

# Expert group joint opinion

Evaluation Procedure: Assessment of Study Field

Higher Education Institution: Turība University

Study field: Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science

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# Summary Assessment of the Study Field

## Summary Assessment of the Study Field

The study field "Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science" of Turiba University (TU) consists of two very closely related study programmes with the main aim to develop professional specialists in programming:

- (1) "Professional bachelor study programme" Computer Systems" (42484)", 4 years (first admission in 2019);
- (2) "First level professional higher education study programme "Computer Systems" (41484)", 2 years (first admission in 2020). This programme is to a great extent the first part of the professional bachelor programme, so both programmes are well integrated.

1. Learning outcomes, as well as grading principles of the study courses are clearly defined.
2. Teaching staff selection is at an adequate level resulting in highly skilled teaching staff
3. The cooperation with the industry should be improved in other fields than internships.
4. The institution has prepared a plan for research support and initiatives. However, it was not provided as a separate document only through the discussion at visit time.
5. Due to the small number of lecturers and researchers working on a full-time basis, as well as visiting teachers, it is not possible to gather teams of researchers and work purposefully.
6. Very large number of visiting lecturers from business allows students to receive assignments and small projects that meet real business needs, which significantly improves learning outcomes and student achievement after graduation.

### Strengths:

1. Learning outcomes, as well as grading principles of the study courses, are clearly defined.
2. The effort put in the process of attracting and selecting visiting teachers with special attention put to their professional and academic experience.
3. Cooperation with the industry partners regarding the students' internships
4. A large number of visiting lecturers from business allows students to receive assignments and small projects in applied science that meet real business needs, which significantly improves learning outcomes and student achievement after graduation.
5. TU has developed a strong internal quality assurance system that is made public.
6. The teaching staff is very approachable if students are willing to give feedback face to face.
7. TU and the study program director are aware of the shortcomings when it comes to implementation of Part1 of ESG's and are willing to improve.
8. TU has promptly implemented the recommendations given during the licensing procedures.

### Weaknesses:

1. Industry partners have not been included in development of the study programmes to a sufficient extent, and the current cooperation has a small contribution to the achievement of the study goals and learning outcomes.
2. A low number of students and teaching staff for incoming and outgoing mobility.
3. Lack of scientific teams and research also low knowledge of innovative education.
4. No approved documents which clearly provide a mechanism of scientific initiatives and support.
5. Students are lacking proactive feedback from the teaching staff both about their performance during study courses and information given in the annual surveys.
6. Not all members of the teaching staff are aware of the existing procedures set in the quality management system, especially towards the practices of student-centered learning.

## 1. Management of the Study Field

### Analysis

1. The aims of the study fields are clear – to develop professional specialists in programming following criteria based on the professional standards of a programmer and programming engineer as well as capable for further qualification and continuation of studies. This complies with the Strategic Guidelines for Turība

University (TU) 2021-2025, i.e., positioning the university for being highly recommended by employers. The development of the study field has been aligned with the Latvian Sustainable Development Strategy (Latvia 2030). The actuality of the study field grounds on the high demand for specialists in the ICT, as there are about 670 IT graduates in Latvia every year, but according to think tank “Certus”, the total number of graduates in the field of ICT in Latvia should at least be up to 3,000 per year. As the instruction language used in the studies of the field is English, foreign students also can be attracted, thus increasing the export opportunities (following Education Development Guidelines 2014-2020). The study program is based on industry trends and cooperation with important players of the industry, and one of the main contributors for the contents and the study process from the social partners is Accenture Latvia – one of the biggest IT companies in the country. To achieve the aims, most of the educators specialized in the field are practitioners, and modern material and technical base is available for the study process. On the other hand, to continue to evolve the study field (especially having the development of IT master programme among the plans), more activities in research in IT direction, as well as attracting more teaching staff with doctoral degrees in the field, should be conducted.

2. The development of the study field is at the very beginning, so efficient activities are very important. The study field contains only two study programmes, and the first level professional study programme is to a great extent the first part of the professional bachelor programme – this compactness of the study field and being at the initial phase helps to make efficient and timely decisions. The director of the study field is the same person, which is the director of both study programmes, and during the interview, it was demonstrated, that he is fully competent and very interested in the processes in the study field. On the one hand, this makes management and decision-taking very efficient. On the other hand, this responsibility of one person over so many aspects in the study field however brings potential risks in possible emergencies, e.g. in cases of temporary absence; At the same time, as it was seen from the meetings with the higher management of the university, the director of the study field is extensively backed up by the university administration and general staff, and the university is highly interested in the development of the study field, e.g., despite the small number of students in the field, really well-equipped facilities are available, and the study field director is given the initiative to develop the field, satisfying the needs. The competence of the director of the study field, his active involvement in the processes, as well as support from the higher management, gives the conviction about successful development and running the study field.

3. The Turība University has developed a centralized system for the admission of the students, and potential students are offered two intakes per year – autumn and winter ones. A special procedure has been created to test and interview the applicants. As for recognition of previous education and experience, two different situations should be mentioned: (1) general recognition (according to the Recognition regulation of Turība University) with a strict procedure on how to apply for recognition of study courses and experience, and where the final evaluation and decision making is carried out by a special commission, established for the study direction, (2) as the first level professional study programme is to a great extent the first part of the professional bachelor programme, “After successful completion of the first level professional higher education program (college) “Computer

Systems” students can continue studies in the Professional Bachelor's study program “Computer Systems” starting from the 3rd study year”.

The responsible person of the assessment system of each study course is the respective course lecturer basing on Turiba University Examination Regulations, Study regulations, Regulations on Application and Defence of Study Papers, Regulations on compilation and layout of independent research papers, and following the two main principles: (1) Transparency of assessment of knowledge and skills, (2) The principle of compulsory assessment. One of the important mechanisms to evaluate the study process is student surveys – although the experts’ meeting with the students demonstrated a high satisfaction about the study process, no clear procedures regarding feedback on survey results (e.g., a system to publish depersonalized survey results) were detected for that purpose.

4. Turiba University has defined principles to detect and fight plagiarism. The plagiarism issues are discussed in several TU regulatory documents, such as Turiba University Examination Regulations, Study regulations, Regulations on compilation and layout of independent research papers. As for plagiarism detection tools, the main one is the unified computerized plagiarism control system (VDPKS), which was created jointly by Latvian higher education institutions. Additionally, Turiba also started using the Turnitin plagiarism system. According to the report, no plagiarism was detected yet in this study direction. According to the regulations, the stakeholders are aware of principles and mechanisms to avoid and fight plagiarism, though it is not clearly described, how concrete technological tools are applied. One of the aspects of the development of the internal culture of the University is its positioning itself to educate professionals to be demanded by employers.

5. The main information about the study programmes of the study field is easily accessible via the main site of Turiba University. All the information is available also in English, the language the study field courses are taught. On the main page, general information about the contents of study programmes and leading teaching staff can be found. Admission information is available both from the main page and from the pages of the programmes. Information about study exchange opportunities, internship opportunities and regulative documents are also easy to find. There is no evidence of any differences between information on the website and other resources, of course, the public information on the website is more general and without specific details.

## **Conclusions. Strengths and weaknesses**

The aim of the study field is clear – to develop professional specialists in programming.

The competence of the director of the study field, his active involvement in the processes, as well as support from the higher management, gives the conviction about successful development and running the study field.

Turiba University has developed a centralized system for the admission of students.

One of the important mechanisms to evaluate the study process is student surveys – although the experts’ meeting with the students demonstrated a high satisfaction about the study process, no clear procedures regarding feedback on survey results (e.g., a system to publish depersonalized survey results) were detected for that purpose.

The University has defined principles to detect and fight plagiarism, no plagiarism was detected yet in this study direction.

The main information about the study programmes of the study field is easily accessible via the main site of Turiba University.

Strengths:

1. The study programmes of the field are based on industry trends and cooperation with important

players of the industry.

2. The competence of the director of the study field and his active involvement in the processes.
3. Support for the study field from higher management of the University.
4. The main information about the study programmes of the study field is easily accessible via the main site of Turiba University.

Weaknesses:

1. The responsibility of one person (study field director) over so many aspects in the study field brings potential risks for possible emergencies.

## **2. Efficiency of the Internal Quality Assurance System**

### **Analysis**

Turiba University (TU) has a publicly available Quality Policy (V66) which is defined and approved by the TU Senate. TU also has a quality management system which is established according to the Standards and guidelines for quality assurance in the European higher education area and the strategic guidelines of TU. TU personnel, including students, and relevant stakeholders are involved in maintaining and enhancing the internal quality management system. The internal quality policy is linked to TU Strategic Guidelines and takes into account TU goals and objectives. The quality policy is aimed at constantly improving the learning environment, renewing and updating the study content, assuring student satisfaction, providing professionals from the labour market, etc. For example, students are surveyed at the end of each study course to indicate how satisfied they are with the quality of their studies, to receive recommendations in order to eliminate any shortcomings. Results from the surveys are then analyzed and discussed with the respective members of the teaching staff. TU constantly improves their study process to adjust to the needs of its students and the labour market. Even though the procedures set in quality policy are followed by the teaching staff, not all members are aware of such policy, especially the content of it (or the necessary knowledge that follows it), as was evident during the on-site visit. Especially towards the practices of student-centred learning and ways to implement it. The majority of the teaching staff of this study direction is visiting and guest lecturers, thus may not have such deep knowledge of the internal policies.

The procedure for the development and approval of study programmes was approved by the TU Senate in 2019. The decision to create a new study programme is made by the Faculty Council. To develop a new study program a well-justified plan must be submitted, including information on how the new study program complies with TU strategy and mission, as well as cost and profitability assessment. Application for study programme development is examined by a commission consisting of TU management, study direction and programme representatives, and student representatives. The Senate gives a decision on the implementation of the study programme and approves the programme director. Procedures for changes and closure of study programmes are also provided.

Study programmes are regularly reviewed, based on the opinions of students, graduates and employers. Students are surveyed at the end of each semester to collect information on the implementation of each study course. The opinion is given on study content, available resources, teaching staff involved in implementing the study course, possible ways of improving the study program. Results of these surveys are then processed by the Development Department and then analyzed within the Faculty or Department. Often necessary changes are made to make sure students are satisfied with the quality of their studies. During the on-site visit, students expressed the lack of the closure of the feedback loop – very rarely they receive back information on how their opinion and answers have changed anything. Even though the teaching staff is willing to share information about the changes made, they are not taking proactive steps to do so. As the same

study courses are not set over several semesters, students are not able to see direct changes made, thus it is more difficult to see the meaning of the student surveys. Students also have the opportunity to directly talk to the teaching staff, director of the study program to express their opinion on necessary changes and often such changes are made without formal complaint procedure, especially if the needed changes are relatively small and can be implemented without formal approval. Also, a procedure for reviewing students' claims and suggestions that have to be made to the Study Information Centre is set. The department in question responds to the results of the review and makes the improvements.

Graduates are surveyed once every two years. In these surveys, working graduates often provide information on what was missing in the content of a course to ensure the necessary knowledge, skills and competencies. The program director with the teaching staff then assesses the possibilities to implement any changes based on the feedback of the graduates.

Employers' opinion is gathered after each traineeship to assess the knowledge and skills of the students - what is still missing, what could be improved, etc., after which the program director assesses necessary changes. Representatives of the labour market are also included in the governance of the study programs, thus providing constant feedback on the study content.

TU has developed an internal data processing system, which enters and stores the necessary data. Information is regularly collected on student numbers and status, mobility activities, internships etc. Data can be requested for in-depth analysis and is used to improve study programmes.

TU has analyzed the standards outlined in Part 1 of The Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and meet the criteria, providing key standards to ensure the quality of its services in the areas of Quality assurance policy; Programme design and approval; Student-centred teaching, learning, and assessment; Matriculation of students, study process, recognition of qualifications and certification; Teaching staff; Learning resources and support for students; Information management; Informing the Society; Programme monitoring and periodic review; Cyclic external quality assurance. TU has identified that more consideration must be paid to student assessment procedures – teaching staff in the assessed study direction must be better informed about methods of tests and examination, the assessment criteria and methods, as well as the criteria for putting marks, must be made public in advance as well as better feedback must be provided to students in regards to their performance during studies. The aforementioned corresponds to interviews during the on-site visit when students and teaching staff identified the necessity to improve the pedagogical skills as a substantial proportion of teaching staff is not full-time TU employees.

Even though all internal quality procedures are set out in the quality policy and quality management system, a formal feedback system with both students and external partners is lacking. Study programmes in this study direction have been implemented for almost two years, thus allowing developing clearer procedure and establishing strong links among interested parties.

## **Conclusions. Strengths and weaknesses**

The internal quality assurance system is in place and the steps to be taken are set out in internal policies, yet some formalized procedures are lacking, especially when it comes to closing the feedback loop towards students and employers.

Regular surveys are carried out to gather information about the student, graduate and employer satisfaction, necessary changes and possible improvements. Study programmes are regularly updated and improved.

TU has analyzed its accordance with the standards outlined in Part 1 of ESG's and meet the criteria. TU has identified some shortcomings and is willing to improve.

Strengths:

1. Strong internal quality assurance system that is made public.
2. The teaching staff is very approachable if students are willing to give feedback face to face.
3. TU and the study program director are aware of the shortcomings when it comes to the implementation of Part1 of ESG's and are willing to improve.

#### Weaknesses:

1. Students are lacking proactive feedback from the teaching staff both about their performance during study courses and information given in the annual surveys.
2. Not all members of the teaching staff are aware of the existing procedures set in the quality management system, especially towards the practices of student-centred learning.

### 3. Resources and Provision of the Study Field

#### Analysis

1. Turiba University has more than 20 years of experience in establishing and driving multiple study programs. Financial stability and annual results confirm the ability to manage study programs from a short- and long-term perspective.

The computer science study field has a clear financial model and targets defined that was defined during program initiation. Meantime, the number of students in professional bachelor and 1st level higher education programs has been significantly impacted by COVID related restrictions. The institution was ready for such a scenario and needed investment.

Scientific researches are being supported on individual and institution level by sponsoring teacher's participation in scientific conferences and having annual champion nominations. On an annual basis, Turiba University is organising scientific conferences for students and personnel with a focus on study fields that are being delivered by the university. Students and teachers are invited to participate with their own or joined research that is directly connected to their study programs. University is supporting (with dedicated budget) lecturers in cooperation with European universities and participation in international conferences.

Visiting lecturers that deliver computer science-related subjects do not have recent publications. Although one of the lecturers has a good amount of publications in subjects he delivers.

TU managed to keep low cost per student (1410 eur is less than forecasted in 2018) in 2019/2020 academic year. Provided costs distribution model shows how costs are controlled. As per 2018 plan TU forecasted to have 51 students in the professional study program, but due to the COVID and focus on foreign students, TU hasn't reached this having only 25 students in both programs in 2020/2021 academic year. An impact was discussed during the visit day.

2. The institution continues to improve and leverage owned premises, library, personnel, labs and other resources to deliver computer science field programs. Investments have been made to improve computer labs during the last 3 years. The institution has also improved the library: it has been enriched with relevant and up to date computer science books supporting existing study programs (in English and Russian languages). A Digital repository was implemented to provide actual information about books in the physical library that is located in the main building. Above mentioned activities fully enabled and supported students during 1st 2 study years, where they had all the necessary resources for studies. However, for teachers and students, there is no access to global online libraries like Coursera, Udemy and similar.

University does the regular reviews of the available and needed resources based on industry trends, existing global situation and students needs. Such a process was discussed with University representatives and, what is more important, the result of these reviews is practically implemented

and was described above.

3. The selection process of the teaching staff is established and well defined with all necessary steps for ensuring fairness and competitiveness. During the teachers' selection process special attention is put to the minimum educational level (usually master or bachelor), teachers professional experience from the industry as well as academic experience in teaching. An example of good practice is the attracting process of visiting teachers as they are usually attracted through the ITN Council, cooperation partners and professional associations or directly based on personal contacts, through LinkedIn or by meeting at conferences. The teaching workload is balanced and the scientific work is supported with available funds for the scientific publications. During the year teachers have an opportunity to improve their professional and academic skills since several workshops and lectures are organized. However, there is no systematic approach to teaching staff professional and didactic improvement and activities are not organized in a target-oriented manner based on the researched data regarding teachers skills and needs. Furthermore, the outcome and the efficiency of the taken measures are not measured. Appropriate improvement measures are undertaken, and the outcome and efficiency of the implemented measures are assessed. Incoming and outgoing mobility is low partially due to the pandemic global situation and it doesn't bring added value to the study process, and therefore it should be improved.

4. Turiba University has implemented an internal digital system BATIS for students and teachers collaboration, which has extensions for iOS and Android mobile phones. Through this application, students can do most of the activities needed for collaboration with the institution: detailed information about study courses, study plan, grades, apply for optional study courses, maintain students personal information, pay for the studies and many others. The institution is using the BATIS system as the main communication channel to reach out to students and promote ERASMUS and similar programs, involve them in surveys and ensure students can easily find needed information.

Turiba University collaborates with multiple companies from the industry and supports students in the organization of the internship.

## **Conclusions. Strengths and weaknesses**

Turiba University demonstrates a strong ability to ensure students and personnel with modern collaboration tools like the BATIS platform and other needed items to strengthen the study process. Turiba University has developed and implemented processes for the teaching staff selection, evaluation and advancement which resulted in highly skilled teaching staff. The academic workload is balanced and the teachers' needs for scientific work and publications are satisfied. Incoming and outgoing mobility should be improved.

### **Strengths:**

1. The effort put in the process of attracting and selecting visiting teachers with special attention put to their professional and academic experience.
2. Evaluation of elected candidates is double-checked by another university which increases the quality of the selection process.
3. BATIS system is the key source of information and communication channel between institution and students, which is being supported on the web, iOS and Android devices.
4. Students are secured with modern equipment

### **Weaknesses:**

1. Incoming and outgoing teaching staff mobility is low.



2. Students and teachers are limited in access to online platforms like Coursera, Udemy, etc. Such platforms become extremely useful in remote study processes.
3. Teaching staff professional and didactic improvement is still not based on a clearly defined strategy and collected data.

#### **4. Scientific Research and Artistic Creation**

##### **Analysis**

1. The directions of scientific research in the study field comply with the development aims of the higher education institution. Insight was provided through the "Development plan for the study direction "Information technology, computer technology, electronics, telecommunications, computer control and computer science" and by "Law on Higher Education Institutions". However, in the self-assessment report, the institution did not provide sufficient information. During the interview with the administration and lecturers, it was found that it was not conducting research related to the Computer Systems program. From the list of six researchers provided, only two researchers work in the relevant field of science, while the others are from an additional field such as economics. From the list of articles provided, only one article by the program director relates to the direction of the program, but the article is dependent on a completely different academic institution. On the other hand, the goal of the program and the competence of the lecturers fully meet the external and internal requirements of the study program.

2. The relation between the research and the study process is presented in detail. The results reflect the influence of research. For example, such thesis explains scientific results usage in the study process:

the final results of the lecturers' scientific research, which are published in scientific monographs, scientific publications, etc. are used in the study process, the approbation of research results, using practical examples obtained during the research, encouraging the students to get acquainted with the research and promoting the study course acquisition.

Still, the information provided in the self-assessment report and during the interviews of researchers and students revealed that the study process is not related to the scientific work projects of lecturers. This is explained by the fact that almost all lecturers are visiting during the study process. Students are given task assignments related to business needs and so making applied research. However, this assumption meets the requirements to make applied research and use it for the study programs and is applicable to further study process development.

3. The self-assessment report provides examples of cooperation between other fields of science carried out by the institution. For the example:

Cooperation with SWU "Neofit Rilski" and Lithuania Business University of Applied Sciences has been initiated on the implementation of the Erasmus + COVID19 project; the project application was submitted on 29.10.2020 as the leading partner.

Lecturers throughout the university are involved in two EU-funded projects on "Improving Governance at Turiba University" and "Strengthening Academic Staff of Turiba University in Strategic Specialization Areas" as well as nine other projects. The projects enable the strengthening of lecturers' competencies, and promoting cooperation with foreign lecturers involved in the projects.

The self-assessment report does not provide information on international cooperation in the field of scientific research related to the computer systems program.

4. The research institution has developed mechanisms, which was described during an interview at visit time, to involve lecturers in research work, but in the absence of a sufficient number of full-time teachers, the research institution does not have the opportunity to influence their greater involvement in the research activities. The interview with the administration provided information on incentives on research activities, but further interviews with the academic staff revealed that they did not know about these opportunities and there are now clear approved documents. For this reason, there is a need to improve the promotion and support of research and to disseminate the information more openly about research initiatives.

5. Involving students in research is an aspiration of a research institution, however, it is left without a clear mechanism, documents and to solve for the lecturers. Also due to practically non-performing research activities, students are not involved and do not receive scientific assignments. The current high potential of visiting lecturers allows for the development of tasks more tailored to the needs of real business, but their lack of scientific uncertainty. Neither the self-assessment report nor the interviews presented any international or local projects in which students studying in the field of study could participate.

6. The institution actively implements projects and other activities aimed at improving the study process and implementing study innovations. However, at the interview, only representatives of other fields of science could tell more about these possibilities. Unfortunately, no information was provided during the interview with the lecturers about the innovations of the study process and education in general. It is necessary to strengthen the educational competencies of lecturers.

## **Conclusions. Strengths and weaknesses**

The institution has prepared a plan for research support and initiatives. However, it was not provided as a separate document only through the discussion at visit time. Also, due to the small number of lecturers and researchers working on a full-time basis, as well as visiting teachers, it is not possible to gather teams of researchers and work purposefully. As a result, the potential involvement of students in various projects is significantly reduced. On the other hand, the very large number of visiting lecturers from business allows students to receive assignments and small projects that meet real business needs, which significantly improves learning outcomes and student achievement after graduation.

It is necessary to improve the educational knowledge of teachers to use more innovative studying solutions. Although the university has very good opportunities and initiative, the encouragement of teachers is weak. It is advisable to conduct regular educational competency development courses with the involvement of visiting teachers.

The study field has good potential for further development in a more scientific direction, and gaps are easily remedied over time.

### **Strengths:**

1. A large number of visiting lecturers from business allows students to receive assignments and small projects in applied science that meet real business needs, which significantly improves learning outcomes and student achievement after graduation.

### **Weaknesses:**

1. Lack of scientific teams and research also low knowledge of innovative education.
2. No approved documents which clearly provide mechanism of scientific initiatives and support.

## **5. Cooperation and Internationalisation**

## Analysis

1. Turiba University has signed contracts with more than one hundred domestic and foreign partners from the industry and academia for other study fields. However, the established network has been used in order to easier promote new Computer Systems study programmes and at the moment fourteen contracts are signed just for the purpose of the evaluated study programmes. The majority of the partners were approached by the University in a targeted manner, by the Computer Systems study programmes director or the International department. The study programmes director is organizing meetings with companies and trying to attract new partners in the CS study fields. Furthermore, the International department has a strategy for approaching possible partners and all steps in the process are elaborated.

Cooperation with industry partners is resulting mainly in students internships and guest (online) lectures. An example of good practice is that industry partners offer more internships than students currently included in the CS programmes and that internships sometimes result in scholarships and possibly job opportunities. In general, the cooperation with professional organisations and employers from the industry should be improved with more interaction and their involvement in the study process and achievement of the learning outcomes by having industry-oriented bachelor thesis, joint projects and more visiting lectures. Furthermore, professional organizations have not been included in the study program creation or the current implementation and this should be improved dramatically. During the meeting with industry partners and employers, a suggestion was that during the teaching process more emphasis should be put on group and project work since they noticed that this component is missing by students.

Cooperation with other institutions was based on approaching the existing partners from other fields and seeking opportunities to collaborate in the CS field, mainly in terms of the Erasmus+ mobility program. An example of good practice is that Turiba University has signed contracts with the surrounding Universities regarding the case if they lose the programme licence that students will be able to continue their study at another University.

2. The International department has a developed strategy for University promotion and for finding international partners organized by reaching international institutions from one country each month. The main effort is put on the Erasmus+ mobility program and the International department is promoting Turiba University by presenting the University and its possibilities to foreign universities on a weekly basis. Foreign students currently studying on the study programmes confirmed that the promotion of the University is satisfactory and some found information online, others during university promotion days or they got a recommendation from other students currently studying at the University.

In order to promote the Erasmus+ mobility program to their students, all necessary information is available on the official university website and students can apply through the online application. Furthermore, the study programme director is introducing the Erasmus+ program to all students and is constantly updating all interested students about the program. A foreign students application procedure is straightforward and available online. A procedure for foreign teaching staff is mainly based on the Erasmus+ program and the attraction of the teaching staff is based on personal connections. However, all aforementioned activities and procedures did not result in incoming or outgoing students and teaching staff mobility and this should be improved. Relieving facts are that the study programmes are still at their beginning and that due to the current pandemic situation in the last year it was very hard to conduct any type of mobility. Therefore, it should be continued with the University promotion and attraction of the foreign students and more effort should be put on the attraction of the foreign teaching staff and the local teaching staff should help the programme director in this process. During the meeting with the study programmes director, it was stated that during the next semester one incoming student mobility and one incoming teaching staff mobility

will be conducted and this trend should be continued.

Furthermore, in the CS field, the University has signed only three Erasmus+ contracts and the explanation is that the main reason to ensure that the programs that students can attend in foreign countries are aligned to their study program in order to avoid problems with differences in courses.

An example of good practice in the field of international collaboration is that Turiba University is currently putting an effort into the establishment of the double degree study in the CS field with a partner University from Finland. It will improve the international collaboration of the University and the teaching staff and enable students to get an international studying experience, as well as a double diploma.

3. A mandatory internship is integrated with both study programmes in the second and the last year of studies. The main goal of the internships is to practically apply the theoretical knowledge obtained on courses during the study. During internships, students work in companies and participate in company projects. After the internship students must write a report in accordance with the rules of project documentation, as well as to publicly defend the results obtained.

The University has an established system and process for applying for the internship and for the reporting. The University provides a list of companies that are offering internships and currently, there are more internships than the number of students included in the CS study programmes. If students fail to find an internship due to some reason the University is providing help and ensuring that each student gets the internship.

## **Conclusions. Strengths and weaknesses**

Cooperation with professional organisations and employers from the industry in the field of the evaluated study programmes is commendable in the field of student internships. However, it should be improved with more interaction and their involvement in the study process and achievement of the learning outcomes. Although the International department is putting a big effort into the promotion of the University currently, it is not resulting in incoming or outgoing mobility and therefore analysis is needed. As a part of the study program, mandatory internships are included and the University has an established system and process for applying for the internship and for the reporting.

Strengths:

1. Cooperation with the industry partners regarding the students' internships.
2. An established network of more than 100 partners from other study fields has been used to promote new study programmes.

Weaknesses:

1. Industry partners have not been included in the study programme development to a sufficient extent, and the current cooperation has a small contribution to the achievement of the study goals and learning outcomes.
2. A low number of students and teaching staff for incoming and outgoing mobility.

## **6. Implementation of the Recommendations Received During the Previous Assessment Procedures**

### **Analysis**

TU has analyzed the recommendations received during the previous assessment procedures – both for the professional bachelor's study program "Computer Systems" and first level professional higher education study program "Computer systems" – and either have implemented (or are in the

process of implementing) the necessary changes or have justified the reasons to not fulfil the recommendations. Yet some recommendations in expert groups' opinion are not fully implemented regardless of the justifications and explanations as described further in the analysis.

Some of the recommendations for both programmes were regarding the amount of 2 credit point (CP) study courses, which were recommended to be combined to offer more in-depth knowledge. TU has taken into account experts recommendations and implemented them before the beginning of the implementation of each study programme. TU has also improved study course succession and restructured the study courses offering foundation courses at the beginning of the study program according to experts' recommendation. More courses are being offered as part of block C (free choice). Content of the general study courses is updated to focus more on IT related topics.

TU justifies that study course descriptions are already following regulations of the Cabinet of Ministers, thus choosing to omit the recommendation to improve the study course descriptions. A mechanism for evaluating the qualification of lecturers is being developed to be able to determine their theoretical and practical knowledge – TU plans to implement this by the end of the academic year 2021./2022.

The material and technical base and infrastructure have been improved during the academic year 2019/2020: complete renovation of four computer classrooms and four lecture halls.

Since the previous assessment TU library resources have been substantially updated, including access to online databases, such as Scopus.

Experts had recommended improving the feedback system, which has been omitted by justifying that the existing system is already sufficient, yet there is still evidence that the feedback system is lacking which is explained in more detail in Part 1 Chapter II of this assessment report.

The low number of permanent elected academic staff, especially among academic staff teaching the special courses had been identified as a shortcoming previously, some improvements have been made, yet experts believe that more improvements are needed.

## **Conclusions. Strengths and weaknesses**

Overall TU has taken into account recommendations given the previous assessments. Most of them were concerning the study course succession and restructuring of the study programs. Changes were made before the implementation of the respective study program. The material and technical base was improved and is still developing. The lack of a feedback system and a low number of permanent elected teaching staff is still seen as a shortcoming.

Strengths:

1. TU has promptly implemented the recommendations given during the licensing procedures.

Weaknesses:

1. The lack of a feedback system for students.
2. A low number of permanent elected teaching staff.

## **7. Assessment of the Requirements for the Study Field**

- 1 Pursuant to Section 5, Paragraph 21 of the Law on Institutions of Higher Education, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study direction whilst implementing their internal quality assurance systems:

**Assessment of compliance:** Partially compliant

**Justification:** The internal quality policy has been developed and implemented in everyday work, study programmes and respective study courses are regularly updated and improved. TU is lacking a systemic approach for enhancing teaching staffs' professional and didactic skills, although training is available. Regular surveys are carried out to gather information about the student, graduate and employer satisfaction, yet some shortcomings are seen in ensuring the closure of the feedback loop, especially when it comes to students and employers.

- 2 1.1. The higher education institution/ college has established a policy and procedures for assuring the quality of higher education.

**Assessment of compliance:** Fully compliant

**Justification:** TU has developed and published a quality policy for assuring the quality and improving the teaching process in TU.

- 3 1.2. A mechanism for the development and internal approval of the study programmes of the higher education institution/ college, as well as the supervision of their performance and periodic inspection thereof has been developed.

**Assessment of compliance:** Fully compliant

**Justification:** A clear internal system has been implemented for the approval of new study programs.

- 4 1.3. The criteria, conditions, and procedures for the evaluation of students' results, which enable reassurance of the achievement of the intended learning outcomes, have been developed and made public.

**Assessment of compliance:** Fully compliant

**Justification:** Learning outcomes, as well as grading principles of the study courses are clearly defined in individual course descriptions. The main information about the study programmes is easily accessible via the main site of the University.

- 5 1.4. Internal procedures and mechanisms for assuring the qualifications of the academic staff and the work quality have been developed.

**Assessment of compliance:** Partially compliant

**Justification:** Although teaching staff have an opportunity to improve their professional and academic skills there is no systematic approach to teaching staff professional and didactic improvement. Therefore, an internal procedure or mechanisms for assuring the qualifications of the academic staff and the work quality should be established in a target-oriented manner based on the teaching staff current skills and needs.

- 6 1.5. The higher education institution/ college ensures the collection and analysis of the information on the study achievements of the students, employment of the graduates, satisfaction of the students with the study programme, efficiency of the work of the academic staff, the study funds available and the disbursements thereof, as well as the key performance indicators of the higher education institution/ college.

**Assessment of compliance:** Fully compliant

**Justification:** The internal quality policy describes the procedure of collecting feedback from students, graduates and employers. TU regularly collects this information and analyses, then implementing necessary changes.

- 7 1.6. The higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study direction whilst implementing their quality assurance systems.

**Assessment of compliance:** Partially compliant

**Justification:** The internal quality assurance system is in place and the steps to be taken are set out in internal policies. Regular surveys are carried out to gather information about the student, graduate and employer satisfaction, necessary changes and possible improvements. Yet closed feedback loop is lacking, especially when it comes to students and employers.

- 8 R2 - The cooperation with different organisations from Latvia and abroad implemented within the study direction ensures the achievement of the aims of the study direction.

**Assessment of compliance:** Partially compliant

**Justification:** The cooperation with different organisations from Latvia and abroad is mainly based on the internships or Erasmus+ program and it should be extended with industry involvement in the study program improvement, the study process and achievement of the learning outcomes.

- 9 R3 - Compliance of scientific research and artistic creation with the development level thereof (if applicable).

**Assessment of compliance:** Partially compliant

**Justification:** The institution has prepared a plan for the research support and initiatives, but scientific research is not carried out in practice. The plan was introduced through visiting time, it is not documented mechanism.

- 10 R4 - Elimination of the shortcomings and deficiencies identified during the previous assessment of the study direction, if it has been conducted, or the implementation of the provided recommendations.

**Assessment of compliance:** Partially compliant

**Justification:** All recommendations have been assessed. Most of them implemented, some are in process of implementation, but for some TU has provided justification for omitting to implement. In experts opinion some recommendations are not fully implemented regardless of the justifications and explanations as described in Part I Section 6 of the report.

## 8. Recommendations for the Study Field

### Short-term recommendations

Do more cooperation with industry and other universities – to improve contents and the teaching process.

Increase scientific work, because at this point there is no such work in the IT field in Turība university.

Offer training for teaching staff (both elected and visiting) to improve knowledge on the principles of student-centered learning.

Define the workflow of how student surveys are processed and the feedback affects the teaching process, more precise.

### Long-term recommendations

Delegate some responsibilities of managing the study field and the programmes to some other person to unload the only person being responsible for all.

Create clear rules to motivate lecturers for scientific work.

Ensure teaching staff is aware of the internal quality policy and follows its guidelines during the teaching process.

Provide the students and the teaching staff with access to online teaching platforms (like Udemy).

Motivate teaching staff to become permanently elected.

Define strategy for professional and didactic improvement of teaching staff.

## II. "Computer Systems" ASSESSMENT

## **II. "Computer Systems" ASSESSMENT**

### **1. Indicators Describing the Study Programme**

#### **Analysis**

The name of the study programme – Computer Systems (41484).

Full-Time studies with a duration of 2 years.

Amount of 80 CP.

Provided in the English language.

Qualification level awarded (NQF/EQF) 5.

Study program licensed in May 2020.

Professional qualification – Programmer.

The 8 objectives of the program correspond to the aim to educate and train professional specialists for commencing independent work in the field of informatics. Tasks are more abstract compared to the aim and in the future, it should be updated to include more specific knowledge to acquire in the computer science field.

For example, the aim indicates “to educate qualified programming specialists for practical work with computer software development and software based to the professional standards of a programmer”. However the tasks says “to educate and train students for work in a certain profession and in accordance with the set goal to provide students with the opportunity to successfully master the study program ...” In this situation, the task not saying nothing more detailed compared with the aim, it just expanded version of the aim. It could be recommended what tasks could include some software or algorithms design or programming skills, to understand special documentation, to know how to work in the team, how to find the required information and get abilities for life long learning.

Learning outcomes are adequate (13 outcomes) for the first level high education requirements and comply with the study program aim and objectives. Learning outcomes includes proportionally specific knowledge in computer science, also as a little bit in humanities and social sciences knowledge.

From matriculation to ex matriculation, the student acquires the skills and competencies appropriate to the program aims, tasks and learning outcomes and gains skills and competencies that correspond to the qualification to be obtained – Programmer (APPROVED by the Order No. 145 of the Ministry of Education and Science of March 12, 2001 Amendments of December 29, 2003, No. 649, available at: <https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/ps0001.pdf>). This is a very old standard, but the situation is acceptable as a newer standard had been issued, but due to a legislation procedure has lost its power, and this is not the responsibility of an HEI to provide professional standards. A new standard had been issued but has lost its power.

Admission requirements also comply with the regulations, where persons with secondary education can apply for the study program "Computer Systems". Enrollment in the program takes place through a competition based on the results of centralized examinations in Mathematics, Latvian and English. Entrance tests in mathematics and English are currently being developed, refer to enrollment regulations in the appendix.

For persons with special needs and foreign persons: a final mark in a certificate or diploma, or a state examination, or a test in computer science or programming, algebra or mathematics, physics or natural sciences.



To meet study program regulation and qualification requirements, the institution and study program uses external state documents.

Cabinet of Ministers Regulation No. 141, Riga, March 20, 2001 (i.e.. No. 12 5§) "Regulations on the state standards for first level professional higher education". Retrieved from: <https://likumi.lv/doc.php?id=6397>

Academic Information Centre. Higher education level (LKI 5.-8. level) Retrieved from: <https://www.latvijaskvalifikacijas.lv/izglitibas-sistema/>

## **Conclusions by specifying the strengths and weaknesses**

The aim, tasks and learning outcomes of the study program are correctly formulated and correspond to the state and internal documents. The aim, tasks and results of the studies are mutually compatible and do not contradict each other and are sufficient. The study results are more focused on practical activities and this is fully in line with the goals of this qualification. Admission to studies is made according to external and internal requirements after graduating from high school.

Strengths:

1. All indicators describing the study program are well prepared according to external state and university regulation documents.

Weaknesses

1. Programme tasks are more abstract comparing with the aim and could be in the future updated to be more oriented to the computer system study program

## **2. The Content of Studies and Implementation Thereof**

### **Analysis**

1. The contents of the study programme have been built to follow the requirements of state regulations – "Regulations on the State Standard of First Level Professional Higher Education", "Environmental Protection Law", and "Civil Protection Law", as well as the professional standard of programmers. The contents of study courses are considered to be relevant and following trends of modern software development. The programme content is logically spread over the study period ensuring a gradual increase of topicality and complexity. It is to be praised that the three top programming languages (Java, C#, and Python) are taught in the programme. The traineeship is arranged in the 3rd semester as Pre-qualification work practice (16 credits). Requirements for mandatory amounts of specific study forms and contents set by the regulations are obeyed. Learning outcomes of study courses are clearly defined. Detailed course descriptions could have been better designed: (1) descriptions of all courses are presented in two independent portions, following each other with a lot of overlapping information (description of marks, and partially description of course contents), (2) a lot of very general information, common to all courses (e.g., meanings of marks/grades 1..10) included in the individual descriptions, making the overall description unnecessarily bloated and not so easy to follow. As for the contents of the courses, there are some issues detected: (1) Course "Software testing and quality" is very specialized, the courses title actually doesn't represent the contents, (2) Course "Software development fundamentals 2" is based on Java programming language, but some of the topics are C++-specific, (3) the programme has 4 different programming courses (Software development fundamentals 1,2,3,4), the same as in the bachelor programme, but 3 out of 4 courses have a different amount of credits, but the differences between the twin courses are not always evident, e.g., both versions of course "Software development fundamentals 4" are almost identical, (4) absence of such important software engineering topics as requirements engineering and software design in the contents (though

partially touched in the course “Enterprise Continuous Application Software Integration”). It is said that after successful completion of the programme a student can continue the studies in the Bachelor's study programme “Computer Systems” starting from the 3rd study year, however, it is not clear how.

The presented study content (the descriptions of the study courses/modules, the traineeship, and the final thesis) is relevant for meeting the aims of the study programme and following industry trends.

2. Educators use a wide range of teaching methods (lectures, seminars, discussions, individual work, and others), and for each study course, the lecturer chooses the most appropriate teaching method that best contributes to the achievement of the learning outcomes of the study course and the whole study program. According to the report, lecturers regularly evaluate and improve study course teaching methods, and follow the implementation of student-centred teaching and learning in their work process. However in some cases, lecturers have just a small pedagogical experience and the minimum required education level, and according to what the experts observed in the meeting, lecturers should have known more about educational/pedagogical methods and their usage. The assessors are familiar with assessment and assessment methods, the assessment criteria and methods, are made public in advance, and Turiba University has appropriate procedures for resolving student complaints if needed. Student-centred learning is additionally provided by having the requirements, the results, and percentage distribution for the study courses clearly defined. During the internship, the student works in the company, and the evaluation is made from the company report, student's report, and report defence. The qualification work and its defence are evaluated by the State Examination Commission in accordance with the regulations of the State examination. The experts believe that the study program is being implemented following student-centred learning principles, and the implementation methods lead to the achievement of the study outcomes.

3. BAT regularly conducts student surveys, however, it is not clear how exactly the results are processed and spread and how the students can be sure it has an impact on the quality of studies. The programme has also benefited from cooperation with employers, taking into account the actual industry trends, e.g., in programming courses C++ language has changed to Java, and the course “Enterprise Continuous Application Software Integration” was introduced to the programme.

4. There is no student mobility at the moment, as the study programme started just last year. The interview with the students showed that conceptually students are aware of mobility opportunities, and such information is available on the main site.

### **Conclusions by specifying the strengths and weaknesses**

The presented study content is relevant for meeting the aims of the study programme and following industry trends.

The contents of study courses are considered to be relevant and following trends of modern software development. The programme content is logically spread over the study period ensuring a gradual increase of topicality and complexity. Three top programming languages are taught in the programme.

Learning outcomes of study courses are clearly defined.

Course “Software testing and quality” is too narrow in terms of the contents, the course title actually doesn't represent the contents

A set of courses “Software development fundamentals” should be positioned clearer against the same set of courses in the bachelor programme.

The experts believe that the study program is being implemented following student-centred learning principles, and the implementation methods lead to the achievement of the study outcomes.

In some cases, lecturers have just a small pedagogical experience, and according to what the experts observed in the meeting, lecturers should have known more about educational/pedagogical methods and their usage.

BAT regularly conducts student surveys, however, it is not clear how exactly the results are processed and spread, and how the students can be sure it has an impact on the quality of studies.

The programme has also benefited from cooperation with employers, taking into account the actual industry trends.

Conceptually students are aware of mobility opportunities, but there is no real mobility by now as the programme started just last year.

Strengths:

1. The contents of study courses are considered to be relevant and following trends of modern software development.
2. The programme content is logically spread over the study period ensuring a gradual increase of topicality and complexity.
3. Three top programming languages are taught in the programme.
4. Learning outcomes of study courses are clearly defined.

Weaknesses:

1. Course “Software testing and quality” is too narrow in terms of the contents, the course title actually doesn’t represent the contents
2. A set of courses “Software development fundamentals” is not positioned clear enough against the same set of courses in the bachelor programme.
3. Some lecturers should have known more about educational/pedagogical methods and their usage.
4. It is not clear how exactly the results of student surveys are processed and spread, and how the students can be sure it has an impact on the quality of studies.
5. There are differences between the contents of this programme and the first two years of the bachelor programme to possibly make pathway to bachelor programme not automatic.

### **3. Resources and Provision of the Study Programme**

#### **Analysis**

1. Turiba University has proven processes and resources to drive study programs. University has calculated and followed the needed costs per student. Based on the fact that the most of needed resources are being shared with other University study programs, then this helps to keep costs per student manageable during the first years of the study program initiation. This includes a library with an online catalogue, access to scientific researches, several labs for practical work. The internal BATIS system is the key collaboration channel between students, institution staff and units. University has ensured the remote study process using BATIS, Moodle and Zoom as a digital platform to deliver study courses. Classes are equipped with hardware to deliver qualitative content for remotely connected students.

The teaching staff is utilizing available systems and is able to effectively collaborate with students both during lectures and practical classes. During the sessions with students and teachers (separately) both groups explained and confirmed well-organized face-to-face and remote classes. During practical classes, teachers can connect and validate applications developed by students.

For most of the study courses referenced supplementary literature is ad hoc located on the internet or is physically available in the library or in a bookstore. Students and teachers don’t have access to online study platforms like Coursera, Udemy or others.

## **Conclusions by specifying the strengths and weaknesses**

Students are fully equipped with all necessary to achieve learning objectives and are able to leverage the mature and proven resources of Turiba University. Solid experience in establishing new study programs, delivering physical and remote classes in other study programs ensures the best experience for students in this study program.

Strengths:

1. Internal BATIS platform for collaboration between students, teachers and units speeds up and automates multiple internal processes and supports students in their studies.
2. University leverages proven methods and tools for the delivery of the studies in a remote way.

Weaknesses:

1. No access to online study programs that could support teachers and students to better achieve learning outcomes.

## **4. Teaching Staff**

### **Analysis**

1. Only two permanently employed teachers are giving courses from the CS field and the study programme is highly dependent on them. The management has a plan to improve the number of permanent teachers with a CS background but since the study programme is at the beginning it is conducted mainly by visiting lecturers. Their attraction and selection have been done in a targeted manner by evaluating their academic and professional performance, as well as course assignment that has been done based on the teachers' background and professional experience. An example of good practice is that all teaching staff and visiting lecturers are evaluated every year and based on the results necessary measures are taken such as replacing teachers if necessary and selecting new ones.

Although the CS study programme is highly dependent on the visiting lecturers, Turiba University is taking necessary measures in order to keep the study programme quality regardless of the changes in the composition of the teaching staff.

2. Overall, at Turiba University 23 lecturers are involved in this study where 9 of them are elected, 12 are visiting teachers, 5 are lecturers, 6 are guest lecturers, 3 are professors, 2 are visiting professors, 3 are guest docents and 1 is a guest assistant. In total 11 teachers have a PhD degree, 11 teachers master degree and one bachelor degree. The teacher with a bachelor degree has more than three and half years of working experience and the expert committee got positive feedback during the meeting with students regarding his work, approach and knowledge. Based on the teachers CVs and online professional profile it can be concluded that the existing teaching staff both internal and visiting involved in the implementation of the study programme has adequate qualifications and proven experience in the CS field required for the study programme implementation and achievement of the learning outcomes. This has also been confirmed during the meeting with students who stated that in general, the teachers have satisfied knowledge and that they can transfer it to students. Moreover, students think that at the end of each course they get the planned set of skills, although they are not aware of the term "learning outcome". One concern was raised by the students and it includes the level of English language of teachers that according to the students is overall satisfying but they also think that it could be better. Furthermore, there is no evidence that the results of scientific research are integrated into the study process.

Furthermore, continuous evaluation of the study process, by using various forms and methods of diagnostics such as student surveys is carried out at the end of each study course and once a year

on the whole study process which gives useful feedback on the quality of teaching as well as teachers.

3. The doctoral study programme is not applicable to Turiba University.

4. The involvement of the teaching staff in the scientific research should be improved since from the provided list of publications only two teachers have publications related to the CS field but the number is low.

An example of good practice is the next annual international conference organized by Turiba University in the field of artificial intelligence and green thinking. This conference is an opportunity for teachers to publish their research results, use them in teaching, as well as to involve students.

5. Collaboration between the teaching staff is based on several activities such as their mutual participation in various seminars, organizations of regular meetings at the university, organization of an annual conference at Turiba university and social events like Christmas and summer dinners. During all aforementioned activities, teachers get an opportunity to exchange their teaching experience as well as to discuss possibilities of study process development and improvement. During the meeting with teachers, several examples of collaboration between teachers were mentioned and the advice is to further increase it specifically for the improvement of the study courses.

### **Conclusions by specifying the strengths and weaknesses**

The overall qualifications of the teaching staff are satisfying as well as initiatives provided by the university for mutual collaboration among teachers. However, the study programme is conducted mainly by the visiting teachers since only two teachers with the CS background are permanently employed and the whole study programme is highly dependent on them. Furthermore, overall the scientific activity of teachers is low and consequently it results in not applying the research results in teaching.

#### **Strengths:**

1. The external teaching staff has proven qualifications and experience, specifically in the CS field that fills the missing qualifications of the permanently employed staff, improves overall qualifications of lecturers involved in the study program and contributes to the achievement of the learning outcomes.

2. Turiba annual international scientific conferences that enable the participation of teachers and students

Encouragement of cooperation between teaching staff by organizing various seminars, scientific conferences, social events, etc.

#### **Weaknesses:**

1. Only two out of five permanently employed teachers have qualifications and background in the CS field.

2. Low scientific activity of teachers.

## **5. Assessment of the Compliance of the Study Programme "Computer Systems"**

### **Requirements**

1. The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure by which state-recognised documents of higher education are issued.

**Assessment of compliance:** Fully compliant

**Justification:** The report describes the diploma and diploma supplement, and it complies with the Cabinet regulations nr. 220 from 16.04.2013.

- 2 2. Documents confirming that the higher education institution/ college will provide the students with the options to continue the acquisition of education in another study programme or at another higher education institution/ college (a contract with another accredited higher education institution/ college), in case the implementation of the study programme is discontinued.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides the collaboration agreement with Ventspils University of Applied Sciences (Ventspils Augstskola).

- 3 3. Document confirming that the higher education institution/ college guarantees to the students a compensation for losses if the study programme is not accredited or the licence of the study programme is revoked due to the actions of the higher education institution/ college (actions or failure to act) and the student does not wish to continue the studies in another study programme.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides certification by the rector.

- 4 4. The teaching staff members involved in the implementation of the study programme are proficient in the official language in accordance with the regulations on the level of the official language knowledge and the procedures for testing official language proficiency for performing professional duties and office duties.

**Assessment of compliance:** Fully compliant

**Justification:** According to academic staff CV (annex 4.2), their proficiency of the state language is on the highest level as for most of them it is their mother tongue.

- 5 5. The teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language, if the study programme or any part thereof is to be implemented in a foreign language.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides the English language level for all teachers involved in the program.

- 6 6. At least five teaching staff members with a doctoral degree are among the academic staff of an academic doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field of science. At least five teaching staff members with a doctoral degree are among the academic staff of a professional doctoral study programme in arts.

**Assessment of compliance:** Not relevant

**Justification:**

- 7 7. The academic staff of the academic study programme complies with the requirements set forth in Section 55, Paragraph one, Clause 3 of the Law on Institutions of Higher Education.

**Assessment of compliance:** Not relevant

**Justification:** This is a professional programme.

- 8 8. The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides a sample study agreement.

- 9 9. The descriptions of the study courses and the study materials have been prepared in all languages in which the study programme is implemented, and they comply with the requirements set forth in Section 56.1, Paragraph two and Section 56.2, Paragraph two of the Law on Institutions of Higher Education.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides the description of all courses of the programme (in English), study materials are available in the BATIS system.

- 10 10. The study programme complies with the valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided that the completion of the study programme leads to a professional qualification.

**Assessment of compliance:** Fully compliant

**Justification:** The report describes compatibility with the standard. This is a very old standard (the year 2001), but it is acceptable: (1) a newer standard had been issued, but due to a legislation procedure has lost its power, (2) this is not the responsibility of an HEI to provide professional standards.

- 11 11. Academic study programmes provided for less than 250 full-time students may be implemented and less than five professors and associated professors of the higher education institution may be involved in the implementation of the mandatory and limited elective part of these study programmes provided that the relevant opinion of the Council for Higher Education has been received in accordance with Section 55, Paragraph two of the Law on Institutions of Higher Education.

**Assessment of compliance:** Not relevant

**Justification:** This is a professional study programme.

- 12 12. The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard.

**Assessment of compliance:** Fully compliant

**Justification:** The report describes the correspondence of the programme to "Regulations on the State Standard of First Level Professional Higher Education", "Environmental Protection Law", and "Civil Protection Law"

- 13 13. The joint study programmes comply with the requirements prescribed in Section 551, Paragraphs one, two, and seven of the Law on Institutions of Higher Education (if applicable).

**Assessment of compliance:** Not relevant

**Justification:**

- 14 14. Each member of the academic staff has either publications published in reviewed editions within the last six years, including international editions (if they have worked for a shorter period of time, the number of publications shall be in proportion to the work period), or artistic creation achievements (for instance, exhibitions, films, theatre performances, and concert activity), or a five-year practical work experience (except for the experience in the implementation of the study programme) in accordance with the Law on Institutions of Higher Education.

**Assessment of compliance:** Fully compliant

**Justification:** Each member of the permanently employed academic staff has either publications published in reviewed editions within the last six years or a five-year practical work experience in accordance with the Law on Institutions of Higher Education and Cabinet Regulations Nr 129.

- 15 P5 - Overall rating

**Assessment of compliance:** Fully compliant

**Justification:** The study programme is properly prepared, meets all the requirements, but there are a number of shortcomings that need to be addressed. The small number of full-time lecturers and their lower qualifications affect the slightly worse results of the study programme than we would expect. More active scientific work is expected. A large number of lecturers from business allows to diversify the tasks of applied research. In addition, a good supply of teaching materials for students allows for quality studies.

## Requirements (R6-R8)

- 1 R6 - The compliance of the study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision with the conditions for the implementation of the study programme and ensuring the achievement of the learning outcomes.

**Assessment of compliance:** Fully compliant

**Justification:** TU has fully ensured study program, students and personnel with all necessary artifacts including internal information and collaboration system (BATIS), physical and virtual libraries also covering scientific collections, several fully equipped laboratories, remote learning capabilities and financial model to support achievement of the learning outcomes.

- 2 R7 - The compliance of the qualification of the academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides all details on the teaching staff qualifications, education and work experience.

- 3 R8 - The study programme leading to the master or doctoral degree is based on the advances and findings in the relevant field of science or artistic creation.

**Assessment of compliance:** Not relevant

**Justification:**

### **Conclusions by specifying the strengths and weaknesses**

The study programme complies with State Educational standards, as well as the professional standard. The overall qualifications of the teaching staff are satisfying

Strengths:

1. The contents of study courses are relevant and following trends of modern software development.
2. The external teaching staff has proven qualifications and experience, specifically in the CS field that fills the missing qualifications of the permanently employed staff, improves overall qualifications of lecturers involved in the study program and contributes to the achievement of the learning outcomes.
3. The aim, tasks and results of the studies are mutually compatible and do not contradict each other and are sufficient.
4. The study results are more focused on practical activities and this is fully in line with the goals of this qualification.
5. Admission to studies is made according to external and internal requirements after graduating from high school.
6. All indicators describing the study program are well prepared according to external state and university regulation documents.

Weaknesses:

1. The contents and integrity of some study courses.
2. Only two out of five permanently employed teachers have qualifications and background in the CS field.
3. Low scientific activity of teachers as well as not applying the scientific results and findings in the teaching process.

### **Evaluation of the study programme "Computer Systems"**

Evaluation of the study programme:



Good

## 6. Recommendations for the Study Programme "Computer Systems"

### Short-term recommendations

Define the workflow of how student surveys are processed and the feedback affects the teaching process, more precise.

Offer training for teaching staff (both elected and visiting) to improve knowledge on the principles of student-centered learning.

Revise the contents of the course "Software testing and quality" to correspond to the title.

Align the contents of this programme (differences in the programming courses, the course in databases, internship, qualification work) to the contents of the first two years of the bachelor programme to provide clearer pathway to it.

### Long-term recommendations

Programme tasks should be updated to be more concrete being more oriented to the computer system study program.

Provide the students and the teaching staff with access to online teaching platforms (like Udemy).

Increase scientific work, create clear rules to motivate lecturers for scientific work.

Increase full-time and elected teaching staff ratio for IT field courses.

Motivate teaching staff to become permanently elected.

## II. "Computer Systems" ASSESSMENT

### II. "Computer Systems" ASSESSMENT

#### 1. Indicators Describing the Study Programme

##### Analysis

The name of the study programme – Computer Systems (42484).

Full-Time studies with a duration of 4 years.

Amount of 160 CP.

Provided in the English language.

Qualification level awarded (NQF/EQF) 6.

Professional qualification – Software Engineer.

Study program licensed in June 2018.

The aims, tasks and learning outcomes of the program are set out according to the professional qualification - Software Engineer.

The professional standard of Software Engineer (Professional code - 2512 02)  
<https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/ps0227.pdf>

The 7 objectives of the program correspond to the aim to educate and train professional specialists

for independent work in the field of information technology. Tasks are well and clear prepared.

Learning outcomes are adequate (16 outcomes) for the Professional bachelor study programme and comply with the study program aim and objectives. Learning outcomes includes proportionally specific knowledge in computer and fundamental science, also as a little bit in humanities and social sciences knowledge.

It is good practice to show more fundamental, mathematical analysis, overall computer systems analytics as the high level acquired knowledge for bachelor studies comparing with the first level studies. At this time the bachelor level professional by context and first level learning outcomes differs only by "able to critically analyze the problem ..." outcome. Other outcomes are good for both study programs, but the first level students could not work properly if they do not know how to debug the written code, however, this ability indicated only in the professional bachelor study program.

From matriculation to ex matriculation, the student acquires the skills and competencies appropriate to the program aims, tasks and learning outcomes and gains skills and competencies that correspond to the qualification to be obtained - Software Engineer.

The enrolment requirements - secondary education, are in line with the programme's objective, objectives and learning outcomes, so that the student can begin the study process and obtain the education he or she desires. Admission to the study programs "Computer Systems" takes place on a competitive basis on the basis of centralized examination in the following subjects: Latvian, English and Mathematics, except persons who have completed secondary education before 2004, persons who have completed secondary education abroad or persons with special needs. The benefit is given to winners of the Mathematics, Physics or Informatics Olympiad. In the case of equal points, preference is given to the applicant who has concluded a contract with the University (TU) earlier.

Persons who have completed secondary education abroad shall be enrolled in basic study programmes based on the assessments recorded in the document certifying secondary education in the study subjects - Native language in the country where the persons completed secondary education and foreign language (English, German, French or Russian). The assessment shall be compared to the centralised examination assessment in accordance with clause 2.16.herein.

Foreign applicants who wish to study in the study programs "Computer Systems" shall appear for a Mathematics test along with an English language test. Applicants who receive 60-100% of the total points in mathematics can be enrolled in the study programs "Computer Systems".

### **Conclusions by specifying the strengths and weaknesses**

The aim, tasks and learning outcomes of the study program are correctly formulated and correspond to the state and internal documents. The aim, tasks and results of the studies are mutually compatible and do not contradict each other and are sufficient. The study results are more focused on practical activities and this is fully in line with the goals of this qualification. Admission to studies is made according to external and internal requirements after graduating from high school.

Strengths:

1. All indicators describing the study program are well prepared according to external state and university regulation documents.

Weaknesses:

1. Learning outcomes are similar to the first level professional higher education study programme and do not give the students a qualitative advantage over the mentioned lower-level qualifications.

## **2. The Content of Studies and Implementation Thereof**

### **Analysis**

1. The contents of the study programme have been built to follow the requirements of state regulations, such as “Regulations on the second level professional higher education state standard”, “Environmental Protection Law”, and “Civil Protection Law”, as well as the professional standard of programming engineers. The contents of study courses are considered to be relevant and following trends of modern software development. The programme content is logically spread over the study period ensuring a gradual increase of topicality and complexity. It is to be praised that the three top programming languages (Java, C#, and Python) are taught in the programme. The traineeship is divided into two parts – Practice (12 credits in semester 4) and Pre-Diploma practice (8 credits in semester 8). Requirements for mandatory amounts of specific study forms and contents set by the regulations are obeyed. Learning outcomes of study courses are clearly defined. Detailed course descriptions could have been better designed: (1) descriptions of all courses are presented in two independent portions, following each other with a lot of overlapping information (description of marks, and partially description of course contents), (2) a lot of very general information, common to all courses (e.g., meanings of marks/grades 1..10) included in the individual descriptions, making the overall description unnecessarily bloated and not so easy to follow. As for the contents of the courses, there are some issues detected: (1) Course “Software testing and quality” is very specialized, the course title actually doesn’t represent the contents, (2) Course “Software development fundamentals 2” is based on Java programming language, but some of the topics are C++-specific, (3) the programme has 4 different programming courses (Software development fundamentals 1,2,3,4), the same as in the first level programme, but 3 out of 4 courses have a different amount of credits, but the differences between the twin courses are not always evident, e.g., both versions of course “Software development fundamentals 4” are almost identical, (4) absence of such important software engineering topics as requirements engineering and software design in the contents (though partially touched in the course “Enterprise Continuous Application Software Integration”).

The presented study content (the descriptions of the study courses/modules, the traineeship, and the final thesis) is relevant for meeting the aims of the study programme and following industry trends.

2. Educators use a wide range of teaching methods (lectures, seminars, discussions, individual work, and others), and for each study course, the lecturer chooses the most appropriate teaching method that best contributes to the achievement of the learning outcomes of the study course and the whole study program. According to the report, lecturers regularly evaluate and improve study course teaching methods, and follow the implementation of student-centred teaching and learning in their work process. However in some cases, lecturers have just a small pedagogical experience and the minimum required education level, and according to what the experts observed in the meeting, lecturers should have known more about educational/pedagogical methods and their usage. The assessors are familiar with assessment and assessment methods, the assessment criteria and methods, are made public in advance, and Turiba University has appropriate procedures for resolving student complaints if needed. Student-centred learning is additionally provided by having the requirements, the results, and percentage distribution for the study courses clearly defined. During the internship, the student works in the company, and the evaluation is made from the company report, student’s report, and report defence. The bachelor work and its defence are evaluated by the State Examination Commission in accordance with the regulations of the State

examination. The experts believe that the study program is being implemented following student-centred learning principles, and the implementation methods lead to the achievement of the study outcomes.

3. BAT regularly conducts student surveys, however, it is not clear how exactly the results are processed and spread, and how the students can be sure it has an impact on the quality of studies. The programme has also benefited from cooperation with employers, taking into account the actual industry trends, e.g., in programming courses C++ language has changed to Java, and the course “Enterprise Continuous Application Software Integration” was introduced to the programme.

4. During the previous years, there were 2 incoming mobility students and no outgoing mobility students in the programme. The main reasons for low mobility are that the study programme has started very recently, as well as the impact of the pandemics.

The interview with the students showed that conceptually students are aware of mobility opportunities, and such information is available on the main site.

### **Conclusions by specifying the strengths and weaknesses**

The presented study content is relevant for meeting the aims of the study programme and following industry trends.

The contents of study courses are considered to be relevant and following trends of modern software development. The programme contents are logically spread over the study period ensuring a gradual increase of topicality and complexity. Three top programming languages are taught in the programme.

Learning outcomes of study courses are clearly defined.

Course “Software testing and quality” is too narrow in terms of the contents, the course title actually doesn’t represent the contents

A set of courses “Software development fundamentals” should be positioned clearer against the same set of courses in the first level programme.

The experts believe that the study program is being implemented following student-centred learning principles, and the implementation methods lead to the achievement of the study outcomes.

In some cases, lecturers have just a small pedagogical experience, and according to what the experts observed in the meeting, lecturers should have known more about educational/pedagogical methods and their usage.

BAT regularly conducts student surveys, however, it is not clear how exactly the results are processed and spread, and how the students can be sure it has an impact on the quality of studies.

The programme has also benefited from cooperation with employers, taking into account the actual industry trends.

Conceptually students are aware of mobility opportunities, but there is no real outgoing mobility by now.

#### **Strengths:**

1. The contents of study courses are considered to be relevant and following trends of modern software development.
2. The programme content is logically spread over the study period ensuring a gradual increase of topicality and complexity.
3. Three top programming languages are taught in the programme.
4. Learning outcomes of study courses are clearly defined.

#### **Weaknesses:**

1. Course “Software testing and quality” is too narrow in terms of the contents, the course title actually doesn’t represent the contents
2. A set of courses “Software development fundamentals” should be positioned clearer against the same set of courses in the first level programme.
3. Some lecturers should have known more about educational/pedagogical methods and their usage.
4. It is not clear how exactly the results of student surveys are processed and spread, and how the students can be sure it has an impact on the quality of studies.
5. There is no real outgoing mobility

### **3. Resources and Provision of the Study Programme**

#### **Analysis**

1. Turiba University has proven processes and resources to drive study programs. University has calculated and followed the needed costs per student. Based on the fact that the most of needed resources are being shared with other University study programs, then this helps to keep costs per student manageable during the first years of the study program initiation. This includes a library with an online catalogue, access to scientific researches, several labs for practical work. The internal BATIS system is the key collaboration channel between students, institution staff and units. University has ensured the remote study process using BATIS, Moodle and Zoom as a digital platform to deliver study courses. Classes are equipped with hardware to deliver qualitative content for remotely connected students.

The teaching staff is utilizing available systems and is able to effectively collaborate with students both during lectures and practical classes. During the sessions with students and teachers (separately) both groups explained and confirmed well-organized face-to-face and remote classes. During practical classes, teachers can connect and validate applications developed by students. For most of the study courses referenced supplementary literature is ad hoc located on the internet or is physically available in the library or in a bookstore. Students and teachers don’t have access to online study platforms like Coursera, Udemy or others.

2. The study provision and the scientific support, including the resources provided within the cooperation with other scientific institutions and institutions of higher education, comply with the requirements for the implementation of the doctoral study programme, create the prerequisites for the achievement of learning and research outcomes, and indicate the possibility to ensure a high-quality study process also in the future (if applicable).

The doctoral study programme is not applicable to Turiba University.

#### **Conclusions by specifying the strengths and weaknesses**

Students are fully equipped with all necessary to achieve learning objectives and are able to leverage the mature and proven resources of Turiba University. Solid experience in establishing new study programs, delivering physical and remote classes in other study programs ensures the best experience for students in this study program.

Strengths:

1. Internal BATIS platform for collaboration between students, teachers and units speeds up and automates multiple internal processes and supports students in their studies.
2. University leverages proven methods and tools for delivery of the studies in a remote way.

Weaknesses:

1. No access to online study programs that could support teachers and students to better achieve learning outcomes.

#### **4. Teaching Staff**

##### **Analysis**

1. Only two permanently employed teachers are giving courses from the CS field and the study programme is highly dependent on them. The management has a plan to improve the number of permanent teachers with the CS background but since the study programme is at the beginning it is conducted mainly by visiting lecturers. Their attraction and selection have been done in a targeted manner by evaluating their academic and professional performance, as well as course assignment that has been done based on the teachers' background and professional experience. An example of good practice is that all teaching staff and visiting lecturers are evaluated every year and based on the results necessary measures are taken such as replacing teachers if necessary and selecting new ones.

Although the CS study programme is highly dependent on the visiting lecturers, Turiba University is taking necessary measures in order to keep the study programme quality regardless of the changes in the composition of the teaching staff.

2. Overall, at Turiba University 12 lecturers are involved in the study process where 4 of them are elected, 8 are visiting teachers, 2 are lecturers, 6 are guest lecturers, 2 are professors, 1 is visiting professors, 6 are guest docents and 1 is a guest assistant. In total 4 teachers have a PhD degree, 7 master degree and one bachelor degree. The teacher with a bachelor degree has more than three and half years of working experience and the expert committee got positive feedback during the meeting with students regarding his work, approach and knowledge. Based on the teachers CVs and online professional profile it can be concluded that the existing teaching staff both internal and visiting involved in the implementation of the study programme has adequate qualifications and proven experience in the CS field required for the study programme implementation and achievement of the learning outcomes. This has also been confirmed during the meeting with students who stated that in general, the teachers have satisfied knowledge and that they can transfer it to students. Moreover, students think that at the end of each course they get the planned set of skills, although they are not aware of the term "learning outcome". One concern was raised by the students and it includes the level of English language of teachers that according to the students is overall satisfying but they also think that it could be better. Furthermore, there is no evidence that the results of scientific research are integrated into the study process.

Furthermore, continuous evaluation of the study process, by using various forms and methods of diagnostics such as student surveys is carried out at the end of each study course and once a year on the whole study process which gives useful feedback on the quality of teaching as well as teachers.

3. -

4. The involvement of the teaching staff in the scientific research should be improved since from the provided list of publications only two teachers have publications related to the CS field but the number is low.

An example of good practice is the next annual international conference organized by Turiba University in the field of artificial intelligence and green thinking. This conference is an opportunity for teachers to publish their research results, use them in teaching, as well as to involve students.

5. Collaboration between the teaching staff is based on several activities such as their mutual participation in various seminars, organizations of regular meetings at the university, organization of an annual conference at Turiba university and social events like Christmas and summer dinners. During all aforementioned activities, teachers get the opportunity to exchange their teaching experience as well as to discuss possibilities of study process development and improvement. During the meeting with teachers, several examples of collaboration between teachers were mentioned and the advice is to further increase it specifically for the improvement of the study courses.

### **Conclusions by specifying the strengths and weaknesses**

The overall qualifications of the teaching staff are satisfying as well as initiatives provided by the university for mutual collaboration among teachers. However, the study programme is conducted mainly by the visiting teachers since only two teachers with the CS background are permanently employed and the whole study programme is highly dependent on them. Furthermore, overall the scientific activity of teachers is low and consequently it results in not applying the research results in teaching.

#### **Strengths:**

1. The external teaching staff has proven qualifications and experience, specifically in the CS field that fills the missing qualifications of the permanently employed staff, improves 2. overall qualifications of lecturers involved in the study program and contributes to the achievement of the learning outcomes.
3. Turiba annual international scientific conferences that enable the participation of teachers and students
4. Encouragement of cooperation between teaching staff by organizing various seminars, scientific conferences, social events, etc.

#### **Weaknesses:**

1. Only two out of five permanently employed teachers have qualifications and background in the CS field
2. Low scientific activity of teachers as well as not applying the scientific results and findings in the teaching process

## **5. Assessment of the Compliance of the Study Programme "Computer Systems"**

### **Requirements**

1. The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure by which state-recognised documents of higher education are issued.

**Assessment of compliance:** Fully compliant

**Justification:** The report describes the diploma and diploma supplement, and it complies with the Cabinet regulations nr. 220 from 16.04.2013.

2. Documents confirming that the higher education institution/ college will provide the students with the options to continue the acquisition of education in another study programme or at another higher education institution/ college (a contract with another accredited higher education institution/ college), in case the implementation of the study programme is discontinued.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides the collaboration agreement with Ventspils University of Applied Sciences (Ventspils Augstskola).

- 3 3. Document confirming that the higher education institution/ college guarantees to the students a compensation for losses if the study programme is not accredited or the licence of the study programme is revoked due to the actions of the higher education institution/ college (actions or failure to act) and the student does not wish to continue the studies in another study programme.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides the needed certification by the rector.

- 4 4. The teaching staff members involved in the implementation of the study programme are proficient in the official language in accordance with the regulations on the level of the official language knowledge and the procedures for testing official language proficiency for performing professional duties and office duties.

**Assessment of compliance:** Fully compliant

**Justification:** According to academic staff CV (annex 4.2), their proficiency of the state language is on the highest level as for most of them it is their mother tongue.

- 5 5. The teaching staff members to be involved in the implementation of the study programme have at least B2-level knowledge of a related foreign language, if the study programme or any part thereof is to be implemented in a foreign language.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides the English language level for all teachers involved in the program.

- 6 6. At least five teaching staff members with a doctoral degree are among the academic staff of an academic doctoral study programme, at least three of which are experts approved by the Latvian Science Council in the respective field of science. At least five teaching staff members with a doctoral degree are among the academic staff of a professional doctoral study programme in arts.

**Assessment of compliance:** Not relevant

**Justification:**

- 7 7. The academic staff of the academic study programme complies with the requirements set forth in Section 55, Paragraph one, Clause 3 of the Law on Institutions of Higher Education.

**Assessment of compliance:** Not relevant

**Justification:** This is a professional programme.

- 8 8. The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides a sample study agreement.

- 9 9. The descriptions of the study courses and the study materials have been prepared in all languages in which the study programme is implemented, and they comply with the requirements set forth in Section 56.1, Paragraph two and Section 56.2, Paragraph two of the Law on Institutions of Higher Education.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides the description of all courses of the programme (in English), study materials are available in the BATIS system.

- 10 10. The study programme complies with the valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided that the completion of the study programme leads to a professional qualification.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides correspondence to "Professional standard – programming engineer".



- 11 11. Academic study programmes provided for less than 250 full-time students may be implemented and less than five professors and associated professors of the higher education institution may be involved in the implementation of the mandatory and limited elective part of these study programmes provided that the relevant opinion of the Council for Higher Education has been received in accordance with Section 55, Paragraph two of the Law on Institutions of Higher Education.

**Assessment of compliance:** Not relevant

**Justification:** This is a professional programme.

- 12 12. The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard.

**Assessment of compliance:** Fully compliant

**Justification:** The report describes the correspondence of the programme to "Regulations on the second level professional higher education state standard", "Environmental Protection Law", and "Civil Protection Law".

- 13 13. The joint study programmes comply with the requirements prescribed in Section 551, Paragraphs one, two, and seven of the Law on Institutions of Higher Education (if applicable).

**Assessment of compliance:** Not relevant

**Justification:**

- 14 14. Each member of the academic staff has either publications published in reviewed editions within the last six years, including international editions (if they have worked for a shorter period of time, the number of publications shall be in proportion to the work period), or artistic creation achievements (for instance, exhibitions, films, theatre performances, and concert activity), or a five-year practical work experience (except for the experience in the implementation of the study programme) in accordance with the Law on Institutions of Higher Education.

**Assessment of compliance:** Fully compliant

**Justification:** Each member of the permanently employed academic staff has either publications published in reviewed editions within the last six years or a five-year practical work experience in accordance with the Law on Institutions of Higher Education and Cabinet Regulations Nr 129.

- 15 P5 - Overall rating

**Assessment of compliance:** Fully compliant

**Justification:** The study programme is properly prepared, meets all the requirements, but there are a number of shortcomings that need to be addressed. The main shortcomings are related to the low involvement of research staff in the study process and the lack of research-related tasks. The small number of full-time lecturers and their lower qualifications also affect the slightly worse results of the study programme than we would expect. A large number of lecturers from business allows to diversify the tasks of applied research. In addition, a good supply of teaching materials for students allows for quality studies.

## Requirements (R6-R8)

- 1 R6 - The compliance of the study provision, scientific support (if applicable), informative provision (including libraries), material and technical provision, and financial provision with the conditions for the implementation of the study programme and ensuring the achievement of the learning outcomes.

**Assessment of compliance:** Fully compliant

**Justification:** TU has fully ensured study program, students and personnel with all necessary artifacts including internal information and collaboration system (BATIS), physical and virtual libraries also covering scientific collections, several fully equipped laboratories, remote learning capabilities and financial model to support achievement of the learning outcomes.

- 2 R7 - The compliance of the qualification of the academic staff members, visiting professors, visiting associate professors, visiting docents, visiting lecturers, and visiting assistants with the conditions for the implementation of the study programme and the provisions set out in the respective regulatory enactments.

**Assessment of compliance:** Fully compliant

**Justification:** The report provides all details on the teaching staff qualifications, education and work experience.

- 3 R8 - The study programme leading to the master or doctoral degree is based on the advances and findings in the relevant field of science or artistic creation.

**Assessment of compliance:** Not relevant

**Justification:**

## Conclusions by specifying the strengths and weaknesses

The study programme complies with State Educational standards, as well as the professional standard. The overall qualifications of the teaching staff are satisfying

Strengths:

1. The contents of study courses are relevant and following trends of modern software development.
2. The external teaching staff has proven qualifications and experience, specifically in the CS field that fills the missing qualifications of the permanently employed staff, improves overall qualifications of lecturers involved in the study program and contributes to the achievement of the learning outcomes.
3. The aim, tasks and results of the studies are mutually compatible and do not contradict each other and are sufficient.
4. The study results are more focused on practical activities and this is fully in line with the goals of this qualification.
5. Admission to studies is made according to external and internal requirements after graduating from high school.
6. All indicators describing the study program are well prepared according to external state and university regulation documents.

Weaknesses:

1. The contents and integrity of some study courses.
2. Only two out of five permanently employed teachers have qualifications and background in CS field.
3. Low scientific activity of teachers as well as not applying the scientific results and findings in the teaching process.

## Evaluation of the study programme "Computer Systems"

Evaluation of the study programme:

Good

## 6. Recommendations for the Study Programme "Computer Systems"

### Short-term recommendations

Define the workflow of how student surveys are processed and the feedback affects the teaching process, more precise.

Offer training for teaching staff (both elected and visiting) to improve knowledge on the principles of student-centered learning.

Revise the contents of the course "Software testing and quality" to correspond to the title.

Align the contents of the set of the courses "Software development fundamentals" to ones of the first-level programme.

### Long-term recommendations

Programme tasks should be updated to show a qualitative advantage over the mentioned lower-level qualifications.

Increase mobility both for teaching staff and students.

Provide the students and the teaching staff with access to online teaching platforms (like Udemy).

Increase scientific work, create clear rules to motivate lecturers for scientific work.

Increase full-time and elected teaching staff ratio for IT field courses.

Motivate teaching staff to become permanently elected.

## III. Assessment of the Requirements for the Study Field and the Relevant Study Programmes

### III. Assessment of the Requirements for the Study Field and the Relevant Study Programmes

#### Assessment of the Requirements for the Study Field

Requirements	Requirement Evaluation		Comment
Pursuant to Section 5, Paragraph 21 of the Law on Institutions of Higher Education, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study direction whilst implementing their internal quality assurance systems:		Partially compliant	The internal quality policy has been developed and implemented in everyday work, study programmes and respective study courses are regularly updated and improved. TU is lacking a systemic approach for enhancing teaching staffs' professional and didactic skills, although training is available. Regular surveys are carried out to gather information about the student, graduate and employer satisfaction, yet some shortcomings are seen in ensuring the closure of the feedback loop, especially when it comes to students and employers.

Requirements	Requirement Evaluation		Comment
R2 - The cooperation with different organisations from Latvia and abroad implemented within the study direction ensures the achievement of the aims of the study direction.		Partially compliant	The cooperation with different organisations from Latvia and abroad is mainly based on the internships or Erasmus+ program and it should be extended with industry involvement in the study program improvement, the study process and achievement of the learning outcomes.
R3 - Compliance of scientific research and artistic creation with the development level thereof (if applicable).		Partially compliant	The institution has prepared a plan for the research support and initiatives, but scientific research is not carried out in practice. The plan was introduced through visiting time, it is not documented mechanism.
R4 - Elimination of the shortcomings and deficiencies identified during the previous assessment of the study direction, if it has been conducted, or the implementation of the provided recommendations.		Partially compliant	All recommendations have been assessed. Most of them implemented, some are in process of implementation, but for some TU has provided justification for omitting to implement. In experts opinion some recommendations are not fully implemented regardless of the justifications and explanations as described in Part I Section 6 of the report.

#### Assessment of the Requirements for the Relevant Study Programmes of the Study Field

No.	Study programme	R5	R6	R7	R8	Evaluation of the study programme (excellent, good, average, poor)
1	Computer Systems (41484)	Fully compliant	Fully compliant	Fully compliant	Not relevant	Good
2	Computer Systems (42484)	Fully compliant	Fully compliant	Fully compliant	Not relevant	Good

#### The Dissenting Opinions of the Experts

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