



STUDIJŲ KOKYBĖS VERTINIMO CENTRAS
CENTRE FOR QUALITY ASSESSMENT IN HIGHER EDUCATION

INFORMATICS FIELD OF STUDY

Kaunas University of Technology

EXTERNAL EVALUATION REPORT

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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 was as follows:

1. Panel chair: Prof. dr. Steven Bradley (United Kingdom), Professor in the Department of Computer Science, Durham University;
2. Academic member: Doc. dr. Torben Ægidius Mogensen (Denmark), Associate Professor in the Department of Computer Science, University of Copenhagen;
3. Academic member: Doc. dr. Jānis Pekša (Latvia), Associate Professor in the Department of Management Information at the Institute of Information Technology, Riga Technical University;
4. Social partner: Andrius Plečkaitis (Lithuania), INFOBALT association project manager;
5. Student representative: Felix Ferchhumer (Austria), Bachelor student of Informatics, Johannes Kepler University; member of ESU Quality Assurance Student Experts Pool.

1.3. SITE VISIT

The site visit was organised on 23 April 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 the 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 (from now on referred to as KTU or the University) is an internationally competitive, interdisciplinary university of technology that creates and transfers new knowledge and innovation. KTU is a state Higher Education Institution (from now on referred to as HEI) that has evolved from the University of Lithuania, founded on 16 February 1922. Currently, the University operates as a public institution with 1955 employees. In the academic year 2021-2022, the institution had 7349 students, of which 4882 were bachelor's students, 1991 were master's students, 338 were doctoral students, 86 were integrated studies, and 52 were professional studies. That year, 982 international students studied at the University, of whom 811 were pursuing a qualifying degree and 171 were part-time students. Since 1922, more than 153,000 graduates have graduated from the University.

Overview of the field of study

The University has been offering studies in the field of Informatics since 1993. Currently, there are two 1st cycle and one 2nd cycle study programme in this field of study, focusing on the aspects of informatics (the 1st cycle study programme Informatics) and the application of artificial intelligence technologies (1st cycle study programme Artificial Intelligence and 2nd cycle study programme Artificial Intelligence in Computer Science).

Previous external evaluations

The current study programmes in Informatics include Informatics (1st cycle), Artificial Intelligence (1st cycle), and Artificial Intelligence in Computer Science (2nd cycle). The ex-ante evaluation of the 1st cycle Artificial Intelligence programme was conducted in 2020 and received a positive evaluation, resulting in the accreditation of the programme. During the external evaluation in 2017, all assessment areas of both the 1st cycle Informatics and 2nd cycle Artificial Intelligence in Computer Science programmes were assessed with a score of 3, except for Facilities and Learning Resources, which received a score of 4 (on a 4-point scale).

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 (study plans, list of final theses, teaching staff);
- Module descriptors (over 120);
- Final theses examples;
- Mid-term task, Exam tasks, practical work examples;
- Assessment of Research and Development Activities report by Research Council of Lithuania (2023) including assessment of KTU Informatics and Natural Sciences R&D;
- Administrative documents (KTU-wide rules for compensation, sample of points allocation).

Additional sources of information used by the review panel

- www.ktu.edu
- <https://admissions.ktu.edu/programme/b-artificial-intelligence/#semester-1>
- <https://admissions.ktu.edu/programme/b-informatics/#semester-1>
- <https://admissions.ktu.edu/programme/m-artificial-intelligence-in-computer-science/>

- Student [enrollment/ graduation](#) and [dropout](#) statistics for KTU and other HEI informatics programmes since 2017-2018 study year (SVIS data, in Lithuanian).

II. STUDY PROGRAMMES IN THE FIELD

First cycle/LTQF 6

Title of the study programme	Informatics	Artificial Intelligence
State code	6121BX010	6121BX035
Type of study (college/university)	University	University
Mode of study (full time/part time) and nominal duration (in years)	Full time (4 years)	Full time (4 years)
Workload in ECTS	240	240
Award (degree and/or professional qualification)	Bachelor of Computing	Bachelor of Computing
Language of instruction	Lithuanian, English	Lithuanian, English
Admission requirements	Secondary education	Secondary education
First registration date	19 May 1997	26 June 2020
Comments (including remarks on joint or interdisciplinary nature of the programme, mode of provision)	-	-

Title of the study programme	Health informatics¹
State code	6181BX001
Type of study (college/university)	University
Mode of study (full time/part time) and nominal duration (in years)	Full time (4 years)
Workload in ECTS	240
Award (degree and/or professional qualification)	Bachelor of Computing / Joint Qualification Degree
Language of instruction	Lithuanian
Admission requirements	Secondary education
First registration date	9 March 2015
Comments (including remarks on joint or interdisciplinary nature of the programme, mode of provision)	Joint study programme offered together with Lithuanian University of Health Sciences

¹ The programme will be suspended after the last students have completed their studies.

Second cycle/LTQF 7

Title of the study programme	Artificial Intelligence in Computer Science
State code	6211BX007
Type of study (college/university)	University
Mode of study (full time/part time) and nominal duration (in years)	Full time (2 years)
Workload in ECTS	120
Award (degree and/or professional qualification)	Master of Computing
Language of instruction	Lithuanian, English
Admission requirements	Bachelor's degree
First registration date	19 February 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 Informatics field of study is given a **positive** evaluation.

No.	Evaluation Area	Evaluation points*
1.	Study aims, learning outcomes and curriculum	3
2.	Links between scientific (or artistic) research and higher education	4
3.	Student admission and support	4
4.	Teaching and learning, student assessment, and graduate employment	4
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Quality assurance and public information	3
Total:		26

The **second cycle** of the Informatics field of study is given a **positive** evaluation.

No.	Evaluation Area	Evaluation points*
1.	Study aims, learning outcomes and curriculum	3
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	4
5.	Teaching staff	4
6.	Learning facilities and resources	4
7.	Quality assurance and public information	3
Total:		25

*

1 (unsatisfactory) - the area does not meet the minimum requirements, there are substantial shortcomings that hinder the implementation of the programmes in the field.

2 (satisfactory) - the area meets the minimum requirements, but there are substantial shortcomings that need to be eliminated.

3 (good) - the area is being developed systematically, without any substantial shortcomings.

4 (very good) - the area is evaluated very well in the national context and internationally, without any shortcomings.

5 (exceptional) - the area is evaluated exceptionally well in the national context and internationally.

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

The aims, topics and learning outcomes of the 1st cycle study programmes Informatics and Artificial Intelligence, and 2nd cycle Artificial Intelligence in Computer Science are clearly defined and well aligned with the needs of society, the ICT/digital industry and the development of the job market. Information about the study programmes is also accessible in English on KTU's [website](#).

Employment opportunities and positions/roles for graduates are extensively explained in the publicly available KTU sources and are in line with the job market needs. As a minor observation, some descriptions in the 'You may become' section do not adequately reflect the qualifications/roles and responsibilities of the IT professionals and need to be updated.

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

The objectives and learning outcomes of the study programmes are well aligned with the Strategy of KTU 2021-2025 as they are aimed at developing a personality capable of competing in a rapidly changing market of technologies, products and services, developing and deploying secure software, exploring new ways of using computer systems, and finding effective solutions to data and information processing in solving relevant professional problems in various fields.

This common goal of all study programmes in the field of Informatics and the possibility to study in English contributes to three KTU's mission pillars to be a vibrant university and build a sustainable society; to create and transfer interdisciplinary knowledge and innovative technologies that create value; collaborate and work together to achieve ambitious goals continuously and with external scientific and business leaders; as well as supports the University's ambition to become Europe's leading university in terms of the generation and transfer of knowledge and technology. The development of interdisciplinary activities, the provision of high-quality and advanced study content, and cooperation initiatives with the business sector in the Programmes directly contribute to the improvement of study programmes and processes as one of the core aims in the implementation of one of the University's strategic activities (SER, p. 14).

ANALYSIS AND CONCLUSION (regarding 1.1.)

The alignment of the 3 study programmes with the KTU 2021-2025 Strategy is clear and visible. The aims and the learning outcomes are consistent with the type and level of qualification and the degree offered, relevant to the digital industry and software-driven segment in particular, and the employer expectations as well as technology innovation and societal trends. Innovation, interdisciplinarity and internationalisation are embedded in the programmes' design with 20-30% of elective subjects. Theoretical knowledge is adequately

balanced with enabling students to build specific skills and meet the needs of the world of work, by using environments and tasks in the coursework similar to those junior employees face as well as close connections with partners from the ICT industry.

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 composition of the study programmes is in conformance with the General requirements of studies and the Descriptor of the study field (Informatics) for ECTS, as well as with a balance of contact and individual work. Programmes within the field demonstrate compliance relevant to the Cycle Descriptor of Study Cycles in SER. Both 1st cycle programmes have 240 ECTS credits over 4 years, and the 2nd cycle programme Artificial Intelligence in Computer Science has 120 credits over 2 years.

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

1st cycle study programmes have a very good alignment between programme aims and learning outcomes. TLA methods are varied and appropriate.

2nd cycle study programme appears to have a relatively low proportion of AI modules, with a relatively large number of non-AI modules, e.g., in distributed and mobile computing. TLA methods are varied and appropriate: a lower reliance on written exams than 1st cycle, in line with practice at other institutions internationally.

During meetings, staff reported that there were adaptations to the means of assessment during the Covid pandemic, but that now the means of assessment has largely returned to the pre-pandemic situation. The University guidelines on the use of ChatGPT and other large language models were helpful in guiding teachers in their assessment.

1.2.3. Curriculum ensures consistent development of student competences

The study plans for all the programmes demonstrate a clear and appropriate sequencing to ensure consistent development of student competences. 1st cycle students found that generally there was good coverage in the programme but that some topics, e.g., principles of machine learning were sometimes repeated. Some 1st cycle students felt that assumed prerequisite material was sometimes covered in electives that were not universally taken, e.g., Kotlin programming. 2nd cycle students were happy with the development of competences within the programme. Social partners were very happy with student competences on graduation, and even within internships, although they felt that technical competences were stronger than soft skills.

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

Within the 1st cycle AI programme, there is little choice available for personalisation, and even the published options were not made available due to low student numbers. 2nd cycle programme electives do not relate directly to the specialisation.

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

The final theses requirements for compliance with field descriptors and cycle requirements are met. Both Bachelor’s and Master’s final thesis are according to the requirements.

ANALYSIS AND CONCLUSION (regarding 1.2.)

Programmes meet their legal requirements and produce students that are very employable. The structure of the curriculum is very good in general, although there could be improvements in the focus and options available within AI programmes at 1st and 2nd cycle. The module descriptions could be more detailed about expected prerequisites and learning outcomes, the latter ideally following the framework described at [Eurspace](#).

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					
Second cycle					

COMMENDATIONS

1. Employment opportunities for graduates are clearly explained in sources publicly accessible online.
2. Well-balanced Informatics programmes, relevant to the job market, with high support from employers.

RECOMMENDATIONS

To address shortcomings

1. Ensure there are appropriate opportunities for personalisation within the technical subjects made available, particularly within 1st cycle AI study programme and 2nd cycle.

For further improvement

1. Review prerequisite material for elective modules and ensure that it is covered appropriately in earlier modules.

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

The number of international publications in the field of computer science is good, as is the size of external funding for research in the area. However, there is a considerable overweight of research and funding in the area of artificial intelligence, which may starve other research areas. The expert panel found little research in theoretical computer science and programming languages, but given that KTU is a technical university, the underrepresentation of purely theoretical research may not be completely surprising. At the visit, the expert panel was told about new initiatives in programming engineering and algorithms, which may help the balance.

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

The courses in the programmes use technologies and methods that are used in industry, which is admirable, but in some areas (such as programming languages) are not completely up to date with cutting-edge research. In a Bachelor's programme, this is to be expected, but in a Master's level programme, more is expected. An exception is the curriculum in artificial intelligence, which does appear to use recent research results.

While the SER emphasises increased focus on parallel thinking, the learning outcomes of the individual modules do not reflect this – concurrency is mentioned several times, but parallelism is not, and it is not the same as concurrency.

The previous assessment (2017) recommended that programming should not exclusively be taught in the object-oriented paradigm, and that functional programming should be taught in particular. The answer to this recommendation is that LINQ (an embedded query language), recursion and lambda-functions in C# are covered, and later are the Python and R programming languages. The expert panel does not feel that this is sufficient as functional programming is primarily about programming without side effects and not just using recursion and lambda functions. Moreover, functional programming is not mentioned as a learning outcome of any module.

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

There are good opportunities for students to engage in research, particularly within the second cycle, through mentoring, exhibitions, and scholarships. There is evidence of students contributing to funded research projects, and having their work published.

ANALYSIS AND CONCLUSION (regarding 2.1.)

Research in AI is strong, but other areas could be improved. This is partly reflected in the curriculum, where non-AI modules are not fully in line with modern theories. For example, teaching of programming could benefit from including modern functional programming languages, in particular in the 1st-cycle Informatics programme. Students have good opportunities to engage in research.

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					
Second cycle					

COMMENDATIONS

1. The research in AI is excellent.

RECOMMENDATIONS

To address shortcomings

1. Expand research coverage to more 2nd cycle topics.

For further improvement

1. It is recommended that at least one language that is primarily or purely functional is introduced and that it is shown how programming without side effects can be achieved in this. The language can be, e.g., F#, Haskell, Standard ML, OCaml, or Scala.
2. It is recommended that parallel thinking is made explicit in the learning outcomes.
3. Research in areas other than AI appears to be underdeveloped and could be improved.

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 admission procedure is described on the KTU website, with selection criteria clearly stated, both for international and Lithuanian students. The total number of students admitted to first cycle programmes has increased over recent years, countering national demographic trends. Average admission scores have remained stable. The number of students admitted to second cycle Artificial Intelligence has grown strongly over the last two years.

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

For the recognition of individual courses, an online form can be submitted. Learnings are accredited depending on the difference to the course they should be accredited to, based on stated learning outcomes.

Admission of students with a foreign background is handled differently based on the similarity with national backgrounds. Students can be fully admitted, admitted to only certain study fields, admitted with additional requirements (additional courses etc.), or not admitted (with the possibility of recognising parts of the foreign qualification in the study programme, and with information on the appeal procedure). In all cases where no full admission is granted, students are provided with reasons for the decision and tailored offers to other programmes fitting their qualifications.

Competencies of non-formal and informal learning (e.g., work-based activities) can be recognised as well (up to 50% of the target study). Only 7 modules have been accredited this way throughout the last three years. Starting next year, this recognition process will be free for state-funded students according to the administration.

Students travelling to foreign HEIs are aided by coordinators to avoid problems with the accreditation of foreign courses at their home university.

ANALYSIS AND CONCLUSION (regarding 3.1.)

There is good growth in student numbers evident in first and second cycle programmes, so the programmes look sustainable. The accreditation process is clearly structured and transparent, with programmes assisting students throughout it. Recognition of non-formal learning should be monitored.

FACTUAL SITUATION

3.2.1. Opportunities for student academic mobility are ensured

Students have all the usual opportunities to go abroad via the Erasmus+ programme. Additionally, cooperations with other KTU partner universities exist which waive tuition for exchange students - in this case, KTU offers scholarships to cover mobility costs. Students can also go on exchange via the NORDTEK programme in the Nordic and Baltic regions.

Internships are possible via Erasmus+ and other programmes such as Vulcanus in Japan.

The exchange programmes are actively advertised in multiple events each year, such as the yearly *Go Abroad Fair*, the bi-annual *How to Find an Internship Abroad* seminar and monthly *Café Erasmus* events. Students have reported that they feel very well informed about mobility opportunities and are constantly reminded about offers.

However, exchange numbers have still been very low in the last three years (14 outgoing student exchanges in 2022-23), according to the SER, this is due to travel restrictions during the pandemic. The main reason for not going abroad is employment in the home country as stated in the SER. The HEI is currently evaluating causes for the lack of mobility and is actively trying to increase exchange numbers (also based on previous evaluation) through various events and programmes. Students have noted that the sometimes inflexible curriculum makes finding suitable exchange opportunities more difficult.

Study programmes are very attractive to foreign incoming students, with an international quota of over 30% in most years and high numbers of incoming exchange students. International students feel well-integrated into the University system and are offered free language courses in Lithuanian.

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

Free *Bridging Courses* are offered for 1st year students.

The *KTU's GUIDed Mentorship* programme provides different study guides depending on the study progression. New students are assigned peer groups with a mentor introducing them to the University system, social activities and academic questions. An academic mentor helps with researching etc., career mentors help with career questions, and volunteer student tutors assist with subjects.

The *GIFTed Talent Academy* and the *KTU SKILLed specialized extra-curricular programme* provide talented students with special programmes to deepen their knowledge.

Financial support is granted via different scholarships. Scholarships are awarded for well-performing students and active involvement, for participation in extracurriculars (such as student organisations), for students in difficult personal situations and for mobility programmes. Travel to seminars, scientific conferences etc. may also be supported, as are students with disabilities. Tuitions are lowered or not collected in certain cases. Students felt very well informed about scholarship opportunities.

KTU offers many programmes for social support, including student organisations, art societies and sport programmes. They also encourage personal development and have a *Startup Space*. A social welfare coordinator acts as a mediator between programmes.

There is good support for finding companies for internships, but in rare cases, students were unable to find placements and had to repeat.

3.2.3. Higher education information and student counselling are sufficient

The KTU offers a *Welcome Week* for all new students prior to the study start with information on many crucial aspects of university life (such as information regarding finances, mobility, study planning, the student union etc.). The aforementioned peer group assists with questions.

A special study module *Introduction to Studies of Informatics* presents the content of the study programme and its current developments. Similarly, special seminars inform about the search and selection of internships.

Each module has information about contents, learning outcomes and evaluation criteria online. They are also presented in-class at the beginning of the semester.

Continuous consultations regarding tuition, study organisation etc. are offered by the *Study Centre of the Faculty of Informatics*, the *Department of Student Affairs* and the *Department of Academic Affairs*.

In combination with the aforementioned mentoring systems and information via social media, most students felt very well informed.

ANALYSIS AND CONCLUSION (regarding 3.2.)

Information offers and student counselling systems are outstanding. The variety of support systems and programmes is commendable. Student exchange numbers do not appear to be high and should continue to be monitored.

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					
Second cycle					

COMMENDATIONS

1. Students are very well informed about their studies and University offers (such as scholarships).
2. The mentorship programme is well-rounded, extensive and highly appreciated by students.

RECOMMENDATIONS

To address shortcomings

No shortcomings were identified

For further improvement

1. Monitor the lack of non-formal recognitions to ensure no administrative barriers for students exist.
2. Continue to monitor the lack of outgoing exchange students to ensure no administrative barriers for students exist. Consider increasing the study programme flexibility to ease the recognition of credits earned in mobility programmes.

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

There is a mixture of lectures, laboratory work, seminars, project work, and independent study. The number of contact hours exceeds the norms. In the 2nd cycle programme, classes are held in the evening to cater for students who work during the day, and some lectures are online. There is a requirement for students to take at least 25% of the classes in physical contact. This should be sufficient for the students to achieve the stated learning outcomes of the individual modules.

Challenge-based learning and increased teamwork between students are featured. Full-year programme for teachers was implemented to facilitate their learning to adequately support student teamwork.

The panel, however, feels that the learning outcomes of modules (as described in Annex 5) are insufficiently specific and detailed, which can make it difficult to assess to what extent a student has achieved the outcomes.

The SER briefly mentions a joint study programme in Health Informatics (with the Lithuanian University of Health Sciences), which is closing down (last admission was 2020). While it is expected that the last students in this programme will finish over the next couple of years, no mention is made of how it is ensured that these students obtain the intended qualifications and if the partnership with the Lithuanian University of Health Sciences (LUHS) poses any challenges to this.

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

The KTU has detailed policies on the handling of vulnerable groups and guidelines about Religious Diversity and takes a strong stance against discrimination. Administration and teachers can receive training on disability awareness, ethics and study adaptation. Social events on the topic of equal opportunities are organised. There is no clear policy to monitor and counteract the underrepresentation of some groups (e.g., women in technology). There are no special programmes to assist students with children, but schedules can be adjusted for students with care responsibilities; the library is equipped with a playing area.

The KTU has a clearly structured process to take care of individual needs: Students can fill out an online form to request adapted treatment and arrange a meeting with the university's social welfare coordinator. Teaching personnel are then informed by the Study Center of the Faculty about individual needs which can result in adapted forms of evaluation. Financial assistance in the form of scholarships can be provided. The KTU provides a free psychologist to students as well.

Some international students felt that the teaching material in the Lithuanian language was more extensive than English-language material (in the same courses).

The share of female students is not routinely monitored, and was not included in the SER, but follow-up material provided by the institution reports 13-17% female students over recent years.

ANALYSIS AND CONCLUSION (regarding 4.1.)

The policies and services for socially vulnerable groups are outstanding and must be commended. The demographic of students (particularly in regards to gender balance) is not monitored strongly enough.

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

There are extensive mechanisms for monitoring the progress of individual students, and students who fall behind are given counselling and options for remedial exams. Both oral and written feedback is given to students during modules (the latter in Moodle), and some courses allow resubmission of assignments after feedback is incorporated.

There is no information on dropouts in SER. On the other hand, the dropout rate the panel was informed by the SER team in the additional answers was ~15-30% which would be significantly lower than the average in the field of Informatics in Lithuanian universities, and it was stated as a single number also for 2020-2021 of the similar range, so most likely it is not cumulative and just the current year drop-out rate (during the last 3 years average relative dropout/admission to Informatics studies in Lithuanian universities was 58% based on data by SVIS, data for KTU for the same period shows an average relative drop-out of 67%; trailing average dropout is 48% in 2020 according to in-depth study by "Invest Lithuania"). If this is the case, it is slightly higher than in other universities.

The lack of comprehensive drop-out quantification hints at the absence of close monitoring and awareness of the drop-out scale in the faculty, as well as reasons and possible actions KTU IF could take to increase student engagement and satisfaction with studies and thus reduce the share of dropouts. This data per programme per year and information on actions taken should be made clear and analysed annually, possibly with some in-depth interviews with the students 'voluntary dropouts' which make up 68% of all reported dropouts (128 out of 187) and may have different root causes behind them.

4.2.2. Graduate employability and career are monitored

Graduate employment monitoring is adequate with numbers provided and compared from different sources including other institutions and the KTU itself. The main sources of information as described in the SER are the KVIS career monitoring system at KTU and alumni survey, and information provided by the Government Strategic Analysis Centre (STRATA).

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

There are extensive guidelines against discrimination, and complaints are followed up. It is, however, not clear what the consequences of a breach of the guidelines can be (for both students and staff). Extensive similarity tests and automatic Internet searches are made to detect plagiarism

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

It is possible for students to complain about, e.g., grading both by email or by using web forms. These are answered quite quickly and appeals can be made. There have been relatively few formal complaints, and there is no record of appeals.

ANALYSIS AND CONCLUSION (regarding 4.2.)

Feedback seems excellent, and policies for academic and social conduct are good, but module descriptions can be improved. More freedom for students to specialise would be welcome.

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					
Second cycle					

COMMENDATIONS

1. The policies and services for socially vulnerable groups are outstanding and should be continued.

RECOMMENDATIONS

To address shortcomings

No shortcomings were identified

For further improvement

1. Clearly monitor and address the underrepresentation of groups within the students' demographic, particularly in regard to gender imbalance, and include relevant data in the following SER.
2. Monitor and include in SER student dropout numbers per programme per study year and cumulative, set up a process for analysis and feedback to respective Field Programme Committees.

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

There are 90 academic staff involved in teaching informatics programmes at KTU, where 344 students are enrolled. The majority of the staff hold a PhD in a directly related field and have recently published relevant academic research. Nearly all of the academics work for the university more than 0,5 WTE and, although it is difficult to assess directly the turnover of staff, there is a very good range of experience within the teaching staff. No breakdown of staff numbers by gender or other diversity characteristics was provided. While this is not a requirement of the self-evaluation process, it is out of line with other European countries and is particularly challenging in disciplines like Informatics which have a history of gender imbalance. Follow-up information provided by the institution indicates that 31% of academic staff are women, which is imbalance but not bad by international standards.

ANALYSIS AND CONCLUSION (regarding 5.1.)

The staffing levels, qualifications and competence are more than sufficient to enable students to achieve the learning outcomes specified within the programmes. More could be done to identify and address a potential lack of diversity within the teaching staff.

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

Staff have opportunities for mobility under the Erasmus+ scheme. Although there have been some limitations to uptake of the scheme because of the Covid pandemic, these opportunities have been taken up by at least some of the staff.

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

Pedagogical development courses are offered and often taken up by members of the teaching staff - this provision at KTU is particularly impressive and wide-ranging. Engagement with Erasmus+ offers potential for further development but is not as widely accessed. Competencies are monitored through student evaluation questionnaires.

ANALYSIS AND CONCLUSION (regarding 5.2.)

Teaching staff are provided with very good mobility and development opportunities, both internally and through Erasmus+. Whilst numbers accessing the Erasmus+ are relatively small, staff often engage with internally provided training and development courses.

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					
Second cycle					

COMMENDATIONS

1. The range of pedagogical staff development opportunities provided by KTU is excellent.

RECOMMENDATIONS

To address shortcomings

No shortcomings were identified

For further improvement

1. Staff should be enabled and encouraged to engage with Erasmus+ for mobility and development, to increase the proportion of staff that take up the opportunities offered.
2. Diversity within the staff group should be monitored and any plans developed to address any imbalances.

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 campus area is pleasant and green, and most buildings are modern or modernised. The facilities for lectures, laboratory work, and group and individual work are fine. Accessibility for disabled students is taken care of, and tools for overcoming challenges with vision and hearing are provided. Guidance for neurodiverse students is provided, but it is not evident if students with children are given additional support. Modern equipment for virtual reality and such is available.

Lecture notes are made available to students on Moodle (at no cost), and the library provides access to online publications. The SER is detailed about the available computers and software, but it is to be expected that students bring their own laptop computers, and it lacks clarity on how these can be used in their studies, in particular, to what extent the software used in teaching is available for free or at low cost to students to install on their own computers.

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

It is increasingly common for universities to only provide specialised computers for laboratory work, e.g., high-performance computers for AI, graphics, virtual reality, and numerical computations, whereas maths and programming courses provide assistance to students to install and use the required software on their own computers instead of using the (limited number of) computers provided by the university. There are no explicit plans stated for such a future.

ANALYSIS AND CONCLUSION (regarding 6.1.)

The facilities for students are good and sufficient, but there is no clear plan for adapting to a future where students bring their own devices.

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					
Second cycle					

COMMENDATIONS

1. On-campus facilities are very good.

RECOMMENDATIONS

To address shortcomings

No shortcomings were identified

For further improvement

1. Make it easy for students to use their own laptop computers for studies, instead of having to rely on shared computers provided by the University (except for purposes where standard laptops are insufficient). Preferably, support should be provided for installing software used in teaching on Windows, MacOS, and Linux.

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

Quality processes are described both in the SER and on the university website, and these are appropriate and robust. Staff and students were able to identify clear recent examples of how review processes led to improvement of the provision. Most issues that arise are dealt with informally and quickly through discussion between the students and the teaching staff, particularly through the “roundtable” discussion system adopted by the programmes. However, students reported that some programme committees never actually meet, but only carry out discussion via email exchange.

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

Social partners are invited to participate in study planning and thesis defence committees. They can propose topics for work projects and seminars in courses and offer internships, excursions and thesis writing opportunities. They assist in the professional development process of teachers by offering seminars and can sponsor scholarships for students. They take part in the preparation of self-assessments and reports and are regularly updated on study activities and results. Social partners feel very involved in the study planning process and believe that their voices are heard. They not only appreciate the formal process of gathering their feedback but also praise the regular opportunity for informal discussions and exchange of opinions.

Students are involved in committees and activities on all levels. Two students participate in the Informatics Study Field Programme Committee and can share their views and organise surveys and other activities if necessary. In an annual meeting, students are invited to participate in a meeting with the Informatics Study Field Programme Committee to discuss changes made to the programme. Roundtables and similar programmes make it possible for students to articulate their opinions anonymously and have them discussed transparently.

While students can participate in various committee meetings, they do not need to be included in all of them (such as the Faculty Study Committee) according to the committees’ regulations. Students feel like their voice is often heard, but they do not have clear voting rights in the Field Study Programme Committee (policy does not determine the ratio of students and other stakeholders, such as lecturers) and therefore sometimes take a far smaller role in QA processes and curriculum development than other stakeholders. Not all Field Study Programme Committees meet regularly, instead, despite differing policies, students have told the expert panel that decisions are sometimes made solely via email for an extended period of time: this removes the opportunity for students (who tend to be less integrated in informal discussions) to contribute to programme changes and raise criticism.

While major decisions naturally need to be accepted by Field Study Programme Committees, teachers feel like they have a lot of freedom in the development of their courses and think that their feedback to the administration is acted on. They appreciate the free communication and atmosphere in the University and the feedback they receive from students via round tables.

Alumni can also participate in events and meetings to express their views on important issues.

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

Programme-level summaries of student evaluation questionnaires are shared on the University [website](#). The most recent accreditation reports are available [here](#), which is in line with the published information on improvement processes at the same URL.

7.1.4. Student feedback is collected and analysed

Each semester, students anonymously evaluate modules and teachers' performance and give additional open feedback. Students are also invited to participate in a bigger survey on other factors such as the quality of work of the Study Centres etc. After a recommendation in the last external programme evaluation, according to the SER, modules are now no longer offered if votes fall under a certain threshold.

While there are no policy-based hard consequences for bad teaching performance, improvement opportunities and support systems such as additional training opportunities etc. exist.

In Roundtables, students discuss each study module and general issues. Results are then discussed in the Field Programmes Committee.

According to the SER, the overall student satisfaction in Informatics on a 5-point Likert scale is 3.61 for the first and 4.11 for the second circle, both of which have slightly increased over the 2020-2023 period. Survey response rate is very high: Study Module evaluations for all programmes have been filled out by more than 70% of all students on average across the period, most other surveys reach similar numbers.

Students feel like survey results are not always communicated clearly. While they believe that surveys are impactful and changes are being made, these changes are not always communicated. According to the administration, a system in which students can see feedback and actions that were taken based on it already exists. However, students do not seem to be aware of this system.

ANALYSIS AND CONCLUSION (regarding 7.1.)

Feedback culture and open communication about problems appear to be very good. Stakeholders are regularly involved in the development of the study. Especially social partners play a very active role in curricula development. While students' opinions are generally acted on, this practice is not always formalised in policies: no clear voting structures for students in committees and no maximum duration between committee meetings exists, therefore weakening students' formal influence. While QA processes seem to be effective, their results should be communicated more clearly to students.

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					
Second cycle					

COMMENDATIONS

1. Survey response numbers are exceptional, and the University's staff is very open to feedback. Programme changes are made regularly.
2. The involvement of social partners in study development processes is very high.

RECOMMENDATIONS

To address shortcomings

1. Ensure that Field Programme Committees meet in person regularly.
2. Make sure that by policy, student representatives are always invited to committee meetings and form an integral part of them.
3. Define clear voting structures in committees to ensure that students' voices are heard.

For further improvement

1. Communicate to students more strongly how their feedback has helped in designing changes in the study programme or specific course.

V. SUMMARY

The results of the evaluation are very positive. There is evidence of good positioning in the Lithuanian market of studies in Informatics, with highly professional teaching staff, satisfied students, employers and the well-structured modern content of programmes.

The strengths of KTU programmes in the Informatics field of study are:

- The programmes are relevant to the job market and updated regularly, with strong support and involvement from employers and other social partners
- AI research is excellent
- Students are very well informed about their studies and University offers (such as scholarships)
- The mentorship programme is well-rounded, extensive and highly appreciated by students
- The policies and services for socially vulnerable groups are outstanding and should be continued
- The range of pedagogical staff development opportunities provided by KTU is excellent
- On-campus facilities are very good
- Survey response numbers are exceptional, and the University's staff is very open to feedback

There were no areas within the provision with substantial shortcomings.

There were actions for improvement identified during the evaluation with non-critical observations which still may be helpful to ensure better satisfaction by students, teaching staff and employers:

- Ensure there are appropriate opportunities made available for personalisation within the technical subjects
- Review prerequisite material for elective modules and ensure that it is covered appropriately in earlier modules.
- Expand research coverage to more 2nd cycle topics.
- Introduce at least one language that is primarily or purely functional is introduced and make parallel thinking explicit in the learning outcomes
- Develop research in areas other than AI
- Make sure that no administrative barriers for students exist for recognition of formal and non-formal credits, including those gained on mobility programmes
- Clearly monitor and address the underrepresentation of groups within the students and staff demographic, particularly in regard to gender imbalance
- Field Programme Committees should monitor student dropout numbers per programme per study year and cumulative
- Staff should be enabled and encouraged to engage with Erasmus+ for mobility and development, to increase the proportion of staff that take up the opportunities offered.
- Make it easy for students to use their own laptop computers for studies. Preferably, support should be provided for installing software used in teaching on Windows, MacOS, and Linux
- Ensure that Field Programme Committees meet in person regularly and that, by policy, student representatives are always involved
- Communicate to students more clearly how their feedback has helped in designing changes in the study programme or specific course

The expert panel found the organisation of the site visit at KTU well-prepared and we benefited greatly from discussions with all involved parties. We thank KTU for providing good-quality information both in the self-evaluation report and when additional material was requested.