STUDIJŲ KOKYBĖS VERTINIMO CENTRAS

VYTAUTO DIDŽIOJO UNIVERSITETO STUDIJŲ PROGRAMOS Multimedijos ir interneto technologijos (612E10005)

VERTINIMO IŠVADOS

EVALUATION REPORT OF MULTIMEDIA AND INTERNET TECHNOLOGIES (612E10005) STUDY PROGRAMME at *VYTAUTAS MAGNUS UNIVERSITY*

Grupės vadovas:
Team leader: Prof. dr. Roland N. Ibbett

Grupės nariai:
Team members: Prof. dr. Jürgen Dorn

Prof. dr. José Fiadeiro

Simonas Razminas

Paulius Varonenka

Išvados parengtos anglų kalba
Report language - English

Vilnius
2014

DUOMENYS APIE ĮVERTINTĄ PROGRAMĄ

Studijų programos pavadinimas	Multimedijos ir interneto technologijos
Valstybinis kodas	612E10005
Studijų sritis	Technologijos mokslų studijų sritis
Studijų kryptis	Informatikos inžinerija
Studijų programos rūšis	Universitetinės studijos
Studijų pakopa	Pirmoji
Studijų forma (trukmė metais)	Nuolatinė (4 metai)
Studijų programos apimtis kreditais	240 ECTS
Suteikiamas laipsnis ir (ar) profesinė kvalifikacija	Informatikos inžinerijos bakalauras
Studijų programos įregistravimo data	2011-05-12, Nr. 1-01-57

INFORMATION ON EVALUATED STUDY PROGRAMME

Title of the study programme	Multimedia and Internet Technologies
State code	612E10005
Study area	Technological sciences
Study field	Informatics Engineering
Kind of the study programme	University Studies
Study cycle	First
Study mode (length in years)	Full-time (4 years)
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	2011-05-12, Nr. 1-01-57

CONTENTS

I. INTRODUCTION

The procedures of the external evaluation of the Vytautas Magnus University (hereafter, VMU) Multimedia and Internet Technologies bachelor study programme were initiated by the Centre for Quality Assessment in Higher Education of Lithuania nominating the external evaluation peer group formed by the head, Professor Roland Ibbett (Emeritus Professor of Computer Science, University of Edinburgh, Scotland and Chair of the Accreditation Committee of the European Quality Assurance Network for Informatics Education (EQANIE)), Professor Jürgen Dorn (Vienna University of Technology, Vienna, Austria), Professor José Luiz Fiadeiro (Royal Holloway University of London, England), Simonas Razminas (Organisation Coach, UAB AdForm, Lithuania), employer representative and Paulius Varonenka (Vilnius University, Lithuania), student representative. For the evaluation the following documents have been considered: Law on Higher Education and Research of Republic of Lithuania; Procedure of the External Evaluation and Accreditation of Study Programmes; Methodology for Evaluation of Higher Education Study Programmes; General Requirements of the First Degree and Integrated Study Programmes.

The basis for the evaluation of the study programme is the Self-Evaluation Report (hereafter, SER), prepared in 2013, its annexes and the site visit of the expert group to VMU on 15 May 2014. The visit incorporated all required meetings with different groups: the administrative staff of the VMU, staff in the Department of Applied Informatics responsible for preparing the self-evaluation documents, teaching staff, students of all years of study, graduates and employers. The expert group evaluated various support services (classrooms, laboratories, library, computer facilities), examined examples of students' works, and various other materials. After the expert group discussions and additional preparations of conclusions and remarks, introductory general conclusions of the visit were presented. After the visit, the group met to discuss and agree the content of the report, which represents the expert team consensual views.

VMU was founded in 1922 as the University of Lithuania and was renamed Vytautas Magnus University in 1930. It was closed down in 1950 and re-established in 1989. It places great emphasis on international activities and is involved in joint projects with many universities and scientists around the world, as well as supporting student and staff exchanges. VMU is organised into 10 faculties, supported by a number of institutes, centres and offices. The Faculty of Informatics is made up of three departments, the Department of Applied Informatics, the Department of Systems Analysis and the Department of Mathematics and Statistics.

The Multimedia and Internet Technologies Bachelor Study Programme (MIT) is organised by the Department of Applied Informatics, though all three departments in the Faculty of Informatics contribute to its delivery, as do a number of other departments and institutes from across the University. MIT is a 4-year degree that was started 2011, so has yet to produce graduates. The aim of the programme is to prepare highly qualified Information Technology specialists, capable of designing and developing a diverse range of both multimedia and Internet based systems as well as being prepared for further studies and research both in Lithuania and abroad. Enrolment numbers on the degree are healthy, having increased year on year since its inception.

II. PROGRAMME ANALYSIS

1. Programme aims and learning outcomes

The 4-years/240 ECTS Multimedia and Internet Technologies (MIT) bachelor study programme is motivated by the need for specialists in multimedia and Internet in Lithuania. Evidence is given in the SER by referencing Lithuanian documents based on European documents. The referenced studies only consider the demand for IT professionals in general. During the visit, however, the social partners stressed especially the need for the specialisms addressed by this programme: Multimedia and Internet.

The aim of the study programme is to educate students who are able to analyse, design and develop multimedia systems and/or Internet systems. In general, the aims are appropriate for a first cycle study, but the mix seems to be very ambitious and it does not seem entirely appropriate to have a specific proprietary technology (.NET) as an aim in a study programme. During discussions with the social partners it became clear that for them one of their most important requirements is students who are open-minded and have a strong basis in interdisciplinarity.

The aims are achieved by 19 learning outcomes divided into five groups "Knowledge and its Application", "Skills to perform Research", "Special Skills", "Social Skills" and "Personal Skills". There are some learning outcomes (e.g. "Knowledge of basic art theory ...") that seem to raise doubts in regards of supporting the described aims of the programme, but in discussion staff stressed that this was important background for the multimedia courses. Some learning outcomes are more typical for a second cycle study programme. It is argued that the requirements of the Euro-Inf Framework were taken into account, though the groups and also the

description of learning outcomes might not be consistent with this framework. Some typical social competences such as team working should also be more visible.

The study programme is published in the Web in Lithuanian and English and all applicable Lithuanian laws were regarded, though the learning outcomes are only ascribed to individual courses. The name of the study programme is compatible with the aims and content of the study.

During the visit the Panel discovered that the documentation of the aims and learning outcomes does not do justice to the reality of the programme and recommends that the programme and learning outcomes should be re-written for potential students and social partners to make it clear what can be expected from students finishing this programme. To put it simply, in reality the programme has much more to offer than it is written in the documents. In fact the Panel believes that this is an excellent programme, with ambitious aims and learning outcomes, and anticipates a high demand by industry for its graduates.

2. Curriculum design

This is an innovative and interesting programme that brings together a variety of subjects from across the University. For the most part these subjects fit well together and there are clear lines of progression from year to year. The programme is designed to run over 8 semesters (I to VIII), i.e. 4 years, and consists of 240 ECTS credits. This is the maximum allowed by Lithuanian law (the minimum being 210 ECTS credits). This would also satisfy the Bologna minimum requirements. Students take courses to the value of 60 ECTS credits per annum, 30 per semester, except in year 2, where there is a slight imbalance (29 and 31 credits in semesters III and IV respectively).

Compulsory taught courses specific to the MIT programme account for 161 ECTS credits during semesters I-VIII, 12 for elective MIT specialisation credits (4 credits per semester during semesters V, VI and VII) and 12 freely elective subject credits from across the University (6 credits per semester during semesters II and IV). In semester VII students produce a 3-credit Term Paper which is normally a precursor to the 12-credit Bachelor Thesis, written on the basis of a project undertaken in semester VIII. Also in semester VIII, students undertake a 15-credit Internship. During years 1 and 2 there are also compulsory general studies courses in Fundamental World-view and Humanitarian and Art subjects (including English Language), totalling 25 credits.

There is appropriate support for the programme learning outcomes among the course intended learning outcomes, though not necessarily to the extent indicated in the documentation. It is unclear, for example, how a first year mathematics course can contribute directly to graduates performing “interdisciplinary research and development”. During the visit the Panel raised with the staff a number of other relatively minor problems with the documentation but was convinced that these could easily be rectified. There is ample coursework to support the achievement of the learning outcomes and the panel particularly commends the inclusion of team working in a number of courses.

The programme thus satisfies the legal requirements for a university first degree study programme, since the total number of credits for the subject-specific compulsory and elective taught courses together with the bachelor thesis (188 credits) exceeds the 165 prescribed minimum, the 25 general studies credits exceed the prescribed minimum of 15, and the elective credits (24) are less than the prescribed maximum of 60. There is clearly scope for introducing a greater level of flexibility in terms of subject-specific electives, however, so the Department may wish to consider this as the degree develops in the future. During the visit students supported this view. In the final year in particular it might be appropriate to allow students to bias their studies towards either multi-media or Internet/WWW topics.

As identified in the previous section, the Panel was concerned that the programme might be too broad and questioned the inclusion of robotics; during the visit it was explained that robotics is very relevant to modern filming techniques. The Panel is also concerned that there is not adequate differentiation between topics related to the Internet and those related to the Web, since the Web and the Internet are not the same thing. The Internet existed long before the Web, the latter being one of a number of technologies that are supported by the Internet. This issue arises particularly in courses such as INF3002 (Internet Technologies), INF3024 (Internet Infrastructure) and INF4027 (Internet System Programming). During the visit it was explained that "Internet" and "WWW" translate into the same term in Lithuanian; the Panel nevertheless believes that, particularly in a specialist programme such as this, students should be made fully aware of the distinction.

The inclusion of Programme Learning Outcome 18 (Internet and multimedia projects context and their influence to business, culture and society) is commendable, and mentioned in many of the course descriptions, but it is difficult to see which courses actually support the culture and society aspects apart from INF2039 (Basics of Creative Multimedia) and INF3024 (Internet Infrastructure). The panel is also concerned that there is no mention of professionalism,

professional bodies or professional codes of conduct. The inclusion of a law course (INF 4033 Intellectual Property and Digital Content) is also commendable. This course covers IP and licensing legislation, possibly data protection, but there is other legislation that graduates ought to have at least some familiarity with, such as that relating to employment, health & safety and computer misuse.

There appears to be some duplication of material between courses. INF3032 (Web Graphic Design) includes a history of the Internet but has as a pre-requisite INF3002 (Internet Technologies) which also includes this topic. Similarly, INF3023 (Digital Signals & Circuits) includes elementary material on logic circuits, though it has as a prerequisite INF3029 (Computer Architecture and Operating Systems) which also covers this material. The Panel had a more substantial concern regarding this latter course, noting that it has 18 hours of lectures (out of a total of 30) on Operating Systems but that only one of the four practicals supports this material. Furthermore, two of the other practicals are about low-level digital design. During the visit the Panel was informed that the practicals had been updated to address these issues. Nevertheless, the panel recommends that the Faculty considers separating computer architecture and operating systems into two courses, moving the material on logic design from INF3023 into INF3029 and expanding the material on operating systems to include other system software, e.g. compilers. This would alleviate another concern, that currently there appears to be no way for students to become aware of the relationship between programs written in a high-level language and their execution on actual hardware. In a computer architecture course supporting a degree programme concerned with multi-media, topics such as multi-core and multiprocessor systems (especially ones involving GPUs), and hence, inevitably, cache coherence, ought to be included.

During the meeting with teaching staff the Panel enjoyed a lively discussion on a number of other topics relating to the curriculum and were convinced that their concerns were being met.

3. Staff

The subjects that fall within the study field of the programme (contributing 203 of the 240 ECTS credit total for the programme) are delivered (or, strictly speaking, will be delivered once the degree is fully operational) by 41 staff in total: 5 professors, 18 associate professors, 11 lecturers/lectors and 7 others, some of whom are external staff delivering specialist courses. 28 of these staff have scientific (doctoral) degrees, i.e. 68%. (There are some minor discrepancies in job titles and qualifications between those reported in the SER and those contained in the CVs of individual staff.) 24 of the staff are members of the Informatics Faculty (Applied Informatics 15,

Systems Analysis 6, Mathematics and Statistics 3) while 13 come from elsewhere within the University and 4 from outside.

Of the 240 ECTS credits that make up the whole programme, 161 credits are accounted for by compulsory taught courses in the main subject area and 12 by subject-specific options (three 4-credit courses, out of a total of nine 4-credit courses offered). The Department thus delivers taught courses to the value of 197 credits, of which 144 (73%) are delivered by those staff who are qualified to doctoral level, well exceeding the statutory minimum of 50%. Once there are students in final year (from 2014-15), the Department intends that more than 60% of dissertations will be supervised by staff qualified to doctoral level.

There are 89 students enrolled across the three cohorts currently taking the course. The Faculty as a whole currently has 350 students and 40 teaching staff, so assuming no changes next year apart from a further intake of about 40 students to this programme, the staff-student ratio will be just under 1:10, which is clearly adequate to ensure the intended learning outcomes of the programme.

The majority of the teaching staff are fairly evenly distributed across the age range 30-60. Outside this range 3 are below 30, and 5 are over 65. The SER identifies that there has been some staff turnover in recent years and assuming that there will also be some retirements within the next few years, there should be scope to employ more younger staff. Several of the younger staff currently involved in teaching are either assistants or are visiting staff; the SER identifies that there are 4 staff from other universities or industry, invited to cover specific subject areas.

Most courses are taught by members of the teaching staff who are involved in research in areas closely related to the subjects they teach, though particularly for some of the subjects that underpin computing, e.g. computer architecture, systems software and computer networks, there do not appear to be any members of staff actively involved in related research. The Department might like to consider making an appointment to strengthen these areas.

Despite this concern, the qualifications of the staff teaching the course are more than adequate to ensure the intended learning outcomes of the programme and the Department is to be commended for bringing in visiting staff to cover relevant specialist topics. During the visit the Panel was impressed by the enthusiasm and commitment of the staff involved with this programme.

There is a strong emphasis on research in the Department, both individual and collaborative; during 2011-13, staff participated in 11 national and 7 international projects. There are currently 15 PhD students in the Faculty. Most members of staff have strong publication

records with at least some of their publications being in international journals and conferences. Each year around 30% of staff participate in international teaching and research visits to 14 different countries. The Informatics Faculty regularly organises seminars attended by visitors from IT companies, other Lithuanian universities and from abroad. Some staff are members of relevant national and international organisations, including editorial boards of a variety of journals.

4. Facilities and learning resources

The Faculty of Informatics shares the building at 8 Vileikos str. with the Faculty of Natural Sciences. Sometimes students need to visit another VMU building located in the city centre, but this does not happen too often. Students claim that travelling from Vileikos str. to the city centre takes approximately 10 minutes and they do not need to travel more than once a day. The classrooms meet all requirements and laboratories are equipped with an impressive range of state-of-art equipment. Students use their own equipment as well, but mainly for simple tasks or centralised data storage. Students prefer using equipment in the laboratories provided for the programme. Almost all furniture in the laboratories has wheels that enable easy re-arrangement for group work or any other needs. In addition, re-arrangement is an easy task, because most of the rooms are equipped with big screen laptops, which is also a balanced choice and a complementary option for the multimedia part of study programme. Corridors are narrow, there is not enough of space for students for recreation, personal and group work and conditions to use their own equipment could be improved. The life-cycle of equipment is up to 4 years and seems to be more than sufficient, according to the students. Premises are accessible by people with disabilities, but could be improved, e.g. a wheelchair can fit to elevator, but there is not too much space left. However such conditions are limited by building construction. Wireless internet seems to be present and working.

The Panel was impressed with the specialised facilities available for this programme but nevertheless recommends that consideration, at University level, can be given moving to a newer building in order to enable better conditions outside of classes and laboratories for students' recreation, personal and group work activities, as well as even better conditions for people with disabilities. Until such option becomes possible, the Panel recommends that more power supply sockets be installed for personal equipment of students.

The programme uses several virtual learning environments and collaboration systems. Students complained about the legacy system. The programme manager informed the Panel that

decommissioning of the legacy system is in progress. Recommended texts are available in the library and, wherever possible, there are multiple copies. Alternatively, as electronic publishing becomes more and more popular, electronic textbooks and other texts are recommended for students. Despite the fact that some references could be updated, students are aware of newest market technologies, best practices and trends.

5. Study process and student assessment

The admission requirements are well-founded and publicly available on the VMU IF website. They are organised according to admission recommendations defined in the Law of Science and Studies. Admission rules are approved by the VMU Rector each year and published in the VMU website. The various marketing measures taken by VMU IF are working properly, as shown by the increase of students applying for the MIT study programme. The composition of the contest mark is logical, because of highest weight coefficient is for mathematics which implies that students are capable of understanding higher mathematics, general physics and informatics and will be capable of successfully writing a bachelor thesis.

Although the average contest mark has increased during the period of 2011 to 2013, the variation in contest mark between the lowest and the highest contest mark has also increased, which could imply that the best students might not be able to realise their full potential, or could lead to higher number of drop-out students. The Panel recommends revising the minimum admission mark.

The volume of each study subject is rational, it does not exceed 40 hours of work in one week. Students have 30-45 hours of lecture work and 30-45 of laboratory or seminar work. The timetable for each semester is presented not later than one week before the start of registration for subjects in the following semester, so students can organise their time before the semester. It is possible to organise contact work from a distance. Students are allowed to organise their studies by choosing the individual times of freely elective subjects. Programme students have the opportunity to acquire an additional qualification.

Students and teachers have opportunities to participate in mobility programmes. As SER numbers show, 30% of teachers uses this programme, allowing them to diversify the contents of the study subjects taught in an international context and to increase their competences. Students of this study programme have rather low participation in student mobility programmes (only 2%), however this may be due to the fact that this programme is still new. During the visit students approved availability for mobility, however, students do not participate

actively, mainly because of established thinking that studies abroad are more complicated. The VMU International Relations Office regularly prepares and updates information on the available mobility opportunities and delivers this information via the Internet, VMU and faculty websites, as well as in printed form via Dean‘s offices. The same number of students (about 3-4) from 18 universities come to VU IF each year. The Panel suggests improving the content of "Erasmus Day" by inviting students who have come back from mobility programmes to talk about their experiences

Students have full academic support. As stated in the SER "All study and university life related information is published in the FirstClass intranet system, in VMU and IF bulletin boards and websites". As the relationship between students and staff is strong & satisfying, students can freely ask for consultations. The Dean, Deputy Dean and departmental staff advise students about the aims, learning outcomes, market needs of this programme. Different forms of help about future careers are available (Youth Career Centre, meetings with alumni, agreements with social partners, administration staff). Social support is fully available. Programme students can get free-of-charge consultations with a psychologist, handicapped students can use a rehabilitation room. Some scholarships are available to students having an average mark not less than 8. One-time social scholarships are available. 65% of interested programme students get dormitory placements. Also reductions in study and dormitory payments is available.

During the visit students agreed that the assessment of students' performance is presented by the staff during the first lecture. It is clear and publicly available. In case of misunderstanding, students are free to consult teachers in person.

It could be mentioned that students do not seem to be encouraged to participate in research activities, although it is not compulsory for a bachelor programme. During the visit staff suggested including the social partners to successfully create more positions for the students to participate in research.

6. Programme management

The programme is managed according to the methods, regulations and structures adopted by VMU. The process of quality assessment and change is organised hierarchically at the level of the Programme, the Department, the Faculty and higher instances of the VMU responsible for Quality control. Other university bodies intervene in the process such as the Library and the Office of Student Affairs.

The core organisational unit is the Study Programme Committee (SPC), which triggers the Programme assessment process at least once every three years as prescribed by VMU regulations. The SPC of the MIT programme includes, in addition to representatives of academic departments, a foreign member (Prof de Paolis from the University of Salerno, Italy), an alumnus (who is also a representative of a social partner – the BAIP Group) and a doctoral student.

In addition to the formal three-year cycle of evaluation, the SPC organises periodical reviews of the programme in May/June each year, which is commendable and, indeed, essential in light of the rapid changes that occur in this field of study.

In relation to gathering student feedback, electronic surveys are organised that students are invited to complete for each subject at the end of each semester. According to the staff that the Panel met during the visit, student engagement with the surveys is low, around 25%, which hinders the collection of information that is representative enough to inform quality-related decision processes. Students met during the visit reported that the user interface of the system used for the surveys is very poor, which discourages them from engaging with the process. The Panel recommends that VMU prioritises the deployment of a more user-friendly system and that students be involved in the selection of that system.

The results of the surveys are followed up at Departmental level through informal meetings between the Programme Coordinator. More generally, the Department relies essentially on students to report when something goes wrong or corrective actions are not taken. Whereas the Panel appreciates that, in a small department and with a proactive programme coordinator, informal interaction with students can work well, it would like to recommend that the Department puts in place a more structured form of interaction with students, for example via a small committee consisting of key staff (e.g., the Programme Coordinator, the Head of Department, a librarian, a systems manager, but not teachers in general) and elected representatives of the student cohorts that would meet two or three times per semester to review any issues that students perceive to require action to be taken or any actions taken since previous meetings; ideally, the committee would be chaired by a student in their last year of studies so as to encourage student involvement; minutes and a list of actions/outcomes should be published on Moodle so that it is available to all staff and students of the Department. Such a structured process would also contribute to continuity during change of programme coordinator.

Social partners are also involved in the quality management processes: surveys are also sent out and meetings organised. However, the meetings held during the visit of the Panel suggest that relationships with social partners are essentially ad-hoc and on a personal basis. The

Panel perceives that it would be in the best interest of the Department that meetings be organised where staff, social partners can engage in collective discussions around key topics; this would have the advantage of confronting different points of view and engage all stakeholders more effectively. Therefore, the Panel would like to recommend that the Department put in place a more structured form of interaction with social partners, for example via an Industrial Advisory Board that could meet at least once a year, with an agenda, minutes and list of actions/outcomes that would be made available to all. Given the level of engagement that the social partners met during the visit showed to have already committed and be prepared to keep committing in the future (which is another tribute to the quality of the programme and its coordination), such a board would be easy to implement and run.

An additional element of quality control that the Panel would like to recommend the Department to put in place is peer-observation of teaching, exam/coursework setting and marking. Such forms of peer-observation are very useful for spreading good practice, ensuring consistency of standards and criteria, and helping new members of staff develop or hone their teaching skills; given the multidisciplinary of the programme, such a scheme would also help cross-fertilisation across departments/faculties.

III. RECOMMENDATIONS

1. The Panel found that the description of the programme in terms of its outcomes does not do justice to the content and quality of the programme and recommends that the Department should revise its documentation to ensure greater consistency between the programme learning outcomes and the individual course learning outcomes.
2. Whilst the Panel strongly supports the aim of the course to produce graduates with skills in both multimedia and Internet technologies, it recommends that, as the programme develops, the Department should introduce greater flexibility in course options the final year to allow at least some students to specialise more strongly in one or the other of these areas.
3. The Panel believes that in a programme with such a strong emphasis on Internet technologies, the course documentation and materials should make clear the distinction between the Internet and the WWW, even if this means using terms in English rather than Lithuanian.
4. The Department is recommended to ensure that students are introduced to a wider range of legal topics and to ideas about professionalism and professional codes of conduct.

5. The Panel recommends that the Department should consider dividing the computer architecture and operating systems course into two separate courses, in order to introduce material in the computer architecture course on GPUs, multi-chip and multi-processor systems, together with issues such as cache coherence that arise in these systems, and material in the operating systems course on language processing, in order to give students a greater understanding of how programs written in a high-level language are translated into machine-level instructions.
6. The Panel expects that once there are students in final year, these students will become much more aware of Departmental research activity, particularly through their thesis project work, but recommends that the Department to take steps to raise general awareness of its research work among students.
7. The Panel is aware of the resistance among students generally to take part in student mobility programmes and recommends that the Department should continue its efforts to encourage students in this direction.
8. The Department is encouraged to continue to press the University to improve its website and on-line facilities generally but particularly with regard to access to student feedback questionnaires; involving students in this process might help ensure that they are usable.
9. The Panel recommends that the Department should press the University to provide more open area seating and power supply outlets for students as soon as possible and in the longer term to plan for a new Informatics building.
10. The Panel appreciates that, in a small department, informal interaction with students and social partners can work well but nevertheless recommends that the Department should introduce more structured forms of interaction so that records can be kept for future reference, both of suggestions made and responses to them, thus creating a memory that can more easily be transmitted when key role holders need to change.
11. The Panel also recommends that the Department considers introducing a system of peer observation of teaching, exam/coursework setting and marking, both as a developmental process and a way of spreading good practice and ensuring consistency of standards and criteria.

IV. SUMMARY

The Multimedia and Internet Technologies (MIT) 4-year bachelor study programme is motivated by the need for specialists in multimedia and Internet in Lithuania. Its aim is to educate students who are able to analyse, design and develop multimedia systems and/or Internet systems. This is an innovative and interesting programme that brings together a variety of subjects from across the University. For the most part these subjects fit well together and there are clear lines of progression from year to year. Nevertheless, the Panel felt that the description of the programme in terms of its outcomes does not do justice to the content and quality of the programme and that the documentation needs to show greater consistency between the programme learning outcomes and the individual course learning outcomes.

The curriculum covers material on computing fundamentals that underpin the more specialised courses on multimedia technologies and the Internet and WWW. There are also compulsory general studies courses in Fundamental World-view and Humanitarian and Art subjects (including English Language). There is ample coursework to support the achievement of the learning outcomes, including team working in a number of courses. The Panel has some concerns about parts of the curriculum and has made a number of recommendations. Also, as the degree develops, it might be appropriate to increase the amount of flexibility available, allowing students to bias their studies towards either multi-media or Internet/WWW topics.

The Faculty offers a number of study programmes in addition to the MIT programme, which currently has students in only the first three years of study. Even with the additional of a further cohort of MIT students next year, the overall staff-student ratio in the Faculty will be more than adequate to ensure proper delivery of all programmes. The proportion of staff qualified at doctoral level well exceeds legal requirements and the age distribution of the staff means that there is an appropriate mix of young and more experienced staff. There is a strong emphasis on research in the Department and most courses are taught by members of the teaching staff who are involved in research in areas closely related to the subjects they teach. Most staff have good publication records and many have international contacts and experience. During the visit the Panel was impressed by the enthusiasm and commitment of the staff involved with the programme.

The admission requirements are well-founded and publicly available on the Faculty website, though staff observed that it is sometime difficult to keep pace with changing government regulations. The student workload is appropriate and students are given sufficient

and timely information to organise their own time during each semester. Students are well aware of how their work will be assessed.

Students are well supported both academically by the accessibility of the staff and in terms of social support, student welfare and careers advice. Both students and teachers have opportunities to participate in mobility programmes, though the participation rate among students remains low, despite positive efforts by the Faculty and the University. Lack of awareness among students of staff research activity is expected to improve as the first cohort of students enters the final year.

The classrooms in the Faculty of Informatics building (which is shared with the Faculty of Natural Sciences) meet all legal requirements and the specialised laboratories are equipped with an impressive range of state-of-art equipment. Suitable rooms are available for student group work, although the conditions in public open areas where students can use their own computers could be improved. In the long term it would be appropriate for the Faculty to be housed in a new building. The premises are accessible by people with disabilities, though sometimes with difficulty.

The programme uses several virtual learning environments and collaboration systems. Students' concerns about one of the legacy systems will be resolved as use of this system is being phased out. Recommended texts are available in the library and, wherever possible, there are multiple copies. Students also have access to electronic textbooks. Despite the fact that some references could be updated, students are aware of newest market technologies, best practices and trends.

The programme is well managed at Departmental level and is integrated into the University as a whole through a hierarchical committee structure. The core organisational unit is the Study Programme Committee (SPC), which includes not only representatives of the academic departments that contribute to the programme but also a member from abroad, an alumnus and a doctoral student. Commendably, the SPC organises an annual review of the programme, which is essential in a field of study such as this where the subject changes rapidly.

The Faculty has very strong informal links with its students, with its social partners and, because this is a new programme that has yet to produce graduates, with alumni of its longer-running programmes. Whilst this works well when student numbers are small, the Panel believes it would be helpful to put in place more structured forms of interaction with students, social partners and, eventually, graduates.

V. GENERAL ASSESSMENT

The study programme *Multimedia and Internet Technologies* (state code – 612E10005) at Vytautas Magnus University is given **positive** evaluation.

Study programme assessment in points by evaluation areas.

No.	Evaluation Area	Evaluation Area in Points*
1.	Programme aims and learning outcomes	4
2.	Curriculum design	3
3.	Staff	4
4.	Material resources	4
5.	Study process and assessment (student admission, study process student support, achievement assessment)	4
6.	Programme management (programme administration, internal quality assurance)	3
	Total:	**22**

*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. Roland N. Ibbett

Grupės nariai:
Team members: Prof. dr. Jürgen Dorn

Prof. dr. José Fiadeiro

Simonas Razminas

Paulius Varonenka

Santraukos vertimas iš anglų kalbos

V. APIBENDRINAMASIS ĮVERTINIMAS

Vytauto Didžiojo universiteto studijų programa *Multimedijos ir interneto technologijos (valst*ybinis kodas – 612E10005) vertinama **teigiamai**.

Eil. Nr.	Vertinimo sritis	Srities įvertinimas, balais*
1.	Programos tikslai ir numatomi studijų rezultatai	4
2.	Programos sandara	3
3.	Personalas	4
4.	Materialieji ištekliai	4
5.	Studijų eiga ir jos vertinimas	4
6.	Programos vadyba	3
	Iš viso:	**22**

* 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

Keturių metų trukmės bakalauro studijų programos *Multimedijos ir interneto technologijos* (MIT) atsiradimą paskatino multimedijų ir interneto specialistų poreikis Lietuvoje. Šios programos tikslas – mokyti studentus analizuoti, projektuoti ir kurti multimedijos ir (arba) interneto sistemas. Tai pažangi ir įdomi programa, sujungianti daugelį universitete dėstomų dalykų. Šie dalykai dažniausiai dera tarpusavyje, ir kasmet aiškiai pastebima, kad jie tobulėja. Vis dėlto ekspertai mano, kad programos rezultatų apraše neatskleistas jos turinys, kokybė ir ypatumai ir kad dokumentuose reikia geriau suderinti šios programos rezultatus su atskirų dalykų rezultatus.

Programos studijų turinį sudaro medžiaga apie kompiuterijos pagrindus, kuri yra pagrindas labiau specializuotiems dalykams, susijusiems su multimedijų technologijomis, internetu ir globaliu tinklu (www). Dar yra privalomi bendrieji studijų kursai, kuriuos sudaro fundamentalieji pasaulėžiūros ir humanitariniai bei meno srities dalykai (įskaitant anglų kalbą*)*.

Studijų kokybės vertinimo centras

Gausu (praktinių) užduočių, kurios padeda pasiekti numatomus studijų rezultatus, įskaitant grupinį darbą studijuojant daugelį dalykų. Ekspertų grupė šiek tiek susirūpinusi dėl studijų turinio dalių ir pateikė kai kurias rekomendacijas. Be to, aukštesnį laipsnį suteikiančiose programose ar aukštesniuose kursuose, gali prireikti didinti lankstumą ir leisti studentams nukreipti savo studijas labiau prie multimedijų arba interneto / globalaus tinklo temų.

Be programos *Multimedijos ir interneto technologijos* fakultetas teikia keletą studijų programų, kurių studentai yra dar tik trečiakursiai. Net ir tada, kai kitais metais prisidės dar vienas studentų kursas, bendras fakulteto dėstytojų ir studentų santykis bus pakankamas tinkamas visų programų dėstymui užtikrinti. Daktaro laipsnį turinčių dėstytojų dalis smarkiai viršija teisės aktų reikalavimus, o kalbant apie dėstytojų amžių – jaunų ir labiau patyrusių dėstytojų santykis yra tinkamas. Katedra daug dėmesio skiria moksliniams tyrimams; daugelį dalykų moko dėstytojai, atliekantys mokslinius tyrimus srityse, glaudžiai susijusiose su jų dėstomais dalykais. Vizito metu ekspertų grupę sužavėjo programoje dalyvaujančių dėstytojų entuziazmas ir atsidavimas.

Priėmimo reikalavimai yra pagrįsti ir viešai skelbiami fakulteto interneto žiniatinklyje, nors dėstytojai pastebėjo, kad kartais nelengva spėti su besikeičiančiais vyriausybės įstatymais. Studentų darbo krūvis yra tinkamas, studentams laiku suteikiamas pakankamas informacijos kiekis, kad jie kiekvieną semestrą galėtų planuoti savo laiką. Studentai gerai žino, kaip bus vertinamas jų darbas.

Studentams teikiama akademinė ir socialinė pagalba: dėstytojai yra prieinami, rūpinamasi studentų gerove, patariama karjeros klausimais. Ir studentai, ir dėstytojai turi galimybių dalyvauti judumo programose, nors, nepaisant fakulteto ir universiteto pastangų, studentų dalyvavimo lygis vis dar gana žemas. Tikimasi, kad studentai daugiau žinos apie dėstytojų mokslo tiriamąją veiklą, kai pirmasis studentų būrys studijuos paskutiniame kurse.

Informatikos fakulteto auditorijos (kuriomis naudojasi ir Gamtos mokslų fakultetas) atitinka visus teisės aktų reikalavimus, o specializuotose laboratorijose yra įspūdingai daug šiuolaikinės įrangos. Yra studentų kolektyviniam darbui skirtos patalpos, nors sąlygos atvirose erdvėse, kur studentai naudojasi savo kompiuteriais, galėtų būti geresnės. Laikui bėgant fakultetui reiktų persikelti į naują pastatą. Patalpos yra prieinamos neįgaliesiems, bet kartais sunkiai.

Įgyvendinant šią programą naudojamasi kelių rūšių virtualia mokymosi aplinka ir bendradarbiavimo sistemomis. Studentų susirūpinimas dėl vienos iš pasenusių kompiuterinių sistemų bus išsklaidytas, nes naudojimasis šia sistema pamažu nutraukiamas. Bibliotekoje yra

rekomenduojami tekstai, o atitinkamais atvejais – daugybė kopijų. Studentai turi galimybę naudotis ir elektroniniais vadovėliais. Nepaisant to, kad kai kurias nuorodas galbūt reikėtų atnaujinti, studentai yra susipažinę su naujausiomis rinkos technologijomis, geriausia patirtimi ir tendencijomis.

Programai vadovauja katedra, be to, taikant hierarchinę komitetų struktūrą, ji integruota į viso universiteto akademinę veiklą. Pagrindinis organizacinis padalinys – Studijų programų komitetas (SPK), į kurį įeina ne tik akademinių padalinių atstovai, kurie įneša savo indėlį į programą, bet ir atstovas iš užsienio, buvęs studentas ir doktorantūros studentas. Pagirtina tai, kad SPK organizuoja kasmetinę programos peržiūrą, kuri yra labai svarbi kalbant apie studijų kryptį, kurios objektas greitai kinta.

Neformalūs fakulteto ryšiai su savo studentais, socialiniais partneriais yra labai stiprūs, o kadangi ši programa yra nauja ir absolventų dar nėra – ir buvusiais kitų, ilgesnių programų studentais. Kadangi tai padaryti nesunku, kai studentų nedaug, ekspertų grupė mano, kad būtų naudinga taikyti labiau sistemiškas bendravimo su studentais, socialiniais partneriais ir galiausiai su absolventais formas.

III. REKOMENDACIJOS

1. Ekspertų grupė mano, kad šios programos rezultatų apraše neatskleistas jos turinys ir kokybė, ir rekomenduoja katedrai patikslinti savo dokumentus, siekiant labiau suderinti šios programos rezultatus su atskirų dalykų rezultatais.
2. Nors ekspertų grupė tvirtai pritaria kurso tikslui parengti absolventus, kurie turėtų kvalifikaciją multimedijų ir interneto technologijų srityje, ji rekomenduoja, kad, katedra, tobulindama šią programą, sudarytų galimybę lanksčiau pasirinkti dalykus, paskutiniaisiais studijų metais bent jau kai kuriems studentams leisdama tvirčiau specializuotis vienoje ar kitoje iš minėtų sričių.
3. Ekspertai mano, kad programos, kurioje taip stipriai pabrėžiamos internetinės technologijos, dalykų aprašuose ir medžiagoje internetas ir globalus tinklas (www) turėtų būti aiškiai atskirti, netgi jei reikėtų vartoti ne lietuviškus, o angliškus terminus.
4. Katedrai rekomenduojama užtikrinti, kad studentai būtų supažindinami su daugiau teisinių temų, profesionalizmo idėjomis ir profesiniais elgesio kodeksais.
5. Ekspertų grupė rekomenduoja, kad katedra architektūros ir operacinių sistemų kursą padalytų į dvi dalis kompiuterių ir į kompiuterių architektūros kursą (dalyką) įtrauktų medžiagą apie grafikos procesorius (GPU), trimatės grafikos ir multiprocesorių sistemas

ir dar kai kuriuos klausimus, pavyzdžiui, spartinančiosios atminties vientisumo (duomenų teisingumo) užtikrinimą šiose sistemose, o į operacines sistemas – medžiagą apie (natūralios) kalbos apdorojimą, kad studentai geriau suvoktų, kaip aukšto lygio programavimo kalba parašytos programos verčiamos mašininiu kodu, suprantamu kompiuteriui.

6. Ekspertai tikisi, kad paskutiniaisiais studijų metais (šie) studentai daug daugiau žinos apie katedroje vykdomą mokslo tiriamąją veiklą, ypač rengdami savo baigiamuosius darbus, bet vis dėlto rekomenduoja katedrai imtis veiksmų bendram studentų supratimui apie jos mokslinį darbą didinti.
7. Ekspertų grupė žino, kad apskritai studentai priešinasi dalyvavimui judumo programose, tad rekomenduoja katedrai ir toliau skatinti studentus dalyvauti.
8. Katedra raginama ir toliau reikalauti, kad universitetas tobulintų savo interneto svetainę ir apskritai interneto galimybes, ypač kad būtų prieinami galimybę naudotis studentų atsakymai į klausimynus; įtraukus į šį procesą studentus, būtų galima užtikrinti, kad jais bus naudojamasi.
9. Ekspertai rekomenduoja katedrai pareikalauti, kad universitetas kuo skubiau sukurtų sėdimas vietas ir elektros lizdus atvirose erdvėse, o ilgainiui numatytų naujo informatikai skirto pastato statybą.
10. Ekspertų grupė vertina tai, kad mažoje katedroje gali gerai veikti neoficialus ryšys su studentais ir socialiniais partneriais, bet vis dėlto rekomenduoja, kad katedra taikytų sistemiškas bendravimo formas, kad ateičiai būtų galima išsaugoti įrašytą informaciją apie pateiktus pasiūlymus ir atsaką į juos, taip sukuriant atmintį, kurią būtų nesunku perduoti, kai turi keistis pagrindinių funkcijų atlikėjai.
11. Ekspertai dar rekomenduoja, kad Katedra įdiegtų dėstytojų mokymo, egzaminų / kursinių darbų nustatymo ir vertinimo (pažymiais) tarpusavio stebėjimo sistemą; ji būtų tobulinimo proceso dalis ir gerosios patirties skleidimo būdas, ir užtikrintų standartų bei kriterijų pastovumą.

<…>