

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Transporto priemonių inžinerija</i>
Valstybiniai kodai	61203T112, 612E20001
Studijų sritis	Technologijos mokslai
Studijų kryptis	Transporto inžinerija
Studijų programos rūšis	universitetinė
Studijų pakopa	pirmoji
Studijų forma (trukmė metais)	nuolatinė (4), iššęstinė (6)
Studijų programos apimtis kreditais ¹	160
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Transporto inžinerijos bakalauras
Studijų programos įregistravimo data	199-05-19

¹ – vienas kreditas laikomas lygiu 40 studento darbo valandų

INFORMATION ON EVALUATED STUDY PROGRAMME

Name of the study programme	<i>Vehicle engineering</i>
State code	61203T112, 612E20001
Study area	Technological sciences
Study field	Transport engineering
Kind of the study programme	University
Level of studies	first
Study mode (length in years)	Full-time (4), Part-time (6)
Scope of the study programme in national credits ¹	160
Degree and (or) professional qualifications awarded	Bachelor of Transport Engineering
Date of registration of the study programme	19-05-1997

¹ – one credit is equal to 40 hours of student work

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I. INTRODUCTION

The BSc programme 'Vehicle Engineering' at the Kaunas University of Technology (KTU) has been reviewed at the same time as the MSc programme "Vehicle Engineering" at the same University (KTU). Kaunas University of Technology is a large well-established university with 14 faculties, 14 Research Institutes and Centres, and 75 Departments ¹. It has an excellent level of well-established and highly regarded research activity.

Both the BSc and the MSc programmes are operated by the Department of Transport Engineering; one of 8 departments in the Faculty of Mechanical Engineering and Mechatronics. The Dean (Professor Dr. habil. Algimantas Fedaravicus) reports directly to the Rector of the University, and the Faculty Council organizes strategy and activity which the Dean and Vice-Deans then execute. The Department is responsible for all stages of the BSc and MSc study programmes in Vehicle Engineering. In addition to the 8 Departments, the Faculty has 4 Scientific Departments and 4 Associate Scientific Departments. It employs 24 full Professors and 60 Associate Professors among more than 150 staff, some of whom are Members of the Lithuanian Academy of Sciences. Research activities in the Faculty associated with the field of Transport Engineering include the dynamics of mechanical and manufacturing systems, vibration analysis, and mechatronic systems. Faculty staff are actively involved in 3 EU research projects under FP 7 (having previously been involved in FP 5 and FP 6 projects), and have organized the international conference 'Transport Means' every year since 1995.

The BSc programme was registered in May 1997 and in 2001 external evaluation was carried out by experts from the Lithuanian Centre for Quality Assessment in Higher Education (CQAHE). Their report emphasized the appropriate structure of the programme, the successful realization of key objectives, viz. to provide a basic higher education, to prepare specialists for multi-dimensional activities, and to have sufficient theoretical and practical background, and also recommended that the facilities should be improved.

The Vehicle Engineering BSc programme covers 160 credits over 4 years duration full-time and 6 years part-time. It offers four specializations: engineering of road vehicles, engineering and management of railway transport, engineering of railway vehicles, and aviation engineering. The programme language is Lithuanian. The strategic vision for the BSc Vehicle Engineering programme includes strong research activity, environmental issues, and helping develop the transportation sector in the country and keep it up to date (transportation is the 3rd biggest industry in Lithuania), focussing on road transport where Lithuanian companies have successfully integrated into the European transport system, rail transport where Lithuanian railways are making strong efforts to modernize old locomotives and rolling stock, and aviation where a growing interest in light aircraft is seen. This strategic vision also encompasses progression from BSc to MSc, with further development (deepening) of specialist themes (pathways) in Road Vehicle Engineering, Railway Transport Engineering, and Aviation Engineering. The BSc (and MSc) programmes have strong support from 'social partners' (industrial partners and commercial organisations), in particular those in the fields of public transport, railway, light aircraft and helicopters.

The number of students admitted to the BSc Vehicle Engineering programme seems to be around 50 - 60 students each year (full-time), while part-time students do not appear to start until year 3.

¹ Presentation, 22/10/2010

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

1.1. Programme demand, purpose and aims

The Self-evaluation report includes a clear expression of the rationale for the BSc Vehicle engineering programme. Key drivers are:

- The importance of transport to the Lithuanian economy, road, rail and aviation, including maintenance;
- Renewal of transport technologies and infrastructure;
- Improvement of employees' qualifications and strong demand from employers for graduates which is exemplified by the award of 10 scholarships each year for railway engineering students;
- EU requirements (e.g. environmental pollution, renewable energy sources).

The specific knowledge and understanding acquired in First Cycle Transport Engineering / Vehicle Engineering studies should include the following:

- Knowledge and understanding of transportation system structure, elements, and interrelations of elements, as well as knowledge and understanding of logistics;
- Knowledge and understanding of the construction and the functional principles of vehicles (transport means);
- Knowledge and understanding about the systems of the transportation system being studied, as well as knowledge and understanding about the trends of development of such systems, and peculiarities of use of means of transportation;
- Knowledge and understanding of transportation technologies and circumstances for optimum use of means of transportation;
- Knowledge and understanding of specific environmental and traffic safety problems.
- The specific practical abilities acquired in the course of transportation engineering studies include the ability to establish and analyse the characteristics of maintenance/use of means of transportation taking into account the traffic, road, and environmental conditions.
- Transportation systems, means of transportation, technologies of production and repair of means of transportation, engines, hydraulic, pneumatic, and electronic systems, and transportation organisation and technologies.

The BSc programme as presented conforms to these statements.

The programme aims address the needs of the industrial and commercial sector of Lithuania's economy, viz. Transport, and are highly relevant not only to the country's trade but also to its neighbours for whom Lithuania is an important trading route. This was discussed extensively in the review meeting with Programme staff. The main objectives of the programme are quoted as 'to provide knowledge in physics, mathematics, mechanics, engineering design, physical and technological sciences; knowledge in special subjects of the study field, including the theory of transport means, manufacture, exploitation, diagnostics, and the combining of multi modal transport and logistics; to develop the abilities to design, modernize, adopt and maintain up-to-date equipment, to apply the acquired skills in designing, manufacture and modernizing transport systems equipment; solving engineering type problems in harmonious transport systems'. These are well-articulated and comprehensive objectives.

Transport engineering is also taught in other universities and colleges in Lithuania (e.g. VGTU, Klaipeda University). In comparison with other universities in Lithuania which offer Transport

Engineering programmes, the defining features of the KTU VE programme are that it focusses on performance and maintenance aspects.

1.2. Learning outcomes of the programme

The (Programme) Key learning outcomes were updated in 2005, and are clearly presented in Table 2.1 of the Self-evaluation report. These are categorised under 4 areas:

- Knowledge and understanding (A);
- Intellectual abilities (B);
- Practical abilities and skills (C);
- General transferable abilities and skills (D).

In each module descriptor (Study Module Programme – SMP see Appendix 2 of the Self-evaluation report) the learning outcomes which are addressed by the module are identified. From this the contribution made by each study module to the Programme level learning outcomes is defined on Table 2.2 of the Self-evaluation report. This clearly indicates a coherency between the Programme learning outcomes and the Module learning outcomes which is extremely good practice.

The learning outcomes in Table 2.1 of the Self-evaluation report are carefully and clearly worded and they are well connected with the aims of teaching at the BSc level. However the learning outcomes do not include sufficient evidence of three elements which the Reviewers considered to be important in a BSc (Cycle 1 programme). These are:

- (i) Communications skills;
- (ii) Critical review and evaluation;
- (iii) Project planning and management.

The Reviewers believe that communication, in written and verbal form, should be specifically included in ‘General transferable abilities and skills’ (D). This learning outcome would, for example, be addressed by a language module, an ICT module, or by a module which involves teamwork (specified under C6 and D7).

The Reviewers would expect to see in Cycle 1 graduates an ability to critically review not only their own work, but that of others as well. This is mentioned in B1 and D2, but the Reviewers believe that the principles of critical review should be developed in all categories of learning outcomes (A) – (D). For example, learning outcome A7 might state “knowledge of transportation technologies, optimal circumstances for transport means usage...” which could be amended to read: “to be able to critically review them in order to select the optimal circumstances”. The Reviewers noted that this aspect was generally under-represented in the Final Project reports of the final projects (see Section 5.4 later in this report).

Similarly, knowledge and understanding of project planning and management are not included in the learning outcomes.

For this reason the Reviewers have noted that the area of learning outcomes has been developed systematically and has distinctive features, but requires further refinement so that it becomes exceptionally good.

The learning outcomes are reasonably well distributed among the study modules (Table 2.2 of the Self- evaluation report). The Final Degree Project module (T000B128) addresses most learning outcomes in one module, which is why this is such an important module, but it does not address project planning and management.

According to the procedure approved at the University the system of assessment of the study programmes exists at the Faculty of Mechanical Engineering and Mechatronics, within also learning outcomes are discussed and improved. The lecturers, students and social partners participate in the procedure; particularly the participation of employers is of great advantage, as

they can transfer feedback information about real industry demands for specific knowledge and skills of graduates. The Reviewers recommend better use of this information in improvement of the programme.

Comments:

The area of learning outcomes has been developed systematically and has distinctive features, but requires further refinement so that it becomes exceptionally good.

Recommendations:

Communication, in written and verbal form, should be specifically included in the Programme and Module Learning Outcomes e.g. under 'General transferable abilities and skills' (D). Languages, especially Russian, are strongly encouraged by social partners. Generally the teaching of communications skills should be enhanced, e.g. by teaching in foreign languages.

The principles of critical review should be developed in all categories of learning outcomes (A) – (D), but especially in the final project.

Knowledge and understanding of project planning and management should be included in the learning outcomes.

2. Curriculum design

2.1. Programme structure

The study volume in hours and credits is adequate for Cycle 1 (BSc) degree study. The Reviewers noted that the duration appeared to be 6 years part-time, not 5 as stated on page 10 of the self-evaluation report.

The BSc programme structure indicates clearly that the programme objectives are very well defined: to provide knowledge in physics, mathematics, mechanics, engineering design, physical and technological sciences, knowledge in special subjects of the study field, to develop abilities to design, modernize, adopt and maintain up-to-date equipment, to apply the acquired skills in designing, systems and solving engineering type problems. The Reviewers agreed that the programme is well structured and the range and selection of subjects (modules) are suitable to meet the objectives and comply with the legal requirements. The programme prepares graduates well for jobs, careers, and academic progression to 2nd cycle studies e.g. MSc, in KTU or any other university – in Lithuania or beyond!

The curriculum includes 10 credits of Social Science (Economics, Management, and Law), 30 credits of special subjects, and 10 credits of professional practice. Students can select a specialism in one of 4 areas ("Pathways"): Aviation Engineering, Engineering & Management of Railway Transport, Engineering of Railway Vehicles, and Engineering of Road Vehicles. These are studied in semesters 6, 7, and 8 and cover a total of 15 credits.

2.2. Programme content

The programme content appears to comply with the formal requirements and represents a very good 1st cycle) part of an integrated 6 year study programme (BSc plus MSc). It offers a thorough Cycle 1 curriculum with depth and breadth; it offers four specializations: engineering of road vehicles, engineering and management of railway transport, engineering of railway vehicles, and aviation engineering.

There is no defined project work except for the final degree project; project work is usually where the development of project planning and management skills and knowledge is effectively based, and it (project planning and management) is not mentioned in the module descriptor.

It is not clear how much Teamwork practice is covered; learning outcome D7 (relating to teamwork and professional ability improvement) is not mentioned in Table 2.2, and it is not clear from the

module descriptors how this important topic is developed through the semesters of the programme, and to what extent.

Nearly all modules specify a significant number of hours each week for practical lectures and laboratory work. As with the MSc programme, the BSc students indicated how much they valued the practical connection between theoretical knowledge and practice, and the staff commented that they thought the good ratio between “theory and practical” was a strength of the BSc and the MSc programmes. The role of the social partners in providing practical placements is excellent, and is clear strong evidence of a healthy working partnership between Industry and the University at cycle 1 level. However, the role of practical work at BSc and MSc level should be reviewed to ensure that it is developed coherently and consistently throughout an integrated 6-year (full-time) programme (cycle 1 and cycle 2).

The inclusion of Social Science subjects in the curriculum is commended as these 3 modules are very useful in a career in Transport Engineering. Specialist modules such as Principles of Marketing, Transport Logistics are available in selected ‘Pathways’; these are important topics which should perhaps be made available to all students. In addition, Maintenance theory is important in all branches of Vehicle Engineering, so a broader module in this topic should perhaps be considered. In the Road Vehicles specialism there is no mention of commercial vehicles, and the Reviewers’ observation was that this area was focussed on cars (automobiles). Consideration should be given to including the theory and practice of commercial vehicles (trucks and buses) in the curriculum.

Comments:

The programme is well structured and the range and selection of subjects (modules) are suitable to meet the objectives and comply with the legal requirements. The programme prepares graduates well for jobs, careers, and academic progression to 2nd cycle studies e.g. MSc.

Overall the Reviewers considered that the area of curriculum design with its thorough Cycle 1 curriculum with depth and breadth which offers four specializations is exceptionally good.

Recommendations:

More project work other than the final project together with the important topic of teamwork practice should be included in the curriculum, and knowledge and understanding of project planning and management should be included in the learning outcomes.

The role and time of practical application work in each part of the integrated BSc and MSc programme should be reviewed.

The Department is encouraged to develop a general vision for the programmes which includes the needs of employers, and the needs, expectations and aspirations of staff and students.

3. Staff

3.1. Staff composition and turnover

There was a small number of academic staff (teachers) who had recent (<10 years) practical industrial experience associated with the subjects they teach. Some of this was very good, e.g. staff members who completed the BSc, pursued a career in industry, and then returned to the University to complete a Masters and PhD. In any group of research-active academics there are opportunities to extend practical industrial experience through collaborative research projects, and there was clear evidence of this with evidence of ‘constant collaboration’ through research contracts and commissions’. It appeared from the self-evaluation report that exchange of staff between University and industry is limited, from the point of view of formal recent industrial experience. It would be helpful to see more evidence of this in the self-evaluation report to avoid any concern about the presence of practical experience among academic staff.

Turnover of permanent academic staff participating in the BSc programme is very low, and appears to take place mostly through a well-defined academic career cycle; from Doctoral student to Professor. The majority of staff have completed their degrees at KTU and have continued at KTU on to an academic career. Whilst this is applauded from the point of view of career opportunity and progression, the Reviewers did feel that some external refreshment of staff would bring some benefit to the Department. It was noted that Doctoral students in the Department who fell into the category of 'temporary lecturers' contributed strongly to the delivery of laboratory and practical lectures, and the self-evaluation report indicated that there was considerable turnover of Doctoral students although the Reviewers were not able to confirm this one way or the other. The Reviewers did note that there is a 'happy medium' between too much turnover of permanent staff which affects continuity in the students' learning, and too little which can mean that a healthy influx of new ideas from new staff is not achieved.

The Reviewers noted that the representation of female academic staff in the Department was very low to the point of being unsatisfactory, and recommend that this is addressed at Faculty level in planning for staff composition and turnover.

The level of international mobility of academic staff for teaching related assignments was relatively low (2 or 3 each year), and a shortage of financial resources was suggested as a reason; this limits the possibility for leave from the University. In the meeting with the academic staff no-one had undertaken recent Erasmus exchange although the Reviewers were assured that 3- 4 staff each year participated in international exchange. The Reviewers would wish to encourage staff to take more advantage of the opportunities offered by mobility schemes such as the Erasmus scheme where there is no direct impact on the institution's financial resources. More could be done here.

3.2. Staff competence

There is a Faculty level qualifications commission for the certification of researchers and lecturers. The academic qualifications of the academic teaching staff were recognised as high and exceed the national requirements. All subjects in the programme are taught by professors or associate professors (>80%), some of whom have significant research achievements. Many interesting and advanced research papers have been published by academic staff, although the majority of these appear to be in the Lithuanian language. Staff are therefore encouraged to publish in English (as this is the de facto international academic publication language) in order to bring their excellent work to a wider – global – audience. It was not always clear that research activity corresponds directly to the subject(s) taught. However it was clear that some staff had at least 10 years of professional work experience which corresponded to the applied subjects they teach and most of the teaching appeared to be well up-to-date.

Professional development of the academic staff is good from the point of view of research; the International Conference on Transport Means which is held annually at Kaunas University of Technology offers an ideal opportunity to support the professional development of academic staff. More professional development in terms of international exposure and experience, and industrial experience, would be beneficial. As part of this the Review team would encourage all staff to improve their English language skills.

The Department's staff have developed systematically over many years and has distinctive features including substantial research track record and achievement. Staff development in the areas of practical experience, international mobility, and English language capability would benefit from further refinement.

Comments:

The Department's staff have developed systematically over many years and has distinctive features including substantial research track record and achievement.

Recommendations:

The Department should consider ways in which it might broaden its staffing base, and consider whether some external refreshment of staff would bring benefit to the Department. Staff who have joined from industry with the background practical and applications knowledge that brings are commended, and a broader background in staff and students is encouraged.

The representation of female academic staff in the Department should be addressed at Faculty level in planning for staff composition and turnover.

More mobility and external exposure for staff is encouraged. Staff should be encouraged to take greater advantage of the opportunities offered by mobility schemes such as the Erasmus scheme, and all staff should be encouraged to improve their English language skills.

4. Facilities and learning resources

4.1. Facilities

The premises for the programme delivery were generally sufficient for the students' studies and were generally in good condition with evidence of recent improvement.

The Faculty of Mechanical Engineering and Mechatronics had many teaching laboratories which were appropriately equipped. Basic mechanical engineering and more advanced manufacturing including CAD/CAM for example have good practical facilities. Vehicle practical facilities are focused on automotive (cars). Computer classrooms were well-equipped with computers; hardware and software. For engineering calculations and design projects CAD software is available which is of a universal standard, used across the world.

4.2. Learning resources

Books, textbooks and periodical publications are available in the Central University Library and in its branch at the Faculty of Mechanical Engineering and Mechatronics. Library facilities were good and the students indicated that they found the service they provided very useful. The reading room of the Faculty Library is open on afternoons and on Saturdays in order to enable part-time students to use the library (open Mon.-Thu. 8:00-19:00; Fri. 8:00-18:00; Sat. 9:00-15:00).. Lecturers and students have access to the electronic catalogue from computers in the reading rooms.

Students can use the learning materials prepared by lecturers in form of slides, conspectus and methodological guides. There are also some text books prepared by the lecturers. The number of copies of text books for the programme Vehicle Engineering which are available in the Library is adequate for the number of students. The access to learning materials is possible also via e-mail and the internet.

Comments:

The area of facilities and resources has developed systematically and is generally suitable for the delivery of the BSc programme. Planned renovation of facilities and continuing investment in equipment will continue to improve the learning resources.

5. Study process and student assessment

5.1. Student admission

Numbers of applications to the BSc course are not given in the self-evaluation report. The admission qualification scores for full-time students are given (Table 2.5) which indicates that the scores over the 5-year period have maintained steady average level. However, it appears from Table 2.6 that the number of students admitted has increased by about 30% since 2005. Admission is carried out on the basis of competition. The importance of state support for studies (scholarships) in student admission was evident from the students. Staff seemed to be concerned about falling student numbers; although the data in the self-evaluation report did not identify this as a trend. If this is the

case, then the Reviewers would recommend a strategic review of student admission procedures in good time.

Annual student 'drop-out' seems to be 20% – 30% but Table 2.6 suggested that there was a trend after year 2 of the programme for students to switch to a part-time study mode (there are no part-time students in the first 2 years, and then from 50% - 80% of full-time students). The self-evaluation report indicates that measures taken by the Department to monitor, analyse and take action relating to drop-out has been effective. The Department is to be congratulated for this, although the students with whom the Reviewers met were limited both in number and in the year of study, and therefore it was not possible to get a view from the students.

5.2. Study process

Although the classes are scheduled during the day, some of the BSc students have jobs and as for the MSc programme many lecturers re-arrange classes after 5 p.m. In order to reduce student drop-out the academic staff are helpful in providing the possibility to study according to a student's individual availability. Some of the BSc students are employed, but the Reviewers could not establish whether this was a significant contributory factor to drop-out. The Reviewers were however satisfied that the staff efforts to support the BSc students through a flexible study schedule were successful in limiting the student drop-out rate.

Mobility of the academic staff is relatively low for teaching related assignments and an increase in international teaching exchange is encouraged.

The mobility of the students on the cycle 1 programme is quite good. Of the BSc students met by the Reviewers, 3 had taken part in international exchange via the Erasmus programme. Students, graduates, and employers indicated that experience outside Lithuania and good ability with foreign languages (including Russian) should be encouraged.

5.3. Student support

There is a commendable enthusiasm from the staff to help the students in their studies to the extent that lectures for full-time students can and are re-arranged later in the day (evening) to accommodate full-time students who are working. This could be formalised in order to help encourage the students more.

5.4. Student achievement assessment

Assessment criteria were considered appropriate and relevant. Because there was no clear indication of the mark given for the coursework on display, the Reviewers could not ascertain whether the marking was consistent, therefore it was assumed that it was.

Feedback by the staff to the students about their marks for coursework during the semester was confirmed by the students to be efficient and useful.

There is a system which ensures the evaluation of the lecturers in delivering the study modules and thereby assessing the teaching quality. This was described by the students as being operated by the Students' Union on behalf of the University, and the students said that they saw evidence that the questionnaires do have a positive effect in quality improvement.

The public defence procedure for the final project report ensures a high standard of achievement in this important aspect of the programme. Participation in the examining committee by external representatives of social partners / industry / employers is very good and helps to ensure that the subject of the project reports corresponds well with the practical needs of employers. However, having examined a number of final project reports, the Reviewers wish to encourage more discussion and reflection in the BSc final project reports.

The Reviewers were unable to comment on any system for assessment and recognition of achievements acquired in non-formal and self-education because there was no evidence of this either in the self-evaluation report or from the meetings undertaken. It would appear that this is a

topic which would benefit from direction at a national level; it has become important in many other European countries over the last 10 years.

5.5. Graduates placement

The self-evaluation report indicated that only 23% of the graduates were employed in the Transport Engineering sector, while 69% continued their studies to MSc. Of the graduates who met with the Reviewers all except one had completed the MSc. They indicated that finding a job in Transport Engineering, i.e. relating to the study profile could be very difficult. Despite the emphasis on road vehicle engineering especially automotive (cars) there was little evidence that the graduates use this knowledge and expertise in their subsequent employment.

Students were concerned about employment in Transport Engineering. Employers whom the Reviewers met during the visit indicated that they have a limited need for Vehicle Engineering specialists and a greater need for more general mechanical engineers with a view to applications in their specific sector. Perhaps there should be more emphasis on other vehicles – aviation, rail or commercial? Employers had ideas for new topic areas (e.g. Electronics / Avionics) and were unsure how to feed this back to the Departmental staff. When asked about the difference between a BSc graduate and an MSc graduate, some employers said that they employed BSc graduates and then supported them to complete MSc studies because it provided useful extra knowledge. Whilst this was not a universal commitment, it is very good evidence of the level of interest and commitment in Lithuanian Industry to a high standard of education.

However, the programme obviously provides a thorough enough engineering graduate to be able to proceed to studying for a Doctorate or to gain employment in other industries, for which the Faculty and Department deserve great credit.

Comments:

The study process and student assessment of the BSc Programme in Vehicle Engineering at KTU has developed systematically.

Recommendations:

A strategic review of student admission procedures should be carried out in good time to prepare for any effect of demographic trends.

More discussion and reflection in final project dissertations should be encouraged, and learning outcomes should be reviewed to support and encourage this.

The Department should set up procedures by which employers are formally encouraged to discuss their needs and new directions with Departmental staff. The Department is encouraged to meet more formally and regularly with its (very supportive) stakeholders (viz. Graduates and social partners) e.g. to identify opportunities for topics subjects which do not seem to be in the Department's vision for the programmes.

More use should be made of information from staff, students and especially social partners who participate in the assessment procedure for the study programmes in the Faculty of Mechanical Engineering and Mechatronics concerning learning outcomes especially relating to the real industry demands for specific knowledge and skills of graduates. An example would be the provision of a 'stage' evaluation by the students of the whole year (or the whole semester).

The Department should review the role and time of practical application work in each part of the integrated BSc and MSc programme.

There should be more formalised academic support, increased international support (Erasmus, languages including Russian) for the students, and more formalised interactions between the Employers and the Department to ensure that needs are understood and addressed.

The Department should formalize the arrangements for 'evening' (after 5 p.m.) study to make it clear that the programme delivery takes account of the needs of working students.

6. Programme management

6.1. Programme administration

The programme management appeared to be thorough and effective. Students and graduates were very complimentary about the support they received from the academic staff.

6.2. Internal quality assurance

The self-assessment report for the BSc programme at KTU was generally well-written and presented. Quality improvement is managed through feedback from student evaluation of each module. It was not clear whether there was a 'stage' evaluation, i.e. an evaluation by the students of the whole year (or the whole semester). A 'stage' review can provide a useful overview of the way the programme integrates the modules and their learning outcomes.

Employers were very supportive, and seem to be engaged and involved, but they indicated that they had well-developed ideas about their need for Vehicle Engineering specialists and jobs in their specific sector. Graduates had jobs but seemed to have limited career aspirations. Both groups of stakeholders indicated that they had quite a lot of informal contact with members of the Department, and would welcome more formal contact e.g. to discuss the curriculum at a strategic level, to match learning outcomes with business and employment needs.

Comments:

The programme management appeared to be thorough and effective and has developed systematically.

Recommendations:

There should be more student feedback relating to each 'stage' of the programme, and also more formal engagement with stakeholders to discuss the curriculum at a strategic level to match learning outcomes with business and employment needs.

III. RECOMMENDATIONS

Programme aims and learning outcomes

1. Communication, in written and verbal form, should be specifically included in the Programme and Module Learning Outcomes e.g. under 'General transferable abilities and skills' (D). Languages, especially Russian, are strongly encouraged by social partners. Generally the teaching of communications skills should be enhanced, e.g. by teaching in foreign languages.
2. The principles of critical review should be developed in all categories of learning outcomes (A) – (D), but especially in the final project.
3. Knowledge and understanding of project planning and management should be included in the learning outcomes.

Curriculum design

4. More project work other than the final project together with the important topic of teamwork practice should be included in the curriculum, and knowledge and understanding of project planning and management should be included in the learning outcomes.
5. The role and time of practical application work in each part of the integrated BSc and MSc programme should be reviewed.
6. The Department is encouraged to develop a general vision for the programmes which includes the needs of employers, and the needs, expectations and aspirations of staff and students.

Staff

7. The Department should consider ways in which it might broaden its staffing base, and consider whether some external refreshment of staff would bring benefit to the Department. Staff who have joined from industry with the background practical and applications knowledge that brings are commended, and a broader background in staff and students is encouraged.
8. The representation of female academic staff in the Department should be addressed at Faculty level in planning for staff composition and turnover.
9. More mobility and external exposure for staff is encouraged. Staff should be encouraged to take greater advantage of the opportunities offered by mobility schemes such as the Erasmus scheme, and all staff should be encouraged to improve their English language skills.

Study process and student assessment

10. A strategic review of student admission procedures should be carried out in good time to prepare for any effect of demographic trends.
11. More discussion and reflection in final project dissertations should be encouraged, and learning outcomes should be reviewed to support and encourage this.
12. The Department should set up procedures by which employers are formally encouraged to discuss their needs and new directions with Departmental staff. The Department is encouraged to meet more formally and regularly with its (very supportive) stakeholders (viz. Graduates and social partners) e.g. to identify opportunities for topics subjects which do not seem to be in the Department's vision for the programmes.
13. More use should be made of information from staff, students and especially social partners who participate in the assessment procedure for the study programmes in the Faculty of Mechanical Engineering and Mechatronics concerning learning outcomes especially relating to the real industry demands for specific knowledge and skills of graduates. An example would be the provision of a 'stage' evaluation by the students of the whole year (or the whole semester).
14. The Department should review the role and time of practical application work in each part of the integrated BSc and MSc programme.
15. There should be more formalised academic support, increased international support (Erasmus, languages including Russian) for the students, and more formalised interactions between the Employers and the Department to ensure that needs are understood and addressed.
16. The Department should formalize the arrangements for 'evening' (after 5 p.m.) study to make it clear that the programme delivery takes account of the needs of working students.

Programme management

17. There should be more student feedback relating to each 'stage' of the programme, and also more formal engagement with stakeholders to discuss the curriculum at a strategic level to match learning outcomes with business and employment needs.

IV. GENERAL ASSESSMENT

The study programme *Vehicle Engineering* (state code – 61203T112) at Kaunas University of Technology is given positive evaluation.

Table. *Study programme assessment in points by evaluation areas.*

No.	Evaluation area	Final
1	Programme aims and learning outcomes	3
2	Curriculum design	4
3	Staff	3
4	Facilities and learning resources	3
5	Study process and student assessment (student admission, student support, student achievement assessment)	3
6	Programme management (programme administration, internal quality assurance)	3
	Total:	19

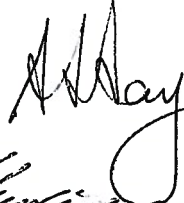
*1 (unsatisfactory) - there are essential shortcomings that must be eliminated

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

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

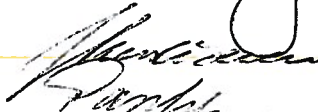
4 (very good) - the area is exceptionally good

Grupės vadovas:
Team leader:



Prof. Andrew Day

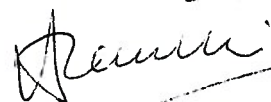
Grupės nariai:
Team members:



Assoc. Prof. Jørgen Kristiansen



Prof. Mathias Paschen



Prof. Andrzej Reński



Dr. Vaidas Liesionis

