



Final Study Programme Evaluation

Elektros ir automatikos inžinerija

(professional bachelor)

at

Vilniaus technologijų ir dizaino kolegija
(Vilnius College of Technologies & Design)

Assessment report

4 May 2012

Assessment report of the professional bachelor study programme Electrical and Automation Engineering. The final evaluation was carried out by **evalag** as part of the Engineering field of study programs Electrical and Automation Engineering and Railway Transport Engineering and the social science study program Transport Logistics renewal project No. VP1-2.2-ŠMM-07-K-01-049.



Elektros ir automatikos inžinerija

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Preamble

The "Vilniaus technologijų ir dizaino kolegija" " is – due to the Lithuanian education system – a „kolegija“. The education at a "kolegija" is practice-oriented and the qualification of graduates meets the expectations of the regional industry.

The English name "Vilnius University of Applied Engineering Sciences" which is mentioned in the self-evaluation report is not coherent with the internationally accepted terminology ("Vilnius College of Technologies & Design). Therefore, only the Lithuanian name of the institution will be used in this report.

The English name of the study programme "Electrical and Automation Engineering" does not correspond to the content of the education. With regard to the curriculum and education profile, the study programme "Electrical and Automation Engineering" has to be renamed into "Electrical Energy and Automation". The name of the study programme in Lithuanian is not affected.

This preamble is the prerequisite for the following assessments and recommendations in the expert report.

1. Vilniaus technologijų ir dizaino kolegija (VTDK)

Vilniaus technologijų ir dizaino kolegija (VTDK) is a public Lithuanian non-university higher education institution that offers college level study programmes which are directed towards a professional activity. The VTDK in its present form was created by merging several colleges in Vilnius in the fields of engineering and design – this gives the VTDK its distinct profile.

According to Lithuanian law, college level higher education institutions (kolegija) offer full-time and part-time professional bachelor degrees that allow graduates to pursue a professional career. Master degrees are not offered. Graduates who want to pursue a master degree at a Lithuanian university need to complete one and a half years of bridge courses to meet the admission requirements.

VTDK has about 4000 students and offers 22 professional bachelor programmes in the fields of engineering and design in the following four faculties:

- Civil Engineering Faculty
- Faculty of Design
- Petro Vileišio Faculty of Railway Transport
- Faculty of Technical Sciences

The VTDK's mission is to be a partner in the development of a sustainable society. On the basis of this mission the VTDK has developed a strategic plan for its development and management. VTDK has recently been very active and successful in acquiring EU-funding. VTDK finished or still carries out a number of projects to renew its study programmes, to renovate its building, to update its equipment, to develop its staff, to collaborate with its European partner institutions and to develop its internal quality management.

The study programme is offered by the Faculty of Technical Sciences, which offers for its 1363 students altogether nine study programmes:

- Mechanical Technology Engineering
- Electrical and Automation Devices
- Automation
- Manufacturing Management
- Road Transportation Shipment Management
- Mail Management
- Technical Operation of Automobiles
- Road Transportation Shipment Technologies
- Electrical Energetics

Responding to the recent higher education reform in Lithuania and an employer's survey carried out by the VTDK, the faculty completely updated and restructured the three first-named study programmes in order to adjust the programme contents to the demands of the labour market and to broaden the competences of the graduates.

2. Elektros ir automatikos inžinerija study programme

The Elektros ir automatikos inžinerija professional bachelor programme offers students a practice-oriented education which is closely targeted to the Lithuanian labour market. The students are educated to perform tasks as electrical technician in order to manage, operate and maintain electrical and automation systems and infrastructure under competitive market conditions.

The VTDK offers the programme as a three year full-time and four year part-time programme.

The new study programme has been redesigned by combining the "Electrical and Automation Equipment" and the "Automation" programme. The preceding programmes have been conducted since 2003 respectively 2004.

3. Accreditation process

VTDK commissioned **evalag** with the final programme evaluation of the newly created professional bachelor study programme. The programme evaluation was carried out by an international expert team that assessed the study programme according to the Lithuanian quality assurance standards and the European Standards and Guidelines for Quality Assurance in the European Higher Education Area with the objective of accrediting and registering the programme according to Lithuanian higher education law and awarding **evalag**'s international quality label for study programmes.

The programme evaluation was carried out with a peer review on the basis of a self-evaluation report provided by the VTDK, a site visit of an expert team, an assessment report by the expert team and the accreditation decision by **evalag**'s accreditation commission.

The final expert evaluation (the performance principles, steps, processes, and procedures of the evaluation) was conducted in accordance with the *Standards and Guidelines for Quality Assurance in the European Higher Education Area* (2005) and documents regulating the implementation and evaluation of study programmes in the Republic of Lithuania (*Study Programme External Evaluation and Accreditation Procedures Description*, approved by the July 24, 2009, Order No. ISAK-1652 of the Minister of Education and Science of the Republic of Lithuania, and *Study Programmes Intended-To-Be-Implemented Preparation Description and Their Compliance With Approved General And Specific Requirements For Study Programmes Establishing Methodological Guidelines Approved by the Minister of Education and Science of the Republic of Lithuania*, approved by the March 3, 2010, Order No. 1-01-18 of the Director of the Centre for Quality Assessment in Higher Education (December 20, 2010, Order No. 1-01-163 revision), *Degree-awarding undergraduate and integrated study programme general requirements*, approved by the April 9, 2010, Order No. V-501 of the Minister of Education of the Republic of Lithuania and Science, etc.).

The assessment of the programme consists of two parts which complement one another. On the one hand the programme was assessed to be registered according to Lithuanian law which allows the programme to go into operation. For its registration the programme has to comply with the general requirements for study programmes as laid out in Order # V-501 and meet the assessment criteria for new study programmes as described in Order # 1-01-18. On the other hand the programme was assessed to receive **evalag**'s international label of study programmes. For this label **evalag** uses the European Standards and Guidelines for Quality Assurance in the European Higher Education Areas (part 1) and national criteria for programme assessment. In this case, in addition to the above mentioned orders, the criteria for existing programmes were used as described in Order # 1-01-162. The two sets of criteria are compatible insofar as the criteria for new study programmes are a subset of the criteria for existing programmes taking into account that some information may not be available for newly created study programmes.

The VTDK produced the self-evaluation report according to the Lithuanian guidelines for new study programmes (yet-to-be implemented programmes) as outlined in Order # 1-01-18 and submitted it to **evalag**. **evalag** formed an expert team consisting of four professorial experts and one student expert:

- Prof. Dr.-Ing. Dietmar A. Brück, Hochschule für Technik und Wirtschaft des Saarlandes
- Matthias Lieske, Brandenburgische Technische Universität Cottbus
- Prof. Dr.-Ing. Heiner Rysse, Friedrich-Alexander-Universität Erlangen-Nürnberg
- Prof. Dr.-Ing. Anne Suse Schulz-Beenken, Fachhochschule Südwestfalen
- Prof. Dr.-Ing. Axel Schumacher, Hochschule für Angewandte Wissenschaften Hamburg

The site visit took place on 12 to 14 March 2012 at VTDK. During the site visit the expert team met with representatives of the programme, the VTDK administration, students, teaching staff, graduates and employers and visited the laboratories and seminar rooms used by the programme.

The expert team produced an assessment report of the programme with an accreditation recommendation which was submitted to **evalag**'s accreditation commission that took the final accreditation decision in May 2012.

From **evalag**'s side, the accreditation was coordinated by Sabine Berganski with assistance of Grischa Julius R. Fraumann.

4. Programme assessment

4.1 Learning outcomes

Current situation

The self-evaluation report describes programme goals and learning outcomes of the study programme and links it with the curriculum. The learning outcomes describe professional knowledge and competences as well as general and soft skills. The programme description describes the learning outcomes and contents of each module or subject and gives detailed information on the content and working methods of the courses.

The programme intends "to impart knowledge, abilities, and skills, necessary to professionally design, install, operate, and solve professional problems in the electrical engineering field under competitive market conditions" in order to educate technicians who are able to apply fundamental engineering science knowledge, to conduct projects and solve engineering problems (self-evaluation report, page 7). Furthermore, the programme intends to give its graduates a general education which enables them to creative thinking, team work and independent professional development.

The programme was updated in 2010 in a project funded by the European Commission. The update of the programme involved the expansion of the competences of the graduates and the inclusion of new technologies, teaching and learning methods in the curriculum to increase the competitiveness of graduates in the labour market. Therefore, the two preceding programmes "Electrical and Automation Equipment" and "Automation" were merged in the new curriculum.

In updating the programme, VTDK took into account a study on the demand of specialists in the electric energy sector and an employer survey on the demand for electric engineering specialists. The survey confirmed the constant demand in this field and that employers desire especially managers and specialists. The recommendations of the survey and study report were taken into account while updating the new study programme. Additionally, in developing study programmes VTDK cooperates with employers formally (i.e. employer representatives are on the VTDK board) and informally through contacts between teachers and employers.

Graduates are mostly absorbed by the local and regional job market. Depending on the economic situation, the graduates do not have any problems finding a job in their professional area. According to the statistics, approximately 90% of the graduates of the faculty find a job in their professional field.

Assessment

According to the expert team, the learning outcomes describe well the contents and the qualifications offered by the programme. The learning outcomes clearly describe the professional orientation of the programme and meet the professional requirements of a graduate in the electrical and automation engineering field. The learning outcomes on programme as well as on subject level are consistent with the college type studies and meet the required level of qualifications.

The English name of the study programme “Electrical and Automation Engineering” does not fit entirely the competence and knowledge expectations, which are associated with an engineer. For an engineer you would expect broader competences in designing and planning electrical and automation equipment as well as infrastructure. These competences, however, are not included in the curriculum of the study programme. The students are not educated for designing or constructing but rather for operating and maintaining electrical infrastructure.

The expert team values the good employment opportunities of the graduates which are linked to the practice-oriented education and the good cooperation of VDTK and Lithuanian employers in designing and developing the study programme.

The report also mentioned that graduates of the study programme are able to “design electric networks and systems” (self-evaluation report page 8). However, the expert team misses the appropriate subjects that impart the necessary competences for designing electrical and automation engineering systems. The expert team sees the main focus of the programme on installing and maintaining them. The study programme is situated on the professional college level targeted to a professionally and practically oriented education of the graduates. This implies that the programme does not cover the complete scientific knowledge of the field but rather focuses on basic scientific knowledge, necessary to understand the underlying concepts.

The expert team appreciates in principle that the VDTK offers a general studies part in its study programmes to develop general education, creative thinking and language skills. The expert team, however, believes that the general studies part of the study programme could be more useful if its contents were specifically tailored to the needs of the future graduates.

Recommendations

The English name of the study programme “Electrical and Automation Engineering” does not correspond to the content of the education. With regard to the curriculum and education profile, the study programme “Electrical and Automation Engineering” has to be renamed into “Electrical Energy and Automation”. The name of the study programme in Lithuanian (Elektros ir automatikos inžinerija) is not affected.

The expert team recommends the rephrasing of the programme goals and learning outcomes of the study programme by confining them to basic scientific or technological knowledge and avoiding the design competences of electrical and automation engineering systems.

The expert group encourages the VDTK to closely monitor the economic situation of the Lithuanian electric and automation sector in order to be able to react quickly in case of changes that may affect the employability of their graduates.

The experts suggest the VDTK to reconsider the emphasis of its general studies subjects and to develop an offer of key competences courses that is tailored to the needs of professional engineers and the creative thinking of students. This could include method competence (e.g. project management) and soft skill courses (e.g. conflict management). These courses could be offered as electives of the general studies part and, if necessary, adapted to all other study programmes of the VDTK.

4.2 Curriculum design

Current situation

The curriculum is described in the self-evaluation report, the study plans and – more detailed regarding content and working methods – in the programme description. The curriculum is based on a total of 180 ECTS credits which is equivalent to 4800 working hours. 15 credits are devoted to general college study subjects, 135 credits are devoted to study field subjects and 30 credits to special study subjects among which nine credits are devoted to electives. The full-time programme covers six semesters with 30 credits each. The part-time programme lasts eight semesters with workloads of 21 to 24 credits.

The general college study subjects with 15 credits take place in the first three semesters. The study field subjects include 81 credits of the scientific basics for electrical and automation, which are spread over the entire study period; 18 credits for the “Electrical Equipment” module, which takes place in the third and fourth semester; 24 credits cover the practice part, which includes two industrial placements and the remaining 12 credits are for either the “Automatics and Control” track or the “Electrical Technologies” track. The 30 credits of the special study subjects cover applied research course and three electives course with each 3 credits, the final practice with 6 credits and 12 credits are devoted to the graduation thesis.

The curriculum of the full-time programme has a high proportion of practice hours which reflects the practical and professional orientation of the study programme. Out of the 2454 contact hours, 1121 hours are devoted to laboratory work and 814 to lectures. 397 hours are for individual consultation and 122 hours are for term papers. The remaining 2346 hours are devoted to individual work. The part-time programme has the same distribution of credits with a higher proportion of independent work.

The curriculum covers the main subjects of the electrical and automation field and gives the graduates a solid foundation. The general college study subjects are not subject related and cover humanities and social science subjects as well as language competences.

Assessment

The expert team assesses the curriculum as well structured and logical. The subjects and modules are spread evenly and cover the relevant content and competences to meet the programme objectives and prepare the graduates for their professional tasks. The contents of the curriculum also reflect new developments in the field.

The expert team commends the VDTK for its education in basic sciences which are taught in the first semesters and lay the foundation for the understanding of programme related contents.

The impression of the experts is that the study programme apparently focuses more on the energy supply and not so much on the automation field. The education in automation seems to be underrepresented in the curriculum. For example, only digital control is taught and basic knowledge of control technology is completely missing.

Subjects as fundamentals of electrical engineering, modern techniques in the field of PLC, programming as well as Maxwell's Theory are vital to a modern electrical and automation education and should play a more central role in the curriculum.

The experts appreciate the variety of learning methods used in the curriculum and especially commend the VDTK for integrating laboratory work in the curriculum.

The subject and module descriptions are mostly exemplary and give students and teaching staff a comprehensive overview over content, learning outcomes, working methods, assessment and workload of the subjects and modules. The English terminology in the programme description should be revised. The programme description should also clearly show where competencies such as programming are taught.

According to the expert team the curriculum meets the general requirements for study programmes as laid out in Order # V-501.

Recommendations

The expert team encourages the VDTK to continue updating the curriculum of the programme regularly and adjust it to the needs of the labour market. In further developing the study programme the experts especially encourage the VDTK to proactively implement new technologies, fields and innovations in the curriculum instead of merely adjusting the programme according to employers' suggestions. The VDTK should take the lead as a programme innovator in order to be ahead of changes in the electrical and automation sector to secure and improve the employability of its future graduates. In doing so, the VDTK should build on the experience and ideas of its teaching staff.

In updating the programme the VDTK should consider broadening the programme in the field of automation and the above-mentioned subjects should play a central role in the education. Furthermore the subject chemistry does not reflect the latest achievements in science and technology in the electrical and automation field, therefore the experts recommend to delete the chemistry subject from the curriculum. In contrast, the experts recommend strongly that the safety lectures should be strictly retained.

Regarding the free electives with nine credits the expert team recommends to reconsider the free selection opportunity due to the already tight curriculum design. Considering this aspect, the VDTK should use these credits only for subject-related electives or subject-supporting courses and not for courses like professional etiquette or rhetorical communication.

4.3 Teaching staff

Current situation

VTDK has a teaching staff of 72 persons in the technical faculty. The majority of the teaching staff holds a Master degree or an equivalent. Four teaching staff members hold a Ph.D. degree; four teaching staff members hold a doctor of technical science; seven are associate professors of VTDK. 66 lecturers have practical experience from a job in a company. According to the VDTK, about 65% of the lecturers are employed full-time; the remaining 35% are part-time employed. 20 lecturers are involved in teaching the study field subjects for the programme.

The activities of staff members are in principle confined to teaching. The workload of lecturers is 1548 annual hours which is approximately 18 weekly teaching hours. The remaining time is used for consultation hours, preparation of teaching materials, staff development and scientific work. Fundamental scientific research, however, is not a primary task, as kolegija's in Lithuania are not supposed to engage in research activities. The VDTK, however, encourages its staff to do applied research and supports projects proposed by staff members.

In general, professional development is the responsibility of each staff member, but the VDTK also tries to support the professional development of its staff. Therefore, it attempts to acquire EU-funded projects in order to provide financial support for staff development. With these funds, lecturers can e.g. attend international or national conferences. Additionally, the VDTK allows lecturers to make long-term internships in companies or acquire a second master degree in another field. VDTK especially supports its lecturers to attain a Ph.D. degree. VDTK is also engaged in Erasmus exchange programmes for teaching staff. Nevertheless, the lack of funding for staff development remains a general problem.

Teaching staff is evaluated by the VDTK on a regular basis. The teachers write a yearly self-assessment report. Every five years there is an assessment of each lecturer, which also takes into account the lecturer's efforts for their own development.

Assessment

The expert team assesses the staff as adequate in qualification to offer a professional college-level study programme and to provide the students with a qualified learning experience, but it is highly desirable that the professional experience of the teaching staff will be extended and more teaching staff with a Ph.D. degree should be recruited. The experts also appreciate the motivation of the teaching staff met during the site visit. The number of teaching staff seems to be sufficient, also to support the newly introduced consultation hours. The students confirm that the teaching staff is easily accessible for them.

The expert team supports the decision of the VDTK directorate to support staff development and encourages the VDTK to provide funding for it. The experts especially encourage the VDTK to continue and strengthen its support for staff members who want to attain a Ph.D. degree.

Recommendations

The expert team encourages the VDTK to further build on its highly motivated and qualified staff to develop its study programmes. The staff should take the lead in introducing innovations to study programmes instead of following suggestions of employers.

The experts commend the industrial placements, which are already in place and recommend their expansion in order to widen and strengthen the practical experience of the teaching staff. They also encourage the VDTK to hire more teaching staff with a Ph.D. degree and to intensify its applied research activities. The international network of the faculty allows the teaching staff to engage in applied research. These activities could be used to enrich the education of its students by involving them in applied research projects.

4.4 Facilities and learning resources

Current status

The seminar rooms, computer rooms and laboratories for the study programme are listed in the self evaluation report and were visited by the expert team during the site visit. Altogether, the study programme uses a total of 23 different seminar rooms and

eleven laboratories for the different subject fields according to the self-evaluation report. The rooms and laboratories are shared with other study programmes.

The computer rooms are excellently equipped with the common software used in the field such as CADS Planner Electric, Optiwin, AutoCAD and FluidSim. The laboratories are equipped with usual laboratory equipment such as electronics, digital electronics and drives. A basic installation of PLC was missed; it should be integrated in further plans of updating the laboratories. The equipment and software was mostly financed by EU funding or donated by companies in the field. The self-evaluation report mentioned and the VDTK informed during the site visit, that it is planned to update the laboratory material base in 2012 and to acquire modern equipment for a new Electric Network Modelling laboratory.

The library offers textbooks and learning resources for the students and gives access to journals in the field. The literature is mostly in Lithuanian or Russian. Most textbooks or methodological publications are prepared by the lecturers and are available in sufficient numbers for the students in the library or online via Moodle.

Assessment

According to the experts, the facilities for the study programme are adequate in size and quality to provide a good learning experience. The team commends the VDTK to its excellent and up-to-date software equipment which provide very good conditions for the practical education of the students. The laboratories are adequately equipped to train the students to perform tasks related to the future employments. The majority of the software and equipment used by the VDTK is by and large the same as the infrastructure used by companies in the sector. The expert group commends the VDTK for its efforts to acquire equipment or funding for it from different sources to provide its students learning opportunities in good equipped laboratories.

The textbooks or methodological publications provided by the lecturers are well structured and provide students good support in acquiring knowledge and competences in the respective subject matter. The experts commend the VDTK to its wide-spread use of Moodle as learning platform for their study programmes. With its library facilities the students have access to the basic publications necessary to complete their studies. As the large majority of the publications are in Lithuanian or Russian, the expert team misses fundamental and current English literature in the field. Altogether the VDTK is well equipped in terms of its facilities – especially regarding the software – to offer the study programme.

Recommendation

Although the VDTK has appropriate laboratory equipment, the experts recommend to continuously modernize the laboratory equipment and to improve the equipment in the areas of PLC and microcontroller. The experts recommend that the VDTK should use and expand in this context, the relationships with existing industry partners. The expert team also got the impression that the laboratories are not used to an appropriate extent. Therefore they suggest a stronger integration of the laboratory equipment in the laboratory work of the study programme. Some of the experiments in the hands-on training labs need to be improved concerning electrical safety.

The expert team recommends the VDTK to acquire a basic equipment of current English literature in the field as a reference for its lecturers and students. This will support the lecturers and students to keep up-to date with current topics and trends in the field of electric and automation in order to further develop the study programme.

4.5 Study process and student's performance assessment

Current status

There are no specific admission requirements for the programme. For their enrolment, students need to have a high school diploma with two state exams. For an admission to universities three state exams are necessary. The VDTK informs during the site visit that all applicants are accepted who meet the admission requirements as the VDTK – same as other higher education institutions in Lithuania – suffers from a shortage of students. The study programme starts once a year in September.

The programme is offered in a full-time and a part-time option. The part time option offers the same content, but is spread over four instead of three years to allow students to work during their studies. The part-time programme offers the courses in three blocks at the beginning, in the middle and after the end of the regular semester, with a larger portion of independent work.

The study process is organised in groups of approximately 30 students. In the old “Electrical and Automation Equipment” and “Automation” programmes the VDTK started in 2011/12 with one group of 22 respectively 21 students in the full-time programme and one group of 21 respectively 19 students in the part-time programme.

The study process offers a variety of working methods such as lectures and seminars, laboratory work, independent home assignments, consultation hours and independent work. The teaching methods and its distribution are listed in detail for each module / subject in the programme description.

Each subject ends with a student assessment. The final subject assessment is composed of at least two different assessment forms and combined according to a predefined formula. This leads to a variety of different examination methods, e.g. written exams, tests, practical works, project reports, independent work, which assess different competences. The assessment methods and formulas to create the final mark are described in the programme description. The individual marks are assessed and processed by the lecturer of the subject and the final mark is submitted to the faculty administration.

Drop-out rates (in the technical faculty altogether) are at about 12% per year. The largest number of student's drop-out is – according to the faculty – in the first year. The faculty as well as the students see as main drop-out reasons low motivation of students for the chosen subject, high requirements in basic science subjects, adaptation problems, difficulties to combine work and studies, financial problems and termination of studies to work abroad. The renewed programme has now a larger proportion of individual consultation hours which may contribute to reduce the drop-out rates.

The study programme includes – among other shorter internships or practical placements – two industrial placements in a company with 6 credits each. The students search their industrial placements independently but in case of need, the VDTK provides support through their company contacts. Before the industrial placement starts, the student, the company and the responsible lecturer agree on the task that should be performed during the industrial placement.

The graduation thesis is mostly written at the VDTK under the supervision of a lecturer; however, the final industrial placements may be used to collect data in a company to prepare the thesis.

Students have the opportunity to participate in mobility programmes. The VDTK takes actively part in the Erasmus programme and has several partner institutions in Europe. The most important exchange countries for the technical faculty are Slovenia, Poland,

Bulgaria, Estonia and Hungary. The number of incoming exchange or full students, however, is low, as the VDTK does not yet offer courses in English.

After finishing their studies the majority of the graduates search – mostly successfully according to the information of the VDTK – a job in their profession. Each year about 10-15 graduates begin a master programme. In order to meet the admission requirements for a master programme at a Lithuanian university, the graduates with a professional bachelor degree need to attend one and a half years of bridge courses.

Assessment

To the expert team the study process of the programme seems to be well organised and balanced. The organisation of the study process seems to be adequate to achieve the intended learning outcomes. This assessment is also confirmed by the students during the site visit who were in general satisfied with their situation and appreciate VDTK due to its good reputation and good job opportunities. The students also mentioned the easy and close contact with their lecturers. The assessment scheme is transparently described and uses multiple assessment methods to check different competences of the students. The study programme documents are available on the VDTK's websites.

The VDTK also offers its students opportunities for international mobility. The expert team encourages to strengthen these mobility programmes and to further motivate students to participate in student exchanges. Therefore, the existing partnerships could be used. Furthermore, the experts emphasise the importance of English courses for local students. One necessary precondition to increase mobility is to provide favourable conditions for incoming students. Therefore, the experts see it as indispensable to offer courses in English in order to increase the attractiveness of the VDTK for foreign exchange students.

The academic and social support of the students seems to be appropriate. The students report a clearly structured but also tight study process and are in general satisfied with their situation at the VDTK. Lodging seems to be no problem, also due to the good supply of student housing by the VDTK.

In order to reduce drop-out rates in the study programmes, the VDTK introduced a larger number of individual consultation hours in the renewed study programme. These consultation hours may help addressing individual problems of the students and support them to progress in their studies if needed. The experts encourage the VDTK to pursue this measure and monitor its results.

Due to the close cooperation with employers in designing the study programmes and during the practical periods during the programme, the students are mostly able to find appropriate jobs in their profession. The students as well as the graduates mentioned during the site visit that finding a job is no big issue for them as they see themselves largely well prepared. Due to the professional profile of the study programme, the possibilities for continuing education are limited as bridge courses are necessary to start a master programme at a Lithuanian university.

Recommendations

In order to encourage and strengthen international mobility of the students, the experts recommend strengthening the English language education of the students and offering courses in English in order to attract foreign exchange students. Therefore, the English language capacities of the teaching staff need to be strengthened as well. The experts

suggest as a possibility to encourage lecturers to engage in staff exchange programmes. Another possibility would be to invite foreign guest lecturers to provide courses in English. This would also give the students and staff the opportunity to get in touch with foreign approaches in the field and in teaching and learning methods.

4.6 Programme management

Current status

Each study programme is run by a committee, which is related to the faculty. The programme committee includes lecturers and students. It is responsible for the yearly improvement of the programme and coordinates the programme related quality assurance activities. The VDTK has a council with representatives from the social partners.

The VDTK has a structured process to create and redesign study programmes that involves input from different stakeholder groups. First, the faculty decides whether they see the need for a new or redesigned study programme. Then, the VDTK carries out research on labour market demand and the requested profile for the programme through e.g. an employer survey and analyses the results. In the next step, the programme committee defines the programme goals and learning outcomes and designs the subjects to achieve the desired learning outcomes. In this process, the relevant ministerial regulations (general and specific requirements, etc.) are taken into account. In the end, the committee designs a curriculum and assigns credits to the subjects. In the next steps, the lecturers develop the contents of their subjects according to the specifications of the curriculum. Once finished, the programme committee discusses together with the lecturers the curriculum and the individual subjects. The finalised programme is then discussed and adopted in the faculty board and subsequently by the academic board of the VDTK before the programmes can be presented for accreditation and offered to students.

The programme committee meets regularly and reviews the programme on a yearly basis. For programme improvement the VDTK builds on initiatives of its lecturers, results of the quality assurance instruments and its close contact with its social partners. The recent programme renewal was carried out in close cooperation with employers in order to customise the programme content to the needs of the labour market.

On programme level the department carries out student evaluations of individual courses and subjects. The results of the evaluations are analysed and discussed in the department or, if needed, between a lecturer and the dean.

At the management level there is a quality assurance office that supports the faculties and study programmes in their quality assurance efforts. The VDTK also provides a quality handbook that describes the most relevant processes. Currently the VDTK carries out an EU-funded project to redesign its internal quality assurance system and to develop a quality management system based on a combination of EFQM and ISO. In this project the VDTK will also define strategic performance indicators for its faculties.

Assessment

The expert team assesses the programme management as clearly structured and efficient. The experts appreciate the clear process to design new study programmes and the good involvement of external stakeholders in the improvement of study programmes.

In terms of the student course/subject evaluation there seems to be a lack of a clear process to the expert team. During the site visit it did not become clear, whether the course/subject evaluations carried out, analysed and followed-up in a standardised process.

The experts commend the VDTK on its efforts to improve its internal quality management system in an EU-funded project and support the VDTK to fully implement the results of this project. As the project is not yet implemented the quality management system cannot be fully assessed at this stage.

Recommendations

The expert team also recommends strongly a regular and standardised process for the student course evaluations. The process should assure a clear, transparent and regular feedback of the results to lecturers and students. The evaluation should be organised and carried out by an independent body or person in charge. The dean should only be involved to mediate and coordinate the follow-up of the evaluations.

The expert team recommends the VDTK using the opportunity of the EU-funded quality assurance project to design and implement an integrated strategic quality management system that builds on the strategic objectives of the VDTK and the study programmes, uses diverse sources of information to analyse the quality and derives and implements measures for improvement. The VDTK needs to assure that the quality management system supports the lecturers in providing a good learning experience and reduces bureaucracy.

To fully use the capacities of the already build up quality management system the experts invite the VDTK to use statistics more systematically in its internal quality assurance processes.

5. Overall assessment

In general the expert team assesses the professional bachelor study programme “Elektros ir automatikos inžinerija” positively. The VDTK provides a solid education and prepares the students well for their future profession. The professional character of the programme is clearly described in the learning outcomes. Curriculum and study process are clearly structured and appropriate to achieve these learning outcomes. The programme management and the quality assurance seem to be appropriate to manage and improve the programme. The expert team values the close cooperation of the VDTK with employers in order to support the study process and to constantly develop the study programme and focus the competences of the graduates to the needs of the labour market. A great asset of the VDTK is its motivated teaching staff. The efforts of the VDTK in providing good learning opportunities are also valued by the students.

The expert team sees the main area for development in using the VDTK's potential for innovation in order to proactively develop the study programme in the future. In further developing the programme the VDTK should assume the role of the leader and innovator and propose programme innovations that meet the future needs of the labour market. Therefore, the staff needs to keep up with current trends in the academic as well as professional field to be able to react appropriately and prepare graduates ahead of time to changes in the economic environment.

Another area with high potential for development is the field of laboratory equipment. The VDTK should continuously improve, expand and modernise the laboratory equipment in order to expand and enhance the professional education of the students and to remain competitive.

Moreover, the experts see further internationalisation of the programme by strengthening English language skills, increasing students and staff exchange in both directions and inviting foreign guest lecturers as one important element to induce innovation.

According to the expert team the renewed study programme meets the Lithuanian requirements for programme accreditation. Therefore, the team recommends the programme for accreditation.

The expert team also recommends awarding the **evalag** label for programme accreditation as the programme meets the Lithuanian evaluation criteria for study programmes on which the label is based. The team recommends the VDTK to consider and implement the recommendations in this report to further improve the programme.

6. Decision of the accreditation commission

The accreditation commission of **evalag** accredited the professional bachelor programme “Elektros ir automatikos inžinerija” of the Vilniaus technologijų ir dizaino kolegija (VDTK) and awarded the **evalag** label for programme accreditation. The accreditation is valid **from May 2012 until August 2015**.

To further improve the study programme the accreditation commission affirms the recommendations given by the expert group.

Evaluation Scores

No	Evaluation Area	Evaluation of the area, points
1	Programme aims and learning outcomes	3
2	Curriculum design	3
3	Teaching staff	3
4	Facilities and learning resources (facilities, equipment, learning materials)	2
5	Study process and students' performance assessment (student selection, performance assessment, support)	3
6	Programme management (administration of the programme, internal quality assurance)	3
	Total	17 Maximum score: 24

Evaluation scale

Level/Score	Evaluation	Description
1	Unsatisfactory	There are essential irregularities to be eliminate
2	Satisfactory	Meets the minimum requirements, requires improvement
3	Good	The area is systemically developed and possesses original features
4	Very good	The area is exceptionally good