STUDIJŲ KOKYBĖS VERTINIMO CENTRAS
CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

INFORMATION SYSTEMS FIELD OF STUDY

KAUNAS UNIVERSITY OF TECHNOLOGY

EXTERNAL EVALUATION REPORT

Expert panel:

1. Panel chair: Prof. dr. Barry Allan Brown
2. Academic member: Prof. dr. Nik Bessis
3. Social partner representative: Tomas Kazragis
4. Student representative: Nienke Wessel

SKVC coordinator: Aleksandras Kačanauskas/ Gustas Straukas

Report prepared in 2024
Report language: English

CONTENTS

I. INTRODUCTION

1.1. OUTLINE OF THE EVALUATION PROCESS

The field of study evaluations in Lithuanian higher education institutions (HEIs) are based on the following:

- Procedure for the External Evaluation and Accreditation of Studies, Evaluation Areas and Indicators, approved by the Minister of Education, Science, and Sport;
- Methodology of External Evaluation of Study Fields approved by the Director of the Centre for Quality Assessment in Higher Education (SKVC);
- Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

The evaluation is intended to support HEIs in continuous enhancement of their study process and to inform the public about the quality of programmes within the field of study.

The object of the evaluation is all programmes within a specific field of study. A separate assessment is given for each study cycle.

The evaluation process consists of the following main steps: 1) Self-evaluation and production of a self-evaluation report (SER) prepared by an HEI; 2) A site visit by the review panel to the HEI; 3) The external evaluation report (EER) production by the review panel; 4) EER review by the HEI; 5) EER review by the Study Evaluation Committee; 6) Accreditation decision taken by SKVC; 7) Appeal procedure (if initiated by the HEI); 8) Follow-up activities, which include the production of a Progress Report on Recommendations Implementation by the HEI.

The main outcome of the evaluation process is the EER prepared by the review panel. The HEI is forwarded the draft EER for feedback on any factual mistakes. The draft report is then subject to approval by the external Study Evaluation Committee, operating under SKVC. Once approved, the EER serves as the basis for an accreditation decision. If an HEI disagrees with the outcome of the evaluation, it can file an appeal.On the basis of the approved EER, SKVC takes one of the following accreditation decisions:

- **Accreditation granted for 7 years** if all evaluation areas are evaluated as exceptional (5 points), very good (4 points), or good (3 points).
- **Accreditation granted for 3 years** if at least one evaluation area is evaluated as satisfactory (2 points).
- **Not accredited** if at least one evaluation area is evaluated as unsatisfactory (1 point).

If the field of study and cycle were **previously accredited for 3 years**, the re-evaluation of the field of study and cycle is initiated no earlier than after 2 years. After the re-evaluation of the field of study and cycle, SKVC takes one of the following decisions regarding the accreditation of the field of study and cycle:

- To be accredited for the remaining term until the next evaluation of the field of study and cycle, but no longer than 4 years, if all evaluation areas are evaluated as exceptional (5 points), very good (4 points) or good (3 points).
- To not be accredited, if at least one evaluation area is evaluated as satisfactory (2 points) or unsatisfactory (1 point).

1.2. REVIEW PANEL

The review panel was appointed in accordance with the Reviewer Selection Procedure as approved by the Director of SKVC.

The composition of the review panel (RP) was as follows:

1. Panel chair: Prof. dr. Barry Allan Brown
2. Academic member: Prof. dr. Nik Bessis
3. Social partner representative: Tomas Kazragis
4. Student representative: Nienke Wessel

1.3. SITE VISIT

The site visit was organised on 22 May 2024 onsite.

Meetings with the following members of the staff and stakeholders took place during the site visit:

- Senior management and administrative staff of the faculty(ies);
- Team responsible for preparation of the SER;
- Teaching staff;
- Students;
- Alumni and social stakeholders including employers.

There was no need for translation and the meetings were conducted in English.

1.4. BACKGROUND OF THE REVIEW

Overview of the HEI

Kaunas University of Technology (hereinafter – University or KTU) is a state higher education institution that has evolved from the University of Lithuania, founded on 16 February 1922. The University has 9 faculties and 9 science centres. The combination of different science fields opens the field of interdisciplinary skills development for KTU students. The University provides doctoral studies in 19 science fields of technology, natural, social sciences and humanities in the Lithuanian and English languages, and from autumn 2022, also in the artistic field of architecture.

Overview of the study field

The Information Systems field has two study programmes: I cycle programme "Information Systems" and II cycle programme "Digital Transformation and System Architectures". Information Systems studies at the University are implemented by the Faculty of Informatics (hereinafter referred to as IF), which claims to be a competitive, international unit of Kaunas University of Technology, successfully carrying out studies, research and experimental development in priority topics of sustainable future and sustainable social development. It is the first and one of the largest centres in Lithuania offering studies in the study fields of computing, with about 2,000 students, over 150 lecturers, and each year more and more guest lecturers from Lithuanian and foreign companies and institutions. Currently, the Faculty of Informatics has five departments, two centres and one laboratory centre. The Faculty of Informatics is a member of such international organisations and associations as Informatics Europe, OMG (Object Management Group), CLARIN ERIC (Common Language Resources and Technology Infrastructure European Research Infrastructure Consortium). The mission of the Faculty of Informatics of KTU is to ensure the quality of studies and scientific research carried out at the faculty, to create an environment that encourages development, creativity, trust and collaboration

Previous external evaluations

According to the Order of the Director of the Centre for Quality Assessment of Studies ("SKVC") No SV6-40 of 23 November 2017, the I cycle programme "Information Systems" was awarded 20 out of 24 points and accredited for a maximum period of 6 years. According to Order No SV6-43 of 11 August 2014 of the Director of the SKVC, the II cycle study programme Information Systems Engineering (currently renamed as Digital Transformation and System Architectures) was awarded 18 out of 24 points and accredited for a maximum period of 6 years.

Documents and information used in the review

The following documents and/or information have been requested/provided by the HEI before or during the site visit:

- *Self-evaluation report and its annexes*
- *Final theses*

Additional sources of information used by the review panel:

The following additional sources of information have been used by the review panel:

- *Annual Monitoring Reports*
- *Annual Performance Review for Teaching Staff*

II. STUDY PROGRAMMES IN THE FIELD

First cycle/LTQF 6

Title of the study programme	**Information Systems**
State code	6121BX011
Type of study (college/university)	university
Mode of study (full time/part time) and nominal duration (in years)	full time, 4 year
Workload in ECTS	240
Award (degree and/or professional qualification)	Bachelor of computing
Language of instruction	Lithuanian
Admission requirements	Secondary Education
First registration date	April 8th 2010
Comments (including remarks on joint or interdisciplinary nature of the programme, mode of provision)	

Second cycle/LTQF 7

Title of the study programme	**Digital Transformation and System Architectures**
State code	6211BX009
Type of study (college/university)	university
Mode of study (full time/part time) and nominal duration (in years)	full time, 2 year
Workload in ECTS	120
Award (degree and/or professional qualification)	Master of computing
Language of instruction	Lithuanian
Admission requirements	Bachelors' degree
First registration date	November 9th 2007
Comments (including remarks on joint or interdisciplinary nature of the programme, mode of provision)	

III. ASSESSMENT IN POINTS BY CYCLE AND EVALUATION AREAS

The first cycle of the Information Systems field of study is given a positive evaluation.

No.	Evaluation Area	Evaluation points*
1.	Study aims, learning outcomes and curriculum	4
2.	Links between scientific (or artistic) research and higher education	3
3.	Student admission and support	4
4.	Teaching and learning, student assessment, and graduate employment	3
5.	Teaching staff	4
6.	Learning facilities and resources	5
7.	Quality assurance and public information	4
	Total:	**27**

The second cycle of the Information Systems field of study is given a positive evaluation.

No.	Evaluation Area	Evaluation points*
1.	Study aims, learning outcomes and curriculum	4
2.	Links between scientific (or artistic) research and higher education	3
3.	Student admission and support	4
4.	Teaching and learning, student assessment, and graduate employment	3
5.	Teaching staff	4
6.	Learning facilities and resources	5
7.	Quality assurance and public information	4
	Total:	**27**

IV. STUDY FIELD ANALYSIS

AREA 1: STUDY AIMS, LEARNING OUTCOMES AND CURRICULUM

1.1. Programmes are aligned with the country's economic and societal needs and the strategy of the HEI

FACTUAL SITUATION

1.1.1. Programme aims and learning outcomes are aligned with the needs of the society and/or the labour market

There is large demand for graduates of both these programmes, along with the strong growth in the ICT industry in Lithuania, and internationally. Alumni who we spoke to on the visit worked both across a range of important growing industries in Lithuania, but also in international firms such as Google. Both small and large employers were represented in our meetings and discussed the strengths of the programmes and the quality of the graduates. Alumni and employers acknowledged how both programmes are well aligned with the labour market. For the alumni, the varying 'soft skills' contributed in the course were acknowledged, and in particular the focus on organisational skills such as enterprise architecture management, and software quality assurance. In turn, the employers emphasised how they valued many of the deep technical skills that students gain. This was particularly emphasised by employers from the local defence industry. There was a request for more of an emphasis on entrepreneurial skills in the courses, such as startup funding. The "Information Systems" (bachelor) programme has been awarded a "Investor's Spotlight" quality label from the Investors' Forum Association.

1.1.2. Programme aims and learning outcomes are aligned with the HEI's mission, goals, and strategy

As with any large university, the priorities in KTU's strategy fit with information systems courses - industrial transformation, digital transformation, and smart cities and resilient communities. Graduates also fit with ongoing digitalisation activity in business, society, and the state. The learning outcomes of the two study programmes also match with the HEI's overall goals concerning creating a sustainable future. The quality of the new buildings made available for students, and the support of the institution for the department more broadly are indicators of the commitment of the institution to these programmes.

ANALYSIS AND CONCLUSION (regarding 1.1.)

The programmes fit well with the requirements of different local employers, and seem to include a good mix of different skill sets - in particular a mix of soft skills and more technical skills. The institution has also made important investments in the program and supporting department in recent years. There could be more work done on a clearer vision for the programmes, and a growth plan in terms of recruiting new students.

1.2. Programmes comply with legal requirements, while curriculum design, curriculum, teaching/learning and assessment methods enable students to achieve study aims and learning outcomes

FACTUAL SITUATION

1.2.1. Programmes comply with legal requirements

The I and II cycle study programmes of the field under evaluation have been developed and are continuously updated in accordance with the Law on Higher Education and Research of the Republic of Lithuania, the Descriptor of the Lithuanian Qualifications Framework, the Descriptor of Study Cycles of Lithuania, the General Requirements for the Implementation of Studies. The I cycle study programme "Information Systems" is a full-time study programme with a duration of 4 years and 240 credits (about 6400 hours) of student contact (in the classroom or remotely) and self-study hours. The II cycle study programme "Digital transformation and System Architectures" is also a full-time study programme, with a duration of 2 years and a total of 120 credits (approximately 3200 hours).

1.2.2. Programme aims, learning outcomes, teaching/learning and assessment methods are aligned

The learning outcomes of the first and second cycle programmes are aligned with being general, high quality, information systems programmes, which cover a range of technical skills alongside the skills needed to apply this to organisational and professional problems. There is a specific focus on, for example, project management, life cycle management, and understanding the development and implementation processes for multi-stakeholder projects.

This is carried through into the specific courses that are taught, which span from more fundamental architecture and algorithms courses to courses on teamwork, business intelligence modelling and product development. In terms of the second cycle course this is more focused on system architecture engineering, with learning outcomes more directed towards being a technical expert in a complex business domain. Skills include modelling business digitization, model driven development, and professional and ethical behaviour. Specific courses fit with these learning outcomes through a focus on enterprise modelling, data visualisation, requirements analysis and software quality assurance.

1.2.3. Curriculum ensures consistent development of student competences

Both programmes have a balanced course load over the different semesters. Students discussed their conceptual deepening as they developed throughout the programme. There was also discussion during the visit of the increasing professionalisation of the environment around students, which has improved over time. There has also been recent work to improve students' understanding of how the different courses fit to the programmes overall using interactive tools. Some students mentioned a certain repetitiveness in some of the bachelors courses, perhaps around database topics which are covered extensively. There was also some repetition between the masters and the bachelors, which dissuaded some students from continuing to the master's programme.

1.2.4. Opportunities for students to personalise curriculum according to their personal learning goals and intended learning outcomes are ensured

Both programmes make use of optional courses to allow students to customise their study. The first cycle programme supports students taking a mix of mathematical and physical science courses, social science courses, and freely elective courses. The availability of bridging courses to support students from different academic backgrounds is particularly notable. Overall, students mainly elect to take specialisations in either information system analysis, or database management. Students of the II-cycle programme can freely choose study courses(s) worth 6 credits (one 6-credit or two 3-credit courses). This, together with the 18-credit competency package options allows students to adapt the programme to their individual needs.

1.2.5. Final theses (applied projects) comply with the requirements for the field and cycle

The alignment and connection between thesis projects and local social actors is notable. In the first cycle the SER notes that 32% of successfully defended final degrees focused on problems raised by companies, whereas for the second cycle five projects while academic in formulation were implemented at local businesses and organisations.

ANALYSIS AND CONCLUSION (regarding 1.2.)

The programmes clearly support 'levelling up' as one student put it during our visit, with a strength in the mix of competences and the structure of the overall program. There have been recent improvements in the programmes and the professional environment for students. There is potential in some rebalancing of the courses, such as removing some of the repetition in the bachelors, and between the masters and the bachelors. It is clear from the thesis titles that the research component in some project formulations could also be enhanced. Incubator seems promising but it wasn't clear to us how it was being used

AREA 1: CONCLUSIONS

AREA 1	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle				X	
Second cycle				X	

COMMENDATIONS

1. Students discussed their conceptual deepening, 'levelling up', and professionalisation of the environment;

2. Changes in the masters programme have been positive.

RECOMMENDATIONS

To address shortcomings

1. None.

For further improvement

1. Formulate a vision document for the programs, with a growth plan;

2. Document and enhance student involvement in the incubator;

3. Prevent repetition of courses between the bachelors and the masters.

AREA 2: LINKS BETWEEN SCIENTIFIC (OR ARTISTIC) RESEARCH AND HIGHER EDUCATION

2.1. Higher education integrates the latest developments in scientific (or artistic) research and technology and enables students to develop skills for scientific (or artistic) research

FACTUAL SITUATION

2.1.1. Research within the field of study is at a sufficient level

KTU is clearly a leader in terms of research funding, with 25 research projects awarded in 2022 alone. There is also a slow positive growth in the quality and number of academic publications. There seems to be active participation by most faculty in international scientific conferences. The department has strong scientific and academic cooperation relations with foreign higher education institutions, such as the department's involvement in the ERCIS network. The newly opened artificial intelligence centre is also a research highlight, and this is involved in the reviewed programmes in relevant ways.

2.1.2. Curriculum is linked to the latest developments in science, art, and technology

The teaching materials are of good quality with relevant materials drawing on the recent developments in information science and computer science. New topics have recently been introduced into the curriculum - in particular artificial intelligence. A compulsory module on this topic has been added to the I cycle study programme curriculum. Staff acknowledged that it is difficult to hire internationally, and to attract the required skills for lecturers in some emergent areas.

2.1.3. Opportunities for students to engage in research are consistent with the cycle

It was not clear that there was extensive involvement of students in research and publications. However, there were some notable examples of student co-authorship in papers. Perhaps ironically, the large demand for graduates of these programmes makes it difficult for students to travel to international forums to present research. This should be a priority and it is possible that organisations could be asked to be open to supporting international research participation and erasmus+ participation by students. This said, there does seem to be considerable involvement with the IVUS student conference, and the ICIST conference.

ANALYSIS AND CONCLUSION (regarding 2.1.)

While there were some notable publications on topics such as smart contracts and gamification, the research focus of lecturers in the programme was not entirely clear. There could be more work on high quality 'lighthouse' influential publications - there is an over reliance on MDPI level publication forums, rather than IEEE or ACM. In terms of the courses, one area of enhancement is design and human computer interaction, which has less of a place in the programmes than one would expect for a leading information systems department.

AREA 2: CONCLUSIONS

AREA 2	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle			X		

Second cycle			X		

COMMENDATIONS

1. Revisions of the courses and literature have brought courses up to date
2. Some good co-authorship with students
3. Growing involvement of AI in the programmes
4. New interior and exterior of the university and highly motivated management

RECOMMENDATIONS

To address shortcomings

1. Research focus should be enhanced
2. Overall focus of the programmes should be reviewed to include new topics

For further improvement

1. Encourage companies to support international efforts for students, either in terms of research conferences or erasmus+ visits.

AREA 3: STUDENT ADMISSION AND SUPPORT

3.1. Student selection and admission is in line with the learning outcomes

FACTUAL SITUATION

3.1.1. Student selection and admission criteria and procedures are adequate and transparent

The student selection and admission criteria are detailed in the SER. For the first cycle programme, students need to have completed a set of state exams, after which a competition score is calculated. Students are then admitted based on this score. For the second cycle programme, the competition score is calculated on results from the first cycle programme and extracurriculars. For the second cycle programme, it is also necessary for the student to have completed a first cycle programme in the field of computer science, engineering, technology, mathematics, or physical sciences, or another degree with at least 30 ECTS in one of those fields.

For the second cycle study programme, the admissions are relatively low, due to a low number of applications, something the programme indicated they would like to see changed.

3.1.2. Recognition of foreign qualifications, periods of study, and prior learning (established provisions and procedures)

For both programmes, there are procedures in place to recognise foreign qualifications, periods of study, and prior learning. KTU follows the relevant legislation, frameworks and procedures for academic recognition.

ANALYSIS AND CONCLUSION (regarding 3.1.)

The student selection and admission criteria of both programmes meet expected standards and are transparent. It is clear to students whether they can be admitted to the programme, and on what basis this decision is taken. There are also sufficiently clear procedures in place for academic recognition. For the second cycle programme some efforts could be taken with recruitment to increase student numbers.

3.2. There is an effective student support system enabling students to maximise their learning progress

FACTUAL SITUATION

3.2.1. Opportunities for student academic mobility are ensured

- Sufficient opportunities for going abroad
- Information about the possibilities are distributed through different events and information pages.
- Opportunities are not used much; difficult to combine with a job

3.2.2. Academic, financial, social, psychological, and personal support provided to students is relevant, adequate, and effective

KTU has elaborate support systems in place, such as mentorship programmes and scholarships. There are also two programmes for gifted students to deepen or broaden their knowledge: GIFTed and SKILLed. In order to help students find employment after graduation, the faculty and university organise different kinds of events where prospective employers can meet students. The university also has a sports centre and a startup space. There are also different advisors to provide other kinds of support. There is also a student association that represents students, helps them with problems, and organises events such as LAN parties.

3.2.3. Higher education information and student counselling are sufficient

Students are informed of the different facilities in a "Welcome Week" at the beginning of their studies. Students indicate that they are able to find support when required. Students also clearly appreciate that, when necessary, they can personally contact teachers for extensions of deadlines.

ANALYSIS AND CONCLUSION (regarding 3.2.)

Students are content with the support they receive, and are also aware of further possibilities for support.

AREA 3: CONCLUSIONS

AREA 3	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle				X	
Second cycle				X	

COMMENDATIONS

1. Clear admission and academic recognition criteria.
2. Students are content with the support they receive.

RECOMMENDATIONS

To address shortcomings

For further improvement

1. Increase opportunities for short stays and flexible stays abroad. For example, see if possible to arrange with employers and social partners to allow students to go abroad more
2. Explore efforts to increase student numbers, particularly for the second cycle program.

AREA 4: TEACHING AND LEARNING, STUDENT ASSESSMENT, AND GRADUATE EMPLOYMENT

4.1. Students are prepared for independent professional activity

FACTUAL SITUATION

4.1.1. Teaching and learning address the needs of students and enable them to achieve intended learning outcomes

Study programmes proposed by Kaunas University of Technology are valued within the market, as they are more technical (according to the social partners) and touching soft skills development (according to the students). University applies a lot of active learning methods, such as projects, study trips, discussions, design thinking, challenge-based learning and similar. In addition to that, the University has established a startup space, which helps to develop entrepreneurship within students.

4.1.2. Access to higher education for socially vulnerable groups and students with individual needs is ensured.

University is offering various tools, intended to help students from vulnerable groups, as well as to support the ones having individual needs:

- Adaptation of studies
- Scholarships
- Financial support
- Flexible forms of the achievement evaluation

In addition to that, the University has clear policies and/or guidelines in regards of inclusivity, respect for diversity, equal opportunities and violence prevention.

ANALYSIS AND CONCLUSION (regarding 4.1.)

Graduates of a University study programmes easily find jobs, or create them themselves. Social partners value graduates for their good mix of technical and soft skills (e.g. project management). The evidence provided by the University helps to conclude that Kaunas University of Technology Information Systems study programmes students have much that is needed to achieve intended learning outcomes and join the job market.

4.2. There is an effective and transparent system for student assessment, progress monitoring, and assuring academic integrity

FACTUAL SITUATION

4.2.1. Monitoring of learning progress and feedback to students to promote self-assessment and learning progress planning is systematic

Students' learning progress is tracked with the help of an attendance tracking system. The grades and feedback are updated within the University Information System throughout the whole semester. The majority of the feedback provided for the students is informal, with a lack of some systemic feedback. The University, within the self-evaluation report did not elaborate in regards to feedback provisioning to the students forms implemented / recommended and control mechanisms, to ensure that lecturers are following those recommendations.

4.2.2. Graduate employability and career are monitored

Every year the University performs surveys and collecting data in regards to graduates' employability, career path and challenges they have faced. Based on that, recommendations and adjustments for the faculty and administration are prepared. Clearly, the University is focused on keeping a good relationship with social partners. This helps to ensure internship for the students, as well as creating opportunities to find a job after the graduation. Social partners are actively participating in career days, guest lecturing, thesis defence and similar activities organised by the University.

4.2.3. Policies to ensure academic integrity, tolerance, and non-discrimination are implemented

The University has strict regulations to ensure academic integrity, tolerance and non-discrimination with the community. The existence and application of academic integrity regulations is confirmed by three cases during the last three years within the first cycle study program. Tolerance and non-discrimination guidelines are implemented, e.g. Religious Diversity Guidelines, Equal Opportunities and Diversity and Violence Prevention Policy. An enforcement and application of guidelines is confirmed by one complaint about a possible violation of equal opportunities or harassment during the evaluation period. Interviews with students confirmed that students know about the existence of such policies and guidelines, as well as how to get help.

4.2.4. Procedures for submitting and processing appeals and complaints are effective

The University has implemented the Guidelines for the Submission and Processing of the Students' Appeals and Complaints. Complaint settlement commission has one representative of students, which helps to ensure objectivity and avoid biases. University provided a recorded case during the last three years, which helps to state that the procedure is not only formal, but is used in practice. Interviews with the students confirmed that they know about the existence of procedures, as well as practicalities - how to get help.

ANALYSIS AND CONCLUSION (regarding 4.2.)

The overall situation at the University looks good. Policies and guidelines that are implemented are clear and transparent. They seem to be applied. Study progress as well as graduates' career path is monitored and adjustments are made.

AREA 4: CONCLUSIONS

AREA 4	**Negative - 1** Does not meet the requirements	**Satisfactory - 2** Meets the requirements, but there are substantial shortcomings to be eliminated	**Good - 3** Meets the requirements, but there are shortcomings to be eliminated	**Very good - 4** Very well nationally and internationally without any shortcomings	**Exceptional - 5** Exceptionally well nationally and internationally without any shortcomings
First cycle			X		
Second cycle			X		

COMMENDATIONS

1. Great and clear cooperation with social partners

RECOMMENDATIONS

To address shortcomings

1. When collecting feedback from social partners, keep in mind that not all companies are huge enterprises, and the form might differ based on the size of a company.
2. More systemic approach in terms of feedback provisioning to the students
3. Control mechanisms, to ensure that lecturers are following providing feedback to students

For further improvement

1. Alumni identified a gap in terms of lack of teaching new techniques, such as Rapid Prototyping or Rapid Application Development.

AREA 5: TEACHING STAFF

5.1. Teaching staff is adequate to achieve learning outcomes

FACTUAL SITUATION

5.1.1. The number, qualification, and competence (scientific, didactic, professional) of teaching staff is sufficient to achieve learning outcomes

The teaching staff of the IS SPs at KTU encompasses a group of committed, enthusiastic and highly motivated professionals. The number of teaching staff, their qualification and their competences comply with the general requirements. Over the assessment period (2019/20-2-22/23), there has been a low student annual intake (about 35-45) and a steady number of teaching staff. Teaching staff deploy different methods to maintain and improve the Staff Student Ratio (SSR). The cycle I SP is taught by 51 teaching staff whilst both cycles I and II of the SPs are taught by a total of 120 teaching staff, of which 106 teachers have been working at least half-time and for at least 3 years. In 2023, KTU reported 106 teaching staff.

With particular reference to teaching staff involved in the SPs and their rankings, it was found that cycle I of the IS SP is coordinated by 51 teachers (22 professors, 20 associate professors, and 9 lecturers) and, cycle II of the SP: "Digital transformation and systems architectures" is coordinated by 11 teachers (7 professors, 3 associate professors, and 1 lecturer). In the 2022/23 academic year, 114 teachers worked in cycles I and II (52 lecturers, 40 associate professors, and 14 professors).

Teaching staff also undertake scientific, didactic and professional activity. With particular reference to research in 2023, 14 out of 106 teaching staff do not report any publications though most of the 14, have a PhD and are practitioners.

ANALYSIS AND CONCLUSION (regarding 5.1.)

The RP has considered the submitted documentation and met with teaching staff to understand their competence in relation to whether this is sufficient to achieve the IS SPs learning outcomes.

The IS Department operates in a very positive and highly motivated environment. The majority of teaching staff are fresh and early career academics. Some of the more established teaching staff undertake mentoring for more inexperienced teaching staff, although this is mostly informal. Teaching staff work in groups and effectively deliver the classes in pairs (both in practical and theoretical classes) which betters student experience. It was found that teaching staff comply with the general requirements. The fact that the majority of teaching staff have the experience as practitioners and at the same time, continue acting as long-lasting research active professionals is encouraging but most importantly the integration of these complimentary parts increases the quality of teaching and encourages the staff to keep improving their own standing, recognition and performance.

Very good emphasis is given in highlighting the importance of teaching and research as it is evident by the number of teaching staff being research active. The majority of teaching staff undertake research activity and respective outputs are published in quite high ranking conferences and journals. Research expertise and publication records are relevant and consistent to the IS SPs.

One of the recommendations from last time's RP was the need for teaching staff together with late stage undergraduate and postgraduate students to co-produce research outputs. Action has taken place however, improvement is somehow incremental (from 2 to 6 joint publications with students). During the discussion meeting, it was clear that most teaching staff did not demonstrate a very clear understanding of what research informed teaching is and how it is implemented. The team must put more emphasis to improve on this matter. The University must provide appropriate training to increase teaching staff's awareness and know-how in taking forward the initiative.

Annual student surveys are deployed to gather student feedback during annual intervals. Their frequency helps staff highlight strengths and areas for improvement, take corrective actions and effectively improve student experience in a timely fashion and ultimately increase their popularity as teaching staff. The approach is also used as part of the teaching staff's 5-year assessment and also as part of the annual SPs review and self-assessment.

During the visit day and especially, during the discussions with the senior administrators and teaching staff, it was revealed that the team is somehow lacking an identity and holistic vision. Deep discussion with teaching staff helped to confirm that the IS team must produce a timeline encompassing achievements over their IS department time life span, and that a current turning point was meant to be the future strategic directions for the IS SPs. Teaching staff expressed their positive views about sustainability and overall, about the UN SDGs (United Nation Sustainable Development Goals).

5.2. Teaching staff is ensured opportunities to develop competences, and they are periodically evaluated

FACTUAL SITUATION

5.2.1. Opportunities for academic mobility of teaching staff are ensured

KTU employees are encouraged to use the "Erasmus+" mobility programme for teaching and training. During the 2020/21-2022/2023 period, there were 35 members of teaching staff who have visited a number of Universities abroad for a period ranging from 2 to more than 5 days. Visits were in Spain, Italy, Portugal, Greece, Germany, Georgia, Latvia, Norway, Bulgaria, Sweden, Poland and Czech Republic. In contrast, there were 7 incoming teaching staff who have joined from Georgia, Latvia, Brazil, Portugal and France.

5.2.2. Opportunities for the development of the teaching staff are ensured

Teaching staff have access to EDU_Lab, which is a support package menu encompassing developmental opportunities for them to meet the requirements for the teaching framework competency. The menu consists of an induction programme which incorporates systematic training, access to learn additional foreign language(s), attendance to a mandatory teaching course and a mentor.

An annual performance review encompassing objectives and the year plan is being used to keep staff tuned to the 5-year competency assessment.

The IS department has been a member of the ERCIS (European Research Center for Information Systems) network and actively participates in the activities of the network as a representative of Lithuania. Finally, it was found that a teaching peer review observation and a workload model were in place.

ANALYSIS AND CONCLUSION (regarding 5.2.)

The RP has considered the submitted documentation and met with teaching staff to understand and clarify how the University supports teaching staff to help them achieve the SP learning outcomes. Specifically the RP focused on the identification of what mobility and developmental opportunities are available to teaching staff in ensuring that they do continuously keep developing their competence to an appropriate level for them to achieve the SP learning outcomes.

One of the non-subject specific goals of the University, Faculty and IS department is the internationalisation initiative. The internationalisation agenda has opened many opportunities for staff including the learning of foreign languages, the interaction and the learning of practices used from teaching staff employed in various Universities worldwide. However and despite that every teaching staff is encouraged to submit articles to relevant journals and papers for presentation to conferences, it has been observed that no articles and papers have been co-authored with a non-national author. It is highly recommended for teaching staff as individuals and as ambassadors representing KTU to scale up progress in a collaborative research mode (and especially collaborating with non-nationals) which will help them advance their standing, reputation and recognition.

All teaching staff (including new teaching staff) have to undergo an induction and an annual performance evaluation review. New academic staff are also assigned a mentor. There are clear criteria for different teaching ranks (professor, associate professor etc), clear job role descriptions and guidelines for all teaching staff having a fair opportunity for their progression and promotion over the years.

The consistent use of the Edu_Lab is of great resource and a pool encompassing a range of developmental opportunities that is of great benefit to teaching staff across the University. This centrally organised support package is a standardised approach that has enabled teaching staff to develop an action plan that is agreed with their line manager and use progress checks in regular time intervals.

Finally, the use of a mentor, teaching and observation and peer review and also of a standardised workload model can be used as evidence of comparable means of fairness in providing equal opportunities to teaching staff during their competency skill development and assessment processes.

AREA 5: CONCLUSIONS

AREA 5	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle				X	
Second cycle				X	

COMMENDATIONS

1. A highly motivated group of teaching staff
2. A robust support package encompassing a range of developmental opportunities for teaching staff to develop key competencies

RECOMMENDATIONS

To address shortcomings

1. None.

For further improvement

1. None.

AREA 6: LEARNING FACILITIES AND RESOURCES

6.1. Facilities, informational and financial resources are sufficient and enable achieving learning outcomes

FACTUAL SITUATION

6.1.1. Facilities, informational and financial resources are adequate and sufficient for an effective learning process

The IS SPs are housed and delivered at Kaunas, KTU main campus. The IS and its SPs use Moodle as a VLE. It has 15 classrooms with a total of 979 seats and 26 computer classes with a total of 516 computerised workplaces. The classrooms and computer classes are located in four buildings in close proximity to each other. All classrooms are equipped with a projector and a teacher's computer. The three newly renovated classrooms on the 5th floor of Building XI use smartboards, mobile chairs with tables and mobile whiteboards. The software on the workstations is updated before each semester, in consultation with the teachers, to determine which software is relevant to the modules to be taught.

All students have access to general and specialised software necessary for their studies on their personal computers and remotely via VPN for free. This includes Microsoft software, available through the Microsoft Azure platform, Windows OS, Windows Server, Visual Studio, Project, Visio, SQL Server, Office 365 (Word, PowerPoint, Excel, Outlook, OneNote, Access, Publisher and Teams), mathematical packages MathWorks MATLAB and Simulink, UML, BPMN, SySML modelling tool Magic Systems of Systems Architect, graphical interface prototyping tool Axure, etc.

The remote classes are organised at the University using Zoom, MS Teams, BigBlueButton virtual environments for remote communication. The IS SPs also have access to a data centre (cloud) and a cluster.

Students with special requirements having issues related to reduced mobility, visual impairment, hearing and mental disabilities are catered equally with the rest of the students.

The Library subscribes to 55 international scientific databases including Clarivate Analytics (Web of Science), SCOPUS, EBSCO Publishing, ScienceDirect, Emerald Premier E-journals Collection, SpringerLINK, IEEE/IEL, Annual Reviews, American Institute of Physics, American Physical Society, ACM Digital Library, IOP (Institute of Physics Journals), SAGE Journals Online, Nature, Taylor&Francis, Wiley, RSC Gold Ex- cluding Archive, ACS Publications, SPIE Digital Library, JSTOR, etc.

The Library also subscribes to eBook collections from EBSCO, ScienceDirect (Elsevier eBooks), ProQuest Ebook Central, Access Engineering (McGraw Hill textbooks, videos, interactive demonstration tools), SpringerLINK, Taylor & Francis eBooks, Morgan and Claypool Synthesis Ebook Collection, SPIE eBooks, Wiley Online Library eBooks.

6.1.2. There is continuous planning for and upgrading of resources.

The process of planning and updating the resources required for the execution of the programmes of the study field is carried out at the beginning of each semester. The SP of the IS prepares an annual activity plan,

a revenue and expenditure plan, and procurement plan. The planning also includes the expenditure for the maintenance and improvement of the faculty's study infrastructure.

In 2024 and under the contract of the ongoing international project Centre of Excellence of AI for Sustainable Living and Working (SustAInLivWork), there are plans to increase the capacity of the specialised cluster of GPUs and CPUs for AI research and study activities by acquiring additional equipment, real-time simulation and modelling hardware and software, and other specialised equipment (drones, environmental scanners, sensors used in IoT solutions).

ANALYSIS AND CONCLUSION (regarding 6.1.)

The site comprises an impressive building complex with outstanding facilities and with excellent access for people with special needs. Students and staff have access to facilities which should not be a barrier in meeting the SPs learning outcomes.

The computer classes and the computerised workplaces for teachers in the classrooms are constantly being updated and equipped with the latest hardware and software. The IS SPs also have access to an incubator which both students and social partners are commendate. The facility helps the creation of start-ups and with experimenting with technology to advance SMEs. This is in addition to the national tech park which together provide an exemplary environment for companies to test new ideas and concepts, for students to get prepared for their professional working life and for teaching staff to keep developing their key competencies.

If there was something to recommend, it would be the purchase of a resource that would help in forming the identity and the strategic direction of the department. For example, the inclusion of a very specialised, distinctive resource (either hardware or software) (e.g. a virtual reality simulator) would help the department and the teaching staff take a leadership role nationally and internationally. That would actually help in the recruitment of additional international students which would complement the internationalisation agenda, the growth strategy as well as, the distinctiveness, identity and reputation of the University as a whole.

Recommendations made from the previous RP back in 2014 have been addressed in full.

AREA 6: CONCLUSIONS

AREA 6	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle					X
Second cycle					X

COMMENDATIONS

1. Outstanding building facilities
2. Excellent computational hardware and software to support the SPs, its students and teaching staff

RECOMMENDATIONS

To address shortcomings

1. None

For further improvement

1. Invest in a distinctive high quality resource to help in the identity, strategic direction, vision and the leading role that the department and university could take both nationally and internationally.

AREA 7: QUALITY ASSURANCE AND PUBLIC INFORMATION

7.1.	The development of the field of study is based on an internal quality assurance system involving all stakeholders and continuous monitoring, transparency and public information

FACTUAL SITUATION

7.1.1. Internal quality assurance system for the programmes is effective

The University provides transparent and accessible information about the quality of their academic programmes. The latter is a crucial factor in the reputation and success of the university. Study quality management is active in evaluating and improving the programmes. Online information about the university is easy to find on the website.

7.1.2. Involvement of stakeholders (students and others) in internal quality assurance is effective

It is transparent how intensively the university engages with stakeholders such as students, parents, employers, and government agencies to get feedback. Students are supported in their feedback. There is a standardised way for teachers to receive feedback from students. Students also appear to respect the management of the faculty. When searching information on university websites about “student evaluation” and/or “teacher evaluation”, relevant information and cumulative results are returned.

7.1.3. Information on the programmes, their external evaluation, improvement processes, and outcomes is collected, used and made publicly available

It is transparent how the university monitors the impact of quality improvement initiatives to ensure their effectiveness and how it evaluates whether the faculty leaders are competent and manage the faculties well. Based on the university website, they include curricula, studying conditions, teaching methods, assessment practices, and other relevant factors. Furthermore, they inform well about graduation rates, employment rates, and student satisfaction. They engage with stakeholders such as students, parents, employers, and government agencies to get feedback.

7.1.4. Student feedback is collected and analysed

It is very transparent how the university collects data from sources such as student surveys, course evaluations, employer surveys, and how it identifies areas of strength and weakness. Based on the information obtained from staff, student evaluations are anonymous. Student feedback is used to collect information on: course quality, study programme quality, study quality and services, courses and teachers quality.

ANALYSIS AND CONCLUSION (regarding 7.1.)

As indicated in the previous paragraphs, the published documents show the effectiveness of the individual study programmes, which should play a significant role when considering where the university should go in the future. Such sufficient and open communication is primarily positive to the university itself. The activity in the Erasmus programme could be a bit better for both students and their teachers. When searching information on KTU websites about “Information systems”, there is less clear information, and this could be improved somewhat. The university is highly involved in various flagship international and national projects.

AREA 7: CONCLUSIONS

AREA 7	Negative - 1 Does not meet the requirements	Satisfactory - 2 Meets the requirements, but there are substantial shortcomings to be eliminated	Good - 3 Meets the requirements, but there are shortcomings to be eliminated	Very good - 4 Very well nationally and internationally without any shortcomings	Exceptional - 5 Exceptionally well nationally and internationally without any shortcomings
First cycle				X	
Second cycle				X	

COMMENDATIONS

1. Online virtual campus tour is high quality
2. Comprehensive website

RECOMMENDATIONS

To address shortcomings

1. None.

For further improvement

1. Encourage students for more participation with feedback evaluations

V. SUMMARY

Please write a short (1-2 pages) summary of the main findings by the review panel. Please avoid re-copying certain pieces from the analysis part. Instead, please focus on summarising main positive aspects (strengths) of all analysed evaluation areas, as well as pointing out the areas that are in need of improvement. Also, if you wish to thank HEI for their efforts in preparing a good quality self-evaluation report and/or organising a site-visit and/or engaging in discussions with the review panel, this is a place for it.

The Information Systems field has two study programmes: I cycle programme "Information Systems" and II cycle programme "Digital Transformation and System Architectures". Information Systems studies at the University are implemented by the Faculty of Informatics.

Both small and large employers were represented in our meetings and discussed the strengths of the programmes and the quality of the graduates. Alumni and employers acknowledged how both programmes are well aligned with the labour market. For the alumni, the varying 'soft skills' contributed in the programme were acknowledged, and in particular the focus on organisational skills such as enterprise architecture management, and software quality assurance. In turn, the employers emphasised how they valued many of the deep technical skills that students gain. There was a request for more of an emphasis on entrepreneurial skills in the course, such as startup funding.

The learning outcomes of the first cycle programme are aligned with being a general, high quality, information systems course, which covers a range of technical skills alongside the skills needed to apply this to organisational and professional problems. There is a specific focus on, for example, project management, life cycle management, and understanding the development and implementation processes for multi-stakeholder projects. In terms of the second cycle course this is more focused on system architecture engineering, with learning outcomes more directed towards being a technical expert in a complex business domain. Skills include modelling business digitization, model driven development, and professional and ethical behaviour. Specific courses fit with these learning outcomes through a focus on enterprise modelling, data visualisation, requirements analysis and software quality assurance. Some students mentioned a certain repetitiveness in some of the bachelors courses, perhaps around database topics which are covered extensively. There was also some repetition between the masters and the bachelors, which dissuaded some students from continuing to the master's programme.

The programmes clearly support 'levelling up' as one student put it, with a strength in the mix of competences and the structure of the overall program. There have been recent improvements in the programmes and the professional environment for students.

The teaching materials are of good quality with relevant materials drawing on the recent developments in information science and computer science. New topics have recently been introduced into the curriculum - in particular artificial intelligence. A compulsory module on this topic has been added to the I cycle study programme curriculum. Staff acknowledged that it is difficult to hire internationally, and to attract the required skills for lecturers in some emergent areas.

It was not clear that there was extensive involvement of students in research and publications. However, there were some notable examples of student co-authorship in papers. While there were some notable publications on topics such as smart contracts and gamification, the research focus of lecturers in the

programme was not entirely clear. There could be more work on high quality ‘lighthouse’ influential publications - there is an over reliance on MDPI level publication forums, rather than IEEE or ACM.

Social partners value graduates for their good mix of technical and soft skills (e.g. project management). The evidence provided by the University helps to conclude that Kaunas University of Technology Information Systems study programmes students have everything that is needed to achieve intended learning outcomes and join the job market. Students' learning progress is tracked with the help of an attendance tracking system. The grades and feedback are updated within the University Information System throughout the whole semester.

One of the recommendations from the last review was the need for teaching staff together with late stage undergraduate and postgraduate students to co-produce research outputs. Action has taken place however, improvement is somehow incremental (from 2 to 6 joint publications with students).

The consistent use of the Edu_Lab is of great resource and a pool encompassing a range of developmental opportunities that is of great benefit to teaching staff across the University. This centrally organised support package is a standardised approach that has enabled teaching staff to develop an action plan that is agreed with their line manager and use progress checks in regular time intervals. The use of a mentor, teaching and observation and peer review and also of a standardised workload model can be used as evidence of comparable means of fairness in providing equal opportunities to teaching staff during their competency skill development and assessment processes.

The committee thanks all those involved in the visit for their generous and warm welcome, and the support they have given to the review process.