



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

KAUNO TECHNOLOGIJOS UNIVERSITETO
STUDIJŲ PROGRAMOS *MULTIMEDIJOS TECHNOLOGIJOS*
(valstybinis kodas – 612E14002)
VERTINIMO IŠVADOS

EVALUATION REPORT
OF *MULTIMEDIA TECHNOLOGIES* (state code - 612E14002)
STUDY PROGRAMME
at KAUNAS UNIVERSITY OF TECHNOLOGY

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Išvados parengtos anglų kalba
Report language – English

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	<i>Multimedijos technologijos</i>
Valstybinis kodas	612E14002
Studijų sritis	Technologijos mokslai
Studijų kryptis	Informatikos inžinerija
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinės studijos, (4)
Studijų programos apimtis kreditais	240 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Informatikos inžinerijos bakalauras
Studijų programos įregistravimo data	2009-05-04

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	<i>Multimedia Technologies</i>
State code	612E14002
Study area	Technological Sciences
Study field	Informatics Engineering
Type of the study programme	University Studies
Study cycle	First
Study mode (length in years)	Full-time, (4)
Volume of the study programme in credits	240 ECTS
Degree and (or) professional qualifications awarded	Bachelor of Informatics Engineering
Date of registration of the study programme	04-05-2009

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The Centre for Quality Assessment in Higher Education

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I. INTRODUCTION

1.1. Background of the evaluation process

The evaluation of on-going study programmes is based on the **Methodology for evaluation of Higher Education study programmes**, approved by Order No 1-01-162 of 20 December 2010 of the Director of the Centre for Quality Assessment in Higher Education (hereafter – SKVC).

The evaluation is intended to help higher education institutions to constantly improve their study programmes and to inform the public about the quality of studies.

The evaluation process consists of the main following stages: 1) *self-evaluation and self-evaluation report prepared by Higher Education Institution (hereafter – HEI)*; 2) *visit of the review team at the higher education institution*; 3) *production of the evaluation report by the review team and its publication*; 4) *follow-up activities*.

On the basis of external evaluation report of the study programme SKVC takes a decision to accredit study programme either for 6 years or for 3 years. If the programme evaluation is negative such a programme is not accredited.

The programme is **accredited for 6 years** if all evaluation areas are evaluated as “very good” (4 points) or “good” (3 points).

The programme is **accredited for 3 years** if none of the areas was evaluated as “unsatisfactory” (1 point) and at least one evaluation area was evaluated as “satisfactory” (2 points).

The programme is **not accredited** if at least one of evaluation areas was evaluated as “unsatisfactory” (1 point).

1.2. General

The Application documentation submitted by the HEI follows the outline recommended by the SKVC. Along with the self-evaluation report and annexes, the following additional documents have been provided by the HEI before, during and/or after the site-visit:

No.	Name of the document
-	Not applicable

1.3. Background of the HEI/Faculty/Study field/ Additional information

Kaunas University of Technology (KTU) was established in 1920 and consists of 9 faculties and 10 research institutes. It has some 10,895 students of whom 7,895 are bachelors students, 2,648 are Masters students and 352 are doctoral students. There are 566 foreign students.

The mission of the university is to provide research-based study, which is at an international level of excellence. It aims to ‘create and transfer knowledge and innovative technologies for sustainable development and innovative growth of the country, to provide an open environment that inspires leaders and talented individuals. The vision of KTU is to be a leading European University with knowledge and technology development and transfer-based activities. Students and University staff work in partnership to improve the quality of the student experience, with the students involved in decision making at all levels.’

The initial title of this study programme was Media Information Technologies but this was changed to its present title in 2012. The self-assessment document was discussed with students from the *Department of Multimedia Engineering* and the *Multimedia Technology* students, and amendments were made prior to its submission to the *Department of Multimedia Engineering* and the *Board of the Faculty of Informatics*. It then was formally submitted to the *Mathematics and Information Technologies Study Programme Committee*.

1.4. The Review Team

The review team was completed according to the *Description of experts’ recruitment*, approved by order No. 1-01-151 of Acting Director of the Centre for Quality Assessment in Higher Education. The Review Visit to HEI was conducted by the team on 19/04/2016.

1. **Prof. dr. Andrew McGettrick (team leader)**, *Strathclyde University, Professor of Computer Science and Information, United Kingdom.*
2. **Prof. dr. Jerzy Marcinkowski**, *Wroclaw University, Professor in the Institute of Computer Science, Poland.*
3. **Ms Barbara McManus**, *Examiner in British Computer Society, External Advisor and Examiner in the field in Computer Science, United Kingdom.*
4. **Mr Simonas Razminas**, *Head of Development at Adform, Lithuania.*
5. **Mr Rytis Koncevičius**, *Vytautas Magnus University, doctoral student of Informatics Sciences, Lithuania.*

In carrying out their assessment, the review panel scrutinised the self evaluation report (SER) that had been prepared by the institution. Moreover they visited the university on Tuesday 19th April 2016 and held fruitful meetings with faculty administration staff, the staff responsible for the preparation of the SER, students, teachers, social partners and graduates. They also had the

opportunity to see the facilities used by staff and students and they had access to a sample of student work including final theses.

II. PROGRAMME ANALYSIS

2.1. Programme aims and learning outcomes

The study programme is updated annually. In the spring of 2014 a major review was undertaken and this resulted in considerable change.

The aim of the study programme is described as ‘to prepare engineering specialists that have the knowledge and skills to design, develop, improve, and adapt software systems to specific situations as well as produce quality multimedia content, while working individually or as a part of a creative team’. Successful graduates can continue their studies on the institution’s second level study programme on Informatics or Software Engineering and there is an Informatics Engineering doctoral programme.

The motivation for the degree is based on observations from 11 major European ICT companies as well as developments in other prestigious universities and organisations about the needs of the labour market for the 21st century as outlined by the European Union. Input about the needs of Lithuania has been obtained from social partners who have articulated the specific skills required to support their industry. These include skills associated with all aspects of the life-cycle including: analysing the needs of a client (organisation, company or individual); interpreting and evaluating requirements; selecting suitable media; cooperating and working with teams including video and audio engineers, web designers and content specialists; simulating and developing virtual environments; creation of suitable graphics, animation, audio and video content; estimating time and costs; installing and adapting systems.

In the view of the review panel these aims and learning outcomes have been carefully devised and refined. Importantly, they are informed by the latest scientific developments in the area. In the view of the review panel, they are ambitious and very appropriate though it is a little unclear where the work of a *Multimedia Technologies* graduate ends and the work of a specialist then begins.

In devising the learning outcomes, cognisance has been taken of the Dublin Descriptors associated with the Bologna Process and with the standards and guidelines of EQANIE, the European Quality Assurance Network in Informatics Education. So the learning outcomes are classified and

structured under four headings: the underlying conceptual basis for informatics; analysis, design and implementation; technological and methodological skills; other professional competencies. In the view of the review panel, the programme aims and learning outcomes are entirely consistent with type and level of qualification on offer.

The Multimedia Technologies study programme is seen to fall within the study field of informatics engineering and so the basic engineering knowledge and skills for first level programmes as set out in national guidelines have been addressed. In the view of the review panel the name of the study programme, its learning outcomes and content and the qualification on offer are entirely compatible.

2.2. Curriculum design

The curriculum meets the legal requirements for Bachelor study comprising 240 credits delivered over 4 years (8 semesters) with 60 credits per year (30 credits per semester). No more than 7 units are undertaken per semester with general subjects being not less than 15 credits and there being no less than 165 study field credits. The modules are spread evenly throughout the course and there is no evidence of repetition across the modules. The final degree project is not less than 12 credits and the practical placement, known as the final practice, is awarded 18 credits.

The titles and content of the study field modules and the specialization modules are consistent with and appropriate to the type and level of this degree.

The review panel was pleased to see good use of open source software such as Blender, which allows students to develop a full range of techniques and to use their programming abilities to further enhance their skills in this software. The lack of current applications in the Adobe group was noted (and acknowledged by the staff). It is accepted however that the students are expected to gain some of these experiences whilst undertaking their final placement.

The students expressed dissatisfaction requesting more Multimedia content to be delivered at the start of the course rather than year 3 as is currently the case. The Self Evaluation Team confirmed the review panel's observation that the elements and theory were taught separately stating that the students have to integrate the knowledge. The review panel encourages the programme to consider how the modules on the study programme can be better integrated.

A good range of teaching modes and assessment models are used. There is an acknowledgment that the 2 routes (Multimedia Engineering and Media Information Technology) offer a small variation to the percentage assigned to engineering subjects.

The review panel felt the programme to be very diverse with students being offered a wide range of knowledge and skills within the areas of Multimedia and Internet development. The students were able to furnish the review panel with examples of theories underpinning the subjects and demonstrated their knowledge of transferable skills. There was however a noticeable lack of experience and expertise in the area of tablet/mobile development.

It is the review panel's judgement that the scope of the programme is satisfactory.

The reading lists provided with the module descriptors contained a number of very old books, for example Sommerville's 4th Edition and Operating System books from the 1990s. Technologies and techniques have changed considerably since these were written and the students do need access to current texts.

The exclusion of journals from the list was also observed by the review panel who were surprised to see that the students were not expected to read and use relevant journals. This is principally expected in levels 5 and 6 of a degree programme, where students should be demonstrating their ability to critically analyse materials. This omission was confirmed upon examination of the final report, where the limited number and quality of citations were evident.

2.3. Teaching staff

According to the institution's SER, the teaching staff of the programme consists of 50 teachers, 33 of whom coordinate 38 obligatory courses included in the curriculum and 17 who teach electable courses. The number is clearly adequate to ensure learning outcomes. Vast majority of the teachers hold PhD degrees, most of them in computer science/informatics or in closely related areas. The statutory condition that "more than half of the teaching staff of a university must be scientists" is thus easily satisfied, at least in the formal sense. The average annual turnover of staff equals, according to the SER, 9.5% which is exactly as it should be.

Among the 33 teachers who coordinate courses there are 9 professors, 17 associated professors and 7 lecturers. Their average age is 49.4, which is much compared to the international standards but

seems to be typical for Lithuanian academic system. Teachers are being evaluated every 5 years, according to the criteria set by the University. In last 5 years nobody was negatively evaluated and nine of teachers were promoted. According to the SER: »the fact that approximately 27% of teaching personnel were promoted proves lecturers to be very progressive«, but the review panel is not really convinced that a teacher being promoted on average once in more than 18 years is a sign of a rapid progress. Also, as the review panel learned, the evaluation criteria set by the University are only seen formally, and what is considered important at the department level is the ability to teach state-of-the-art practical subjects usually resulting from practical experience in companies. This is reasonable in a short term perspective but -- as we are going to explain -- does not help to fulfil the mission of KTU.

Since some courses are taught jointly for the programme under review and other programmes, and since the teachers also teach courses for other programmes, it is impossible to really compute the students/teachers ratio. But, as the review panel learned during its visit to KTU, there are 91 staff members and about 1700 students in the Faculty of Informatics. Also, some courses are taught by teachers from other Faculties (mainly Mathematics and Physics). So clearly, the number of students is not too high compared to the number of teachers.

According to the SER "average teaching load in Faculty of Informatics is slightly above 800 academic hours". As the review panel understood from the meetings, this should not be understood literally, and the typical teaching load is about 8 hours a week. This is actually what one could expect in an institution with staff of 91 and 1700 students if teaching was organised in a rational way. And this means that teachers should not be overwhelmed by teaching, and should have time for research activity.

Research activity not only is legally required from a University but also is postulated by the Mission of Kaunas University of Technology which is, according to the SER:

»to provide research-based studies of international level, to create and to transfer knowledge and innovative technologies for sustainable development and innovative growth of the country, to provide an open creative environment that inspires leaders and talented individuals. The vision of KTU is to be a leading European University with knowledge and technology development and transfer-based activities.«

It is fair to say that this Mission is not fulfilled. Among the 50 members of the teaching staff there are three who publish, in international venues, papers in Physics (including optics) and have some dozens of international citations. Concerning the research regarding CS/Informatics the evidence of any activity is rather modest. The best looking, from the quality of the publication venue point of view, are one paper in "Journal of the Operational Research Society", and one at "European Conference on Software Architecture" (published 8 years ago). Both the venues are classified as A by the Core Ranking of publication venues in CS, which is now seen by the international scientific community as best proxy of quality in this field. This is not much for a Faculty of Informatics at a university which has an ambition to be a "leading European University".

As we said, the teaching staff members do not publish in internationally observable venues. But they are obliged by the University regulations to publish their papers. As far as the review panel understands, the regulation requires to publish in the Web of Science indexed journals. Such a regulation, with respect to CS/Informatics, makes no sense and is counterproductive as, on one hand, being indexed by Web of Science is no longer any sign of a quality of a journal and, on the other hand, the most prestigious publication venues in CS/Informatics are proceedings of the best international conferences, which are not WoS indexed. As a result of this policy the staff members indeed publish, but the main publication venue they use, regardless of the specific sub-area, is local "Information Technology and Control" (which, as we presume, is WoS indexed). It is a bad policy, and the result is that the staff further isolate themselves from the global research community.

And isolation is a critical issue. This is not only lack of publications in journals and at conferences being real venues of the global exchange of ideas, but also the fact that none of the 50 teachers received his degree outside Lithuania (or outside former Soviet Union), and most of them got their degrees in Kaunas. None was a postdoc in a western academic institution. People hardly ever travel abroad, and never visit universities which could be seen as word top 100 in CS/Informatics. It is very telling how the in-coming academic mobility is described in the SER: »An international teacher exchanges are quite common at KTU and takes place at Department of Multimedia Engineering as well. In September of 2014, [a guest from] Faculty of Education of Yildiz Technical University, Turkey, delivered several lectures and workshops for the Multimedia Technology students on topic of "Educational Media Design Principles and Coding Fundamentals in AS 3.0". In October of 2014, [a guest from the] Department of Information Technology of Gomel State Technical University, Republic of Belarus, had internship visit and shared his experiences with students and staff on topics „3D-modeling and 3D-scanning”. In April of 2015 invited guest from USA, Chris Kline (independent, international war and investigative reporter, veteran American

journalist, former correspondent of CNN International, ABC News, and Fox News Channel) participated in lectures of Journalism of Radio, Television and Internet and gave open lecture-seminar "Behind the Lines, a Presentation on Modern, Multimedia Conflict Journalism" focusing on his wartime experiences in the Caucasus, Iraq and Afghanistan and the conditions of front line journalism today in a time of multiple global crises and armed conflicts.«

This is not anywhere close to what a "leading European University with knowledge and technology development and transfer-based activities" could write in their SER. As we have said, isolation is a critical issue and the Faculty should make every effort to overcome it.

2.4. Facilities and learning resources

The premises for studies are adequate both in their size and quality. According to the SER, study programme lectures mostly take place in the Faculty of Informatics classrooms. Multimedia laboratories are located at Innovation and Business Centre (this is the building where practical classes are conducted). All buildings that are used or can be used by the study programme are located on the same campus. People with disabilities are provided with good access to premises in all the buildings the review panel visited (Innovation and Business Centre and House of Electronics). The ground floor of the House of Electronics has a large enough area suitable for personal or group work for students.

The teaching and learning equipment (laboratory and computer equipment, consumables) are adequate both in size and quality. However, there is an obvious space for improvement. Only one machine can process video files with no latency. Another 3 or 4 machines are used to edit and process video files, but they don't provide a smooth experience for students. Storage for video files could be improved, since currently they are stored on an external (fairly slow for large size) HDD. Improvement should be considered for resolving hardware failure cases. Social partners have indicated that investing in hardware is not an issue, but its maintenance is important. In addition, social partners have highlighted a gap of experience in mastering new equipment. Once new hardware is acquired, appropriate learning should be introduced. The review panel recommends reviewing the learning process of new equipment.

The higher education institution has adequate arrangements for students' practice. The review panel witnessed only 5 social partners, but all of them were strongly engaged. Also, one of the partners has hired almost half of graduates so far.

Teaching materials (textbooks, books, periodical publications, databases) are adequate and accessible according to the SER, but the review panel were unable to confirm this as the databases were under maintenance. Some of the study subjects had no books or e-books available, but the HEI claimed that this was because of an error in the system. Again, because of the system maintenance, the review panel was not able either to confirm or deny this. Examples of subjects with no available books were: "3D Modeling Fundamentals", T120B190; "Multimedia System Engineering", T120B171. Examples where only one copy was available were: Development and Programming of Special Effects for Computer Games, T120B167; Development of Computer Games and Interactive Applications, T120B166; Advanced 3D Modeling Methods, T120B112.

Students claimed they don't read books from the recommended literature list. The review panel recommends a review of the recommended literature list while building proper interest in it. Experimenting with digital content and online (modern) forms of recommendations (e.g. online courses of Coursera) should be considered.

2.5. Study process and students' performance assessment

Admission to the study programme is based on a student's achievements from high school. In particular, results in the state examinations, the high school graduation examination and annual results are taken into account leading to competitive entry based on points. Points are calculated on the basis of mathematics (weighting 0.4), the Lithuanian language (weighting 0.2), informatics (weighting 0.2), other educational subjects (weighting 0.2). The institution compares itself with other national programmes and sees itself in second place taking around 26% of the market.

Since the year 2012 the numbers of applicants selecting this study programme as their first choice have increased. In the years 2012, 2013, 2014, 2015 the numbers have been 55, 59, 75 and 87 while the number of entrants for those years (and the state funded numbers are in brackets) have been 53(48), 50(41), 68(55) and 73(67) respectively. The same calculations are used for self-funded students and their point score is lower on average by almost 40%.

The average drop out rate from the study programme is estimated at 15%; it has been smaller for the last two years and this is not regarded as critical by the institution. Students tend to drop out in the first two year of study. The reasons for drop out have been analysed and the main reason is identified as personal choice. So from 50 entrants in 2013, 23 students graduated and from 68 students entering in 2014 some 32 graduated. In the view of the review panel, the drop out rate is a little on the high side.

During their visit, the review panel heard that a main reason for drop out had been mathematics but this problem had now been resolved. The main problem now was programming.

Semesters are 16 weeks in duration. A rational distribution of lectures, seminars, and practical classes is arranged at least one month prior to the start of the semester, in accord with the Rector's regulations. Appropriate breaks between classes are included to ensure that students have sufficient time to move between classes. The weekly workload for students does not exceed 8 contact hours per day and 36 academic hours per week.

A variety of methods are used in the teaching: literature searches, projects of various kinds, practical work, use of simulations, group work, presentations, discussions at seminars, visits to institutions and educational games. In the view of the review panel this variety of experiences is of a good quality.

Since many students are employed, this tends to mitigate against their involvement in research and other such activities.

The Faculty encourages students to embark on visits to foreign institutions and organises contests to select suitable students to collaborate with foreign institutions in ERASMUS programmes, in particular the Life Long Learning programme. In the last six years 3 students from the study programme have taken advantage of these arrangements, visiting Sweden and Germany. During the same period 23 students from foreign countries such as France, Germany, Kazakhstan, Romania, Spain and Turkey came to study in the Faculty.

Both academic and social support are provided for students at the Faculty level.

The programme coordinator will typically outline for students the programme aims, the learning outcomes, the expected competences and career prospects. During the first lecture of a class, the

lecturer will make students familiar with lecture content, discuss the requirements of the class including outlining assignment requirements, discuss the recommended self-study reading and outline criteria for evaluation.

The *Student Representative Body* of the Faculty plays an important role. It deals with accommodation for students in KTU hostels, assists in the distribution of scholarships and loans, organises cultural and sporting activities as well as meetings between students and teachers, and plays a part in the Faculty Board. Pastoral counselling is provided by the University Chaplain Priest and the Pastoral Care Group.

In addition the university operates a mentorship arrangement whereby experienced students assist their less experienced colleagues.

Generally assessment is performed using a 10-point scale with 10 being excellent and 5 being just sufficient for a pass. Work carried out during the semester is all assessed using this scale and the final grade for a class is calculated using a combination of the result of the final exam and weighted grades. The review panel was pleased to hear that there was now a university rule that, to pass a class a student had to pass all components including the final exam. This was seen to address the issue of a student passing just on, let us say, practical work and a mid-term exam.

The general approach to assessment issues, while adequate, could be improved. Consideration could be given to such matters as: how do they check and provide evidence for external evaluators that a member of staff covers all the required learning outcomes in the assessment of modules, that exams are at the right level of difficulty, that there is no repeat from year to year of exam questions or practical exercises, etc. Are exams benchmarked against those at other institutions? Do their students win national or international prizes?

Examinations take place during a 4-week period. Students pass only when all the work of a class has been completed. Arrangements are in place so that failing students are able to recover and proceed to the next semester. Should they fail to do so, they may repeat. Repeats may not be used to increase the grade.

Assessment of the final thesis involved a public defense of the work before a *Defense Qualification Commission*. To enhance reliability of the assessment this is composed of 7 members from different departments with at least 6 members having a PhD and with the chair being external to KTU. In

coming to its decision, the Commission is informed by such matters as the supervisor's grade, the grade of a reviewer, the quality of the presentation, the ability of the student to defend their work, the originality of the work and the nature of the project.

An analysis of graduate placements has been carried out. Graduates from this study programme tend to have careers as tool developers (around 41%), content creators (around 18%), support staff (18%) and typically each year some 3-4 embark on second level studies.(132).

2.6. Programme management

The management arrangements for this study programme are defined within the institution's statutes. According to the institution's self evaluation report, responsibility for it lies with the *Mathematics and Information Technologies Study Programme Committee* (MIT SPC) that is chaired by the Vice-Rector for Studies. At the meeting with administrative staff during their visit, the review panel was pleased to hear that this had been replaced and there was now a study programme committee devoted solely to this study programme. (This change, the scale of it from a study programme management perspective, and the lack of supporting documentation proved a little awkward for the review panel, but not insurmountably so). This new study programme committee had overall responsibility for decisions and for monitoring the implementation of the study programme.

The Head of Department and the study programme co-ordinator have immediate responsibility for the implementation and the improvement of the programme. They review content and its relationship with the learning outcomes, they seek lecturer opinion and student opinion as well as the opinion of social partners every semester.

Student surveys are performed by the KTU Department of Studies and they are anonymous. These assess the importance of subjects, methods of delivery, teacher's ability to communicate and generally pedagogical competence. The lecturers gain feedback and learn about perceived strengths and weaknesses of their classes via web site. Statistics gathered over time are used to inform the study programme committee and the administration about the general performance of a lecturer.

An alternative approach to evaluation is performed by the Department of Student Affairs. Surveys take place each semester and every faculty receives summaries of teacher activity and subject quality. This can be followed by discussions between student representatives and staff to seek

improvements where needed. This approach resulted in changes to the practical work associated with the class on *Operating Systems* and to the student task in the class on *Computer Architecture*.

The review panel was satisfied that the evaluation and improvement processes involved all the stakeholders. However, there was an email-list for social partners who were often asked to confirm their acceptance of suggestions. However, typically many social partners would just respond with 'I agree' and there was a feeling that due care had not always been taken. This was having adverse effect on the more conscientious social partners. In the view of the review panel, there was scope for reviewing these arrangements to ensure that they remained effective.

A new administrative position was introduced in the Faculty in 2014 to ensure that all quality issues have been addressed. Thus there are checks on all curriculum changes that have taken place, and that additions to the study programme meet expectations. The new administrator tends to act as an intermediary to smooth the path between departments and the study programme committees.

The ongoing quality issues that are discussed cover such matters as the quality of final year projects, the study subjects, learning outcomes, assessment issues, perceived strengths and weaknesses. The regular evaluation of study subjects is performed by comparing the subject content with developments in other institutions and modern achievements and advances in the area. Teachers also discuss subject content at departmental meetings. A request for reassessing a class may also be made by the department. In the view of the review panel this represents good practice.

Strengths

- The number of students being admitted to the study programme was increasing;
- The students were in demand by employers and many had jobs;
- There was a good link with the social partners; the requests from social partners were typically being accommodated;
- There was a university rule that, to pass a class, a student had to pass all components and this included the final exam. This was seen to address the issue of a student passing just on, let us say, practical work and a mid-term exam.

Weaknesses

- It was proving difficult to recruit suitable qualified staff due to the salary levels;
- The motivation of students in their first years tended to be problematic;
- The teaching of programming was proving problematic and contributing to drop out;

- Students were exhibiting dislikes for theory;
- Some students were having to use equipment in company premises for their final thesis due to inadequacies in the equipment in the university.

III. RECOMMENDATIONS

1. When changes, such as the change to the study programme committee, are made after the submission of an SER, the institution should inform SKVC well in advance of any visit and provide suitable amended documentation.
2. Strive to better reach out to the international community so that staff and students, and more generally the study programme, all benefit.
3. Give increased recognition to the essential activity of retaining staff and keeping them appropriately motivated.
4. Review the curriculum in the light of publications such as the ACM Computer Science Curricula 2013 report on curricular guidelines; in particular consider more attention for the user interface and user experience.
5. Gain access to the top international journals and publications in the area of multimedia engineering, e.g. via the ACM Digital Library or the IEEE Digital Library.
6. Strive to relate the Media Information Technology Specialisation more strongly to engineering.
7. Seek to provide a greater variety of, and more telling, evidence to convince external reviewers that the assessment of student achievement is a quality process.
8. Take steps to motivate students in the early years of the study programme, employing pedagogical insights where appropriate, and trying to increase their exposure to multimedia material.
9. The mechanisms for engaging social partners might be reviewed with a view to sharpening up the involvement of social partners.
10. Seek to instil in students the importance of theoretical issues and strive to make these more accessible to students; the context in which theory is taught should be considered.
11. Review the teaching of programming with a view to making it attractive and interesting for students.

IV. SUMMARY

This Multimedia Technologies study programme is offered by the Department of Multimedia Engineering within the Faculty of Informatics at Kaunas University of Technology. It is a four year full time programme leading to a Bachelors in Informatics Engineering.

The aim of the study programme is ‘to prepare engineering specialists that have the knowledge and skills to design, develop, improve, and adapt software systems to specific situations as well as produce quality multimedia content, while working individually or as a part of a creative team’.

The study programme was accredited back in 2013 for a three year period. Generally the current review panel is positive about the changes that have been made as a result of the last visit and about the directions being taken. One aspect of that has been the introduction from the fifth semester of two specialisations, one in Multimedia Engineering and the other in Media Information Technologies; the review panel felt that steps might be taken to more strongly relate Media Information Technology Specialisation to engineering.

In the previous evaluation one significant observation was the discrepancy that existed between the views of the students who saw this as essentially an arts study programme, and the views of staff who saw it as engineering. That discrepancy has been significantly reduced but in the view of this review panel there are still traces of it. There are a number of other matters that merit attention:

- Students are having problems with first year classes that they see as irrelevant to their needs; efforts are being made to seek ways in which those studies can be placed in a context that students can relate to and this is to be encouraged. It is vital for student motivation.
- Students are showing a dislike of theory at all levels; appropriate theory is very important and it is not a solution to abandon it for therein lies poor quality university education.
- The teaching of programming is also proving problematic.

The context in which topics are taught is an important consideration and pedagogical concerns have a related role to play in helping with the motivation of students; these considerations can be used for statistics, programming, theory, etc. It could also be important for students to hear about ways of

bridging this gap between arts and engineering. Finally there is the need to become far more involved with the international academic community. For instance there are the ACM curricular guidelines, e.g. ACM Computer Science Curricula 2013 and the ACM Digital Library for top quality international publications.

In conclusion this review panel is of the view that appropriate improvements have been made to this study programme. But more needs to be done and will continue to need to be done. This area is important and there is a need to address such matters as touch screens, mobile, attention to user interface design, accessibility, cyber security, and so on.

V. GENERAL ASSESSMENT

The study programme Multimedia Technologies (state code – 612E14002) at Kaunas University of Technology is given **positive** evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation of an area in points*
1.	Programme aims and learning outcomes	4
2.	Curriculum design	3
3.	Teaching staff	3
4.	Facilities and learning resources	3
5.	Study process and students' performance assessment	3
6.	Programme management	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.

Grupės vadovas: Team leader:	Prof. Dr Andrew McGettrick
Grupės nariai: Team members:	Prof. Dr Jerzy Marcinkowski
	Ms Barbara McManus
	Mr Simonas Razminas
	Mr Rytis Koncevičius

**KAUNO TECHNOLOGIJOS UNIVERSITETO PIRMOSIOS PAKOPOS STUDIJŲ
PROGRAMOS MULTIMEDIJOS TECHNOLOGIJOS (VALSTYBINIS KODAS –
612E14002) 2016-08-19 EKSPERTINIO VERTINIMO IŠVADŲ NR. SV4-189 IŠRAŠAS**

<...>

V. APIBENDRINAMASIS ĮVERTINIMAS

Kauno technologijos universiteto studijų programa *Multimedijų technologijos* (valstybinis kodas – 612E14002) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	4
2.	Programos sandara	3
3.	Personalas	3
4.	Materialieji ištekliai	3
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

Studijų programą *Multimedijos technologijos* vykdo Kauno technologijos universiteto Informatikos fakulteto Multimedijos inžinerijos katedra. Tai ketverių metų trukmės programa, kurią baigus suteikiamas informatikos inžinerijos bakalauro laipsnis.

Šios studijų programos tikslas – „rengti inžinerijos specialistus, turinčius žinių ir gebėjimų projektuoti, kurti, tobulinti programinės įrangos sistemas (*specifikacijas*) ir pritaikyti jas konkrečioms situacijoms, taip pat kurti (*gaminti*) kokybišką multimedijos turinį dirbant savarankiškai arba su kūrybine grupe“.

2013 m. ši studijų programa buvo akredituota trejiems metams. Vertinimo grupė iš esmės teigiamai vertina po paskutiniojo vizito atliktus pakeitimus ir pasirinktas kryptis. Viena iš naujovių yra ta, kad nuo penktojo semestro įvedamos dvi specializacijos: Multimedijos inžinerijos ir

Žiniasklaidos informacinių technologijų; vertinimo grupė mano, kad Informacinių technologijų specializacija galėtų būti labiau susieta su inžinerija.

Ankstesnio vertinimo metu pastebėtas vienas svarbus dalykas – studentų ir dėstytojų nuomonės apie šią studijų programą skiriasi. Studentai mano, kad ši programa iš esmės yra meno studijos, dėstytojai ją laiko inžinerine programa. Šis nuomonių prieštaravimas pastebimai sumažėjo, tačiau, kaip mano vertinimo grupė, jo pėdsakų dar liko. Yra nemažai kitų dalykų, į kuriuos reikia atkreipti dėmesį.

- Studentams kelia rūpesčių pirmojo kurso užsiėmimai, kuriuos jie laiko neatitinkančiais jų poreikių; stengiamasi ieškoti būdų, kaip šias studijas įdėti į kontekstą, kurį studentai gali suprasti, ir tai skatintina. Tai labai svarbu studentų motyvacijos atžvilgiu.
- Studentai rodo nepasitenkinimą visų lygių teorija; tinkama teorija yra labai svarbu, taigi atsisakyti jos nėra geras sprendimas, nes tai suponuoja prastos kokybės universitetinį išsilavinimą.
- Programavimo mokymas taip pat problemiškas.

Aplinkybės, kuriomis mokoma dalykų, yra svarbu, tad pedagoginis aspektas yra svarbus prisidedant prie studentų motyvacijos didinimo; šis aspektas gali būti naudojamas dėstant statistiką, programavimo teoriją ir kitus dalykus. Be to, studentams gali būti svarbu išgirdti, kaip mažinamas atotrūkis tarp meno ir inžinerijos. Galiausiai, būtina daug labiau įsitraukti į tarptautinę akademinę bendruomenę. Pavyzdžiui, yra ACM programų gairės, pvz., *ACM Computer Science Curricula 2013* ir *ACM Digital Library*, skirtos aukščiausios kokybės tarptautinėms publikacijoms.

Vertinimo grupė mano, kad padaryti tinkami šios studijų programos pakeitimai. Bet reikia ir toliau reikės daugiau jų padaryti. Ši sritis yra svarbi, tad reikia spręsti klausimus, susijusius su išmaniaisiais ekranais, mobilaus ryšio telefonais, dėmesiu naudotojo sąsajos dizainui, prieinamumui, kibernetiniam saugumui ir t. t.

<...>

III. REKOMENDACIJOS

1. Kai po savianalizės suvestinės pateikimo atliekami pakeitimai, pavyzdžiui, susiję su studijų programos komitetu, universitetas turėtų gana iš anksto prieš vizitą pranešti SKVC ir pateikti atitinkamus pataisytus dokumentus.

2. Stengtis užmegzti ryšį su tarptautine bendruomene, kad iš to turėtų naudoti dėstytojai, studentai ir pati programa.

3. Teikti daugiau svarbos samdant darbuotojus ir išlaikant jų motyvaciją.
4. Koreguoti studijų turinį atsižvelgiant į publikacijas, pavyzdžiui, *ACM Computer Science Curricula 2013 m.* ataskaitą apie programų gaires; ypač daug dėmesio skirti naudotojų sąsajoms ir naudotojų patirčiai.
5. Įgyti prieigą prie geriausių multimedijos inžinerijos srities tarptautinių žurnalų ir publikacijų, pvz., naudojantis duomenų baze *ACM Digital Library* arba *IEEE Digital Library*.
6. Stengtis specializaciją *Žiniasklaidos informacinės technologijos* labiau susieti su inžinerija.
7. Stengtis įtikinti išorės vertintojus, kad studentų pasiekimų vertinimo procesas yra kokybiškas, pateikiant įvairesnių ir tvirtesnių įrodymų.
8. Imtis veiksmų, skirtų motyvuoti studentus ankstyvaisiais šios programos studijų metais pasitelkiant, kai reikia, pedagogines išvalgas ir stengiantis didinti multimedijos medžiagos įsisavinimą.
9. Siekiant stiprinti socialinių partnerių dalyvavimą, būtų galima apsvarstyti jų įtraukimo į minėtą veiklą mechanizmus.
10. Stengtis įteigti studentams, kad teorija yra svarbu, ir suteikti studentams galimybę daugiau su ja susipažinti; reikėtų apsvarstyti kontekstą, kuriame yra mokoma teorijos.
11. Persvarstyti programavimo mokymą siekiant padaryti jį įdomesnę ir patrauklesnę studentams.

<...>

Paslaugos teikėjas patvirtina, jog yra susipažinęs su Lietuvos Respublikos baudžiamojo kodekso 235 straipsnio, numatančio atsakomybę už melagingą ar žinomai neteisingai atliktą vertimą, reikalavimais.

Vertėjos rekvizitai (vardas, pavardė, parašas)