the labour market, able to work independently and to apply the latest technological know-how in the field of road transport engineering. This is stated in one of the learning outcomes - the graduates will be able to work not only at various vehicle maintenance companies, vehicle/vehicle component sales organizations, and vehicle equipment sales and maintenance companies, but also in pursuing further education at universities.

The Program aims and learning outcomes are well defined and clear, publicly available on the website of the College, although the English page is not as complete as the Lithuanian page. The learning outcomes comply with the general technological sciences (engineering) study field regulations, level of the learning outcomes corresponds to the European Higher Education Area strategy, and comply with the requirements of the 6th qualification level of the European Qualifications Framework for LLL and the National Qualifications Framework.

The name of the programme, its learning outcomes, content and the qualifications offered are compatible with each other. Formulations of the intended learning outcomes reveal that the main focus of the study programme is the acquisition of knowledge in the field of road transport engineering and the development of skills for application of them. This is in conformity with the study level of the professional bachelor study programmes.

After last external assessment it was recommended that there should be less duplication between coursework and final papers, and that the final theses should be wider in scope, and contain more mechanical design content – information provided in self-evaluation report and conclusions that can be drawn summarizing the results of discussions with self-evaluation team and teaching staff allows to state that the latter recommendation is already implemented into the study process.

At the same time there is confusion with the name of study programme. In the self-evaluation report programme name *Technical Exploitation of Automobiles* is used. However, in AIKOS database the name of study programme is *Road vehicle operation*. The name of study programme should be the same in college documents as well as in official data bases. What concerns learning outcomes it is obvious, that they are oriented towards broader concept. However, during on site meeting with social partners it was stressed, that students have some lack of knowledge concerning other means of transports such as trucks and busses.

The preparation of final thesis has been updated: a student prepares thesis not only on the basis of an existing car maintenance company making its reconstruction project but also has to make design projects for new intended maintenance companies in order to provide process organization and management of the company and to carry out technical economic evaluation of its activities. Such design project is carried out by making a detailed analysis and design (synthesis) of a vehicle's or garage equipment's element, which includes strength calculations, technical drawings and layouts of manufacture equipment.

Study programme is similar to other studies in the field of Transport engineering offered by Kaunas Technical, Siauliai, Klaipeda State, Alytus, Marijampole, and Zemaitija Colleges – as the strength of program it is formulated, that study program has advantages compared with other programmes carried out in Lithuania. Both in self-evaluation report and at the meetings with administration, self-evaluation team, teachers and students as the essential advantages of the programme was named the factor of “capital city” (Programme is implemented in Vilnius) and relatively more possibilities for the graduates to be employed according their speciality are pointed out.

2. Curriculum design

It is positive, that the recommendation was accepted of the last assessment to deliver the appropriate number of credits in Chemistry in the core of the study programme - the structure and volume of the program *Road vehicle operation* comply with the requirements of the Descriptor of General Requirements for Degree Awarding First Cycle and Integrated Study Programmes and General Regulations in the Field of Technological Sciences (Engineering) approved by No. ISAK-734, 29-04-2005, of the Minister of Education and Science of the Republic of Lithuania.

Total volume of study programme is 180 (ECTS) credits. The duration of full-time studies is 3 years, and of part-time studies 4 years. One year of studies consists of 1600 learning hours (60 credits).

In the full-time studies, the number of credits taken in one year does not exceed 60, and in the part-time studies, does not exceed 40. Volume of a subject is equal for full-time and part-time studies. No more than 7 subjects are taken in one Semester.

The preparation and defence of the final thesis comprises 12 ECTS in volume and the number of credits allocated for the practical training is of 30 ECTS, what complies General Requirements of the first degree study programmes, approved by the order No V-501, 09-04-2010, of the Minister of Education and Science of the Republic of Lithuania.

Study subjects and modules are spread evenly, with 30 ECTS credits per semester, the content of the modules is not repetitive and follows a clear sequence, the study courses are placed according to a logical structure.

The content of the subjects is consistent with the type and level of the professional bachelor studies. The course units are arranged so that in the first years the students acquire the theoretical knowledge and develop the skills for its application, in the final years more specialised units are studied. With the final thesis students have to show their ability to apply knowledge in the solution of practical problems. The methods of the subjects/modules are appropriate for the achievement of the intended learning outcomes. The links between learning outcomes and study subjects are clearly shown in study subject descriptions.

It could be worth renewing content of the study programme by including more study subjects dealing with modern transport systems or to supplement the existing ones with topical themes, especially from the field of electrical engineering and electronics – at the meeting with employers it was mentioned that a part of graduates are employed in long-distance and local passenger transportation companies, therefore it is important for the graduates to provide knowledge and skills necessary to operate modern power plants (hybrid and electrical drives, LPG systems) used in busses.

3. Staff

Teaching staff of the study programme *Road vehicle operation* in 2012-2013 is 39 lecturers, including 6 doctors of science, 3 enrolled in doctoral programs, and 12 part – time staff members. The teaching staff meets the legal requirements, no less than 10 % of study field subjects' volume is provided by teachers holding a scientific degree. Staff members are well balanced according to age groups and experience. The average age of teaching staff members is 44.5 years.

After analysis of CV provided with SER and on site visit experience team agrees that the qualifications of the teaching staff are adequate to ensure learning outcomes and the procedure for appointing lecturers should assure their quality - during the period analyzed the number of teaching staff members increased from 28 to 39 – it was influenced by the increasing number of students applying to study programme. Teachers and researchers are appointed to their positions at the College by means of open competition. Professional development of the teaching staff in educational, scientific, and practical activities are regulated by qualification requirements for relevant positions.

The higher education institution creates conditions for the professional development of the teaching staff necessary for the provision of the programme. Although the self-evaluation report

does not include any statement on lecturer traineeship system, the discussions with the programme administration and teachers pointed out that there are several mechanisms in place (such as mandatory scientific publications in journals, international mobility...) and teachers must show their improvement of skills every 5 years. Mechanisms include academic exchange, short courses and placement periods, incoming visiting professors.

A small portion of the teaching staff (5/39) has had international mobility and during the years 2009 – 2012, only 5 persons have had teacher mobility. Therefore actions to increase these numbers should be taken.

The staff is involved in various activities - consultancy, research activities, improvement their pedagogical and practical abilities. The College provides opportunities for staff practical skills development, and the teaching staff actively participates in various forms of professional development offered by the college. The teaching staff members carry out applied research, conduct training courses, participate in internships, conferences, and prepare presentations, lecture Erasmus students.

4. Facilities and learning resources

The premises for studies are adequate, appropriately sized for the number of students in the programme. During the period analyzed the VCTD implemented the EU structural funds (Studies Infrastructure Modernization Project, thanks to which the Technical Faculty building is being reconstructed and the laboratories are being updated. The number of classrooms (22) classrooms and laboratories (8) and the equipment seems impressive and adequate in size and quality.

Computer equipment and software is appropriate, laboratory equipment for the introductory courses are adequate. By implementing the EU structural funds the VCTD upgraded automobile electrical equipment and electronic control systems; automobile engines, maintenance, diagnostics and traffic safety classroom laboratories material resources and purchased modern technological equipment for the study program's modernization (0.5 mln. Litas).

In addition VTDK has a very strong partner “Toyota”. The company has made significant investments aimed towards modernization of the study programme and also provided the state of art technologies. Lexus vehicle simulator is provided in order to introduce the newest technologies used in automotive industry to the students. Toyota also continues to provide other equipment as it is one of the main partners interested in highly qualified specialists of this field.

The teaching materials (textbooks, books, periodical publications, databases) are adequate and accessible. Course programs include appropriate lists of suggested readings, and all the

specialisation subjects include suggested readings in English language. Although the tendency is toward a completely digital library, it is suggested to provide some additional printed copies of the most recent textbooks that are suggested as learning material for students.

Teaching staff members developed methodological tools for each study subject tailored to the Moodle environment.

5. Study process and student assessment

Student admission is organized and executed by an organization that also ranks all secondary school graduates, that is the Association of Lithuanian Schools of Higher Education for Joint Admission empowered by the Ministry of Education and Science. The admission requirements are well-founded and appropriate for the study programme. Teachers interviewed claim that, compared to other programmes, students enrolled in the *Road vehicle operation* programme perform well. Number of the applicant's in the last 5 years increased from 33 to 100 in the case of full-time studies and from 75 to 90 in the part-time studies. The average competitive score of accepted is increasing from 12 to 13.

Students have opportunities to participate in student mobility programmes. Measures are taken to allow students to have this opportunity, and the students are well informed about the process. Information about the student mobility programmes is published on the VTDK website, and presented at the outgoing student and faculty administrative staff meetings. Department heads present this information. Representatives of the faculty administration and department heads inform the students about mobility opportunities. This was also confirmed by the students during on site visit. The number of students, who participated in mobility programmes, is rather low: in the last 3 years – 5 students per year (2-3%).

Lectures, practical sessions, and independent study are given time ratios according to the General Technology Science (Engineering) degree and distribution regulations as follows: lectures are eligible for 18%, practical sessions 24% and students counselling 8%; and, 50% of hours in the programme are designated for independent work.

The assessment system of achievement of the students in the study programme is clear, transparent and appropriate to evaluate the results of study. Student achievement assessment criteria are linked to learning outcomes and are listed in each syllabus/module description.

Achievements are assessed in compliance with the description of study result assessment procedure - on an extended ten-point grading system as defined in the governing documents of the Lithuanian Ministry of Education and Science. Student achievements are evaluated according to an individual cumulative index system.

VCTD final thesis are prepared according to the requirements of Ministry of Science and Education and inner college regulations, which regulate the order of the final project preparation, assessment and defence. As the possible recommendation aiming to ensure achieving learning outcomes of the programme the proposal to assign no more than 8 students for a teacher supervising final thesis can be made. As it can be concluded from information presented in appendix 4 of the self-evaluation report the cases exist when a teacher supervises 12-17 final theses. As high number of students for one supervisor might reduce the quality time consultation for the student. Together it is worth stating the fact that in presented for review course projects and final theses of the last two years the features of high quality preparation can be observed.

6. Programme management

The college has its internal quality assurance system. The VCTD has internal quality of higher education management system manual, with basic implementing quality management principles and procedures, well defined staff responsibilities and reporting, and business process indicators for measuring and monitoring the labour market.

The responsibilities in study programme *Road vehicle operation* are indicated as there is a study programme committee in operation. The composition of the study programme committee indicates good involvement of different stakeholders – teachers, students and employers in the programme management. Their qualifications and experience are sufficient and correspond to the field of the study programme. However, in the self-evaluation report the responsibilities of the programme coordinator are not defined. As it was clarified at the meetings with administration and self-evaluation team and taking into account information given in CV, the functions of programme coordinator are perfectly carried out by the head of the Automobile Transport Department Petras Kaikaris.

The Self-evaluation Report states that the statistical data on the implementation of the programme are collected regularly. Students are evaluating content of study subjects and the quality after the end of each subject. Evaluation concerns study subject, teaching methods, lecturer's competence, communication skills and give their proposals. Interviews with students confirm this fact, and students feel that their evaluation is taken into account. Results of the inquiries are available for the study programme coordinator, heads of departments, deans of faculties and lecturers, and the Department Head has the power to enforce changes. According to the employers, their feedback relating to this study programme is also taken into account, although the process is not formalised.

Attention should be paid to the remark of students which was expressed during the meeting – students are missing the feedback; those who had answered the questionnaires are not informed about the actions on improving the study process taken by the study programme implementers.

The main changes implemented after the last external assessment are not presented and analyzed in the self-evaluation report, nevertheless information obtained at the meetings during on site visit in the college allows concluding that all recommendations of the last assessment are taken into account and measures are made to follow them.

The content of final thesis has been updated, the subjects Automobiles, Automobile Control Systems, Automotive Electrical Equipment, Engines were updated to include more subject-specific studies of the transport field (topics of hybrid vehicles, data transmission system, vehicle design and operating principles, electronic data transmission systems in cars and their operating principles, electric vehicles). Chemistry subject is included into the study programme, - it introduces the processes of chemical thermodynamics and kinematics, etc. to the students.

The personnel turnover strategy, which helped teaching staff to meet structural changes has been introduced: during the last year 5 new Master's graduates who teach specialty subjects were admitted to teach in the study program *Road vehicle operation*. At the moment 6 doctors of science and 3 teaching staff members are studying for doctoral degrees, and 12 part time staff members work in the study program.

Laboratory training materials were updated. E.g.: practical tasks were prepared to work in the laboratory in which students conduct engine parts measurements and calculations, select repair techniques (Automobile repair); the tasks for working with the Autodata, BOSCH ESI Tronic, Toyota Techdoc databases (Assembly/Disassembly Practice) were prepared; lab work descriptions to help students in the laboratory to explore the physical properties of consumables (Consumables) were prepared; students in the laboratory conduct stand testing of engines, determine engine load and make adjustments, examine ecological systems (Engines).

III. RECOMMENDATIONS

1. Content of the study programme could be reviewed by including more study subjects dealing with modern transport systems or to supplement the existing ones with topical themes, especially from the field of electrical engineering and electronics – it is important for the graduates to provide knowledge and skills necessary to operate modern power plants (hybrid and electrical drives, LPG systems) used in busses and other road vehicles.
2. As the possible recommendation aiming to ensure achieving learning outcomes of the programme the proposal to assign no more than 8 students for a teacher supervising final thesis can be made.
3. Feedback from students' questionnaires should be systematically used to improve the quality of the curriculum and study process.
4. International mobility of students and teachers should be more active and the English language level supporting the exchange should be improved.

IV. SUMMARY

Overall, the study programme *Road vehicle operation* at Vilnius College of Technologies and Design is given positive evaluation.

The name of the programme, its learning outcomes, content and the qualifications offered are compatible with each other. Formulations of the intended learning outcomes reveal that the main focus of the study programme is the acquisition of knowledge in the field of road transport engineering and the development of skills for application of them. This is in conformity with the study level of the professional bachelor study programmes.

The qualifications of the teaching staff are adequate to ensure learning outcomes, number of the teaching staff is adequate. A small portion of the teaching staff has had international mobility and during the last four years, only 5 persons have had teacher mobility. Mobility of teachers should be more active and the English language level supporting the exchange should be improved.

Facilities and learning resources are exceptionally good. They are modern and regularly updated. The computer network and information system are efficient and regularly updated and improved. Students have full access to it.

Study process in the college is generally well organized and no major changes should be done - feedback from students' questionnaires should be systematically used. Programme management is generally well performed. The analysis of this report and recommendations provided should help to support the good quality level of study programme.

V. GENERAL ASSESSMENT

The study programme *Road vehicle operation* (state code 653E21002) at Vilnius College of Technologies and Design is given **positive** evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	3
2.	Curriculum design	3
3.	Staff	3
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:	19

*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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Grupės nariai:

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Prof. Jüri Lavrentjev

Prof. Artūras Keršys

Justinas Staugaitis

Santraukos vertimas iš anglų kalbos

V. APIBENDRINAMASIS ĮVERTINIMAS

Vilniaus technologijų ir dizaino kolegijos studijų programa *Automobilių techninis eksploatavimas* (valstybinis kodas – 653E21002) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	3
2.	Programos sandara	3
3.	Personalas	3
4.	Materialieji ištekliai	4
5.	Studijų eiga ir jos vertinimas	3
6.	Programos vadyba	3
	Iš viso:	19

* 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

Vilniaus technologijų ir dizaino kolegijoje dėstoma *Automobilių techninio eksploatavimo* studijų programa iš esmės vertinama teigiamai.

Programos pavadinimas, numatomi studijų rezultatai, programos turinys ir suteikiama kvalifikacija dera tarpusavyje. Numatomų studijų rezultatų formuluotės rodo, kad daugiausia dėmesio šioje programoje skiriama suteikti sausumos transporto inžinerijos srities žinių ir su šių žinių panaudojimu susijusiems įgūdžiams lavinti. Tai atitinka profesinio bakalauro studijų programų reikalavimus.

Dėstytojų kvalifikacija yra tinkama numatomiems studijų rezultatams pasiekti, dėstytojų skaičius pakankamas. Tik nedidelė dėstytojų dalis yra dalyvavusi tarptautinio mobilumo programose, o per pastaruosius penkerius metus tik penki dėstytojai dalyvavo dėstytojų mainų

programoje. Dėstytojų judumas turėtų būti didesnis, reikėtų gerinti anglų kalbos žinias, kurios palengvintų dalyvavimą mainų programose.

Materialieji ištekliai ypač geri. Jie yra šiuolaikiniai ir nuolat atnaujinami. Kompiuterių tinklas ir informacinė sistema yra veiksmingi ir nuolat atnaujinami bei gerinami. Studentams jie visiškai prieinami.

Studijų procesas kolegijoje iš esmės organizuojamas gerai, didesnių pakeitimų daryti nereikia; reikėtų sistemingai naudotis studentų grįžtamoju ryšiu, gaunamu atsakant į klausimynus. Programos vadyba iš esmės gera. Šių vertinimo išvadų ir rekomendacijų analizė turėtų padėti palaikyti gerą šios studijų programos kokybę.

III. REKOMENDACIJOS

1. Į studijų programos turinį būtų galima įtraukti daugiau su šiuolaikinėmis transporto sistemomis susijusių dalykų arba šiuo metu dėstomus dalykus papildyti aktualiomis temomis, ypač iš elektros inžinerijos ir elektronikos srities; tai svarbu siekiant suteikti absolventams žinių ir įgūdžių, reikalingų šiuolaikiniams energetiniams įrenginiams (hibridinės ir elektros pavaros bei LPG / automobilių maitinimo suskystintomis dujomis / sistemos), naudojamiems autobusuose ir kitose automobilių transporto priemonėse, eksploatuoti.
2. Siūlytume, kad siekiant užtikrinti, jog būtų pasiekti šios programos studijų rezultatai, kiekvienas dėstytojas vadovautų ne daugiau kaip aštuoniems baigiamuosius darbus rašantiems studentams.
3. Programai ir studijų procesui pagerinti turėtų būti sistematiškai naudojamosi studentų grįžtamoju ryšiu (atsaku į jiems pateiktą klausimyną).
4. Studentai ir dėstytojai turėtų aktyviau dalyvauti tarptautinio judumo programose, be to, reikėtų gerinti anglų kalbos žinias, kurios palengvintų dalyvavimą mainų programose.