INTERNAL QUALITY ASSESSMENT OF KAUNAS UNIVERSITY OF APPLIED SCIENCES STUDY PROGRAM "SOFTWARE SYSTEMS" FROM THE STUDENTS' POINT OF VIEW

Aušra Žvironienė[1], Gintarė Jurkševičiūtė[2]

[1]*Kaunas University of Technology, Lithuania*
[2]*Kaunas University of Applied Sciences, Lithuania*

Abstract. The popularization of quality assurance systems in educational institutions and business enterprises encourages the implementation of internal quality assurance systems in most Lithuanian higher education institutions. Kaunas University of Applied Sciences (Kaunas UAS) strives to remain competitive in the education system and is responsible for ensuring internal quality, implementation and improvement of the system. For this purpose, it conducts regular reviews of study programs based on the views of students, graduates, faculty, and employers. In order to improve the activities of the Kaunas UAS, it periodically conducts surveys and research of students in order to find out their opinion on the internal quality assessment. It requires feedback, which is most commonly used in student surveys. The aim of the article is to present the internal quality assessment of the Kaunas UAS study program "Software System" from the students' point of view. In this case, feedback from 1st and 2nd year students on this study program was selected. The students' survey was performed remotely by filling out questionnaires created with Google Forms. During the research, the strengths and areas of improvement of the study program, satisfaction with distance learning and its influence on the results of the subjects were analyzed. Statistical data analysis was used for students' survey results. The correlation coefficient was calculated to assess the statistical relationship between two aspects of the questionnaire. Students' point of view for the Software Systems study program quality assurance and distance learning are provided. The recommendation about the future improvement for internal quality and distance learning are provided. The future possibilities of distance learning are discussed. The majority of students (60%) are satisfied with the distance learning because this opened up wider possibilities to plan their time and master new learning methods

Keywords: Software Systems, Internal Study Quality, Students' Assessment.

Introduction

The next important step for graduates who have passed the school exams is the choice of studies. They not only choose the future specialty but also choose the higher education institution where they will study this specialty.

All higher education institutions strive to offer promising specialties that will be needed when a future student graduates and enters the job market. Therefore, a higher education institution provides a future specialist not only with the specific knowledge required for the specialty, which helps to orientate oneself in the modern world, but it also prepares the young person for the future challenges. The current and future graduates must be able to adapt to the changing situation in the labor market and the profession they have chosen. Programme quality is one of the critical factors that most influences good youth development outcomes (Bean, Corliss, Harlow, Meghan, Forner, Tanya, 2017).

A higher education institution seeks to adapt to a changing market and become competitive. Thus, the latest management concepts and best practices in the world while providing a degree program have to be used. It ensures the trust and satisfaction of stakeholders and meets the increased competition in the labor market for the higher education institution while ensuring the quality of study programs. (Knyvienė, I., 2020).

Recently in Lithuania it has developed a negative attitude towards higher education as a low-quality one due to poor student involvement in the study process and learning for a diploma rather than for knowledge or qualifications in the professional field. Engineering science needs changing as the importance of science, technology, entrepreneurial knowledge and modern information technology has increased in all areas of society. Today, we need an engineer who has a broader approach and the ability to integrate information in several areas due to the changing global economy and its dynamics, the rapid acquisition of new technologies. (Krivickas, R., Krivickas, J., 2008).

Continuous review of study programs has to be based on the opinion of students, graduates, lecturers and employers as the quality assurance requires feedback (Višnevskienė, Matulienė, Krasnauskienė, 2014). A student is a full participant in the study process who has a responsibility to learn by actively engaging in the learning process. Every participant of higher education has the right to high-quality studies, the right to participate in the evaluation of the quality of studies thus contributing to the improvement of their higher education and, at the same time, to Lithuanian higher education. They can do this by participating in quality assurance in the evaluation organized within their higher education institution (Valiuškevičius, 2017). Quality assurance is a long-term continuous activity of an educational institution that can be implemented in cooperation among the community, industry and the educational institution (Krivickas, R., Krivickas, J., 2008).

Students' feedback is an important source of information for the higher educational institution's administration in making decisions related to the study process and content. However, students are often reluctant to fill in the questionnaires and the percentage of respondents is low. This is confirmed by the study carried out by Bologna experts in 2015. It showed that 25% of students always take the opportunity to express their views, 32 % – sometimes, 24 % – in individual cases, and another 16% do not use such an opportunity (Skaburksienė, Butkienė, 2016).

The process of quality improvement is comtinuous as conditions, learning technologies and most importantly the concept of quality change. According to the research performed by V. Lamanauskas and R. Makarskaite-Petkevičienė (2016) respondents' said that the greatest responsibility for the quality of study programs depends on the higher education institution (Lamanauskas, Makarskienė-Petkevičienė, 2016). It depends on whether the studies will be properly organized and whether the implementation of the study program will be effective. This research also showed that quality studies are perceived as the proper study process' organization and the quality of lecturers' activities. The qualification of lecturers is one of the most important factors determining the quality of studies. It becomes clear that the quality policy of studies and research should focus on strengthening the interaction between science and studies, student-centered development of studies, interdisciplinarity and internationalization of studies, innovation and so on. Self-motivation and responsibility are considered to be the main personal efforts to achieve the quality of studies. Properly chosen self-motivation method helps to control the study situation, assess the quality of studies and purposefully move to new challenges (Lamanauskas, Makarskienė-Petkevičienė, 2016).

Distance learning became increasingly popular in the world as a form of learning even before the COVID-19 pandemic: the students were able to learn at a chosen time and place with a computer, the internet and interactive learning methods as well as gaining independent work, communication, information search skills.

It is important to define what distance learning is and what it means for all stakeholders (academics, managers, students, policy makers, etc.) before talking about distance learning (Traxler, John., 2018). Distance learning is an educational system in which the lecturer and the students are geographically separated and communicate with the help of technologies. And only technological progress has made it possible for distance learning and higher education to work not only in pandemic conditions but also to offer blended learning (Afshan, Gauhar, 2020).

The global COVID-19 pandemic has accelerated the emergence of distance learning in higher education despite the needs of students' and lecturers' and the preparation of higher education to offer it (Silva de Souza, Gustavo Henrique, 2020). This allowed both lecturers and students to quickly acquire the new skills which are needed to start the distance learning process. Moreover, it has allowed participation in events and training sessions around the world.

The implementation of distance learning at the end of the COVID-19 pandemic raises a number of questions: although students and lecturer already have the technical capacities to continue such a study process but do they have the social and psychological conditions to do so. Of course, it is also distinguished that the conditions are different for people who live in the city and those who live oin rural territories. There are also specific issues as follows:

• **The student's motivation to learn** because student's motivation and academic performance are closely related. Therefore, the demotivation of students and / or lecturers may lead to deterioration in academic performance. Demotivation is also associated with lack of time, difficulty concentrating at home, and psychological problems.

• **The social and psychological impact of a pandemic** is still being studied but emotional experiences and other mental disorders may occur. And this is not necessarily related to those people who have had COVID-19 or have been in contact with sick people, it may also be related to social isolation. People become more psychologically vulnerable and feel socially disturbed. These and other psychological factors can influence pandemic threat responses (e.g., the infection itself and financial problems).

• Most students are **tired of distance learning** but this learning has provided wonderful conditions for participation in virtual events in any country, in any language (Silva de Souza, Gustavo Henrique, 2020).

The aim of this article is to present the evaluation of the quality of the Software System of Kaunas University of Applied Science (UAS) study program from the point of view of 1st and 2nd year students and the attitude of students to distance learning.

There is always room for improvement in higher education so all higher education institutions are gradually moving towards better quality. The students must take the initiative, strive to improve themself and the environment, look at the world positively and be an active member of society.

Research Description

The aim of the research is to perform a survey of Kaunas UAS Software Systems 1st and 2nd year students and get feedback on the quality of the study program (organization of the study process, students' activity, teaching quality, availability of methodological resources, suitability of used equipment, etc.) and distance learning general insights into the positive and negative sides of an existing new study program. A further goal is to

disseminate good practice which would improve the quality of studies for newly admitted and already studying students.

Software Systems is a study program designed for those who aspire to become IT specialists and be capable of developing and implementing modern and innovative software systems (such as client-server, data engineering, IoT software systems), designing services and related processes.

The aim of this program is to ensure the development of high-quality program systems that meet market expectations and to train specialists who are well knowledgeable in the entire system's development process.

A questionnaire was developed using the Google Forms tool to achieve this goal.

Full-time students were surveyed which were admitted in 2019 and 2020 and they will graduate in 3.5 years. A total of 95 students entered this study program in the course of two years (including 3 female students). Only 34% of students agreed to participate in the anonymous survey (i.e. 32 students: 3 female and 29 male students), including 18 first-year students and 14 second-year students. Thus, the sample size of the research is not large. Respondents' age ranged from 19 to 25 years (age average 22 years). The age of the respondents is very similar and the distribution between the sexes is too small, so they will not be singled out as criteria for forming an opinion.

Participants were asked to evaluate the statements related to the management and organization of the study process, the study program and its implementation, lecturers' qualifications, support for students, study environment, internal quality assurance of the study program, Kaunas UAS image development and communication, students' abilities and self-realization opportunities, new experience in distance learning.

Analysis of Research Results

The survey started with the question "Are you satisfied with the chosen study program?". The students' opinion is presented in Figure 1.
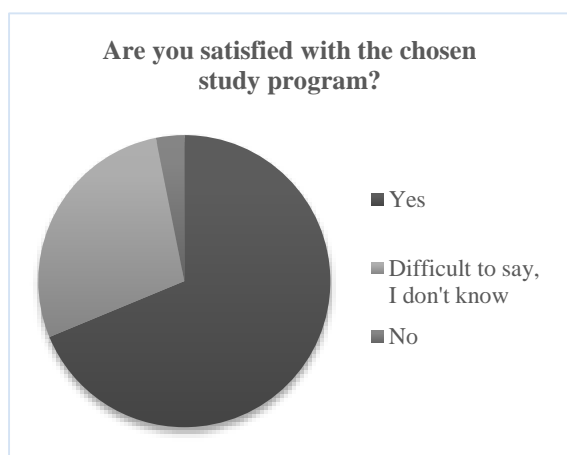

Fig. 1. Students' opinion about satisfaction with studies

The majority of students – 68.8% are satisfied with the chosen study program, among them, female students chose the answer "difficult to answer, I don't know".

One of the most interesting questions was "What do they plan to do after graduating from Kaunas UAS?" The results of this question are presented in Figure 2 shows that the majority of students –59.4% have not yet decided what they will do in the future, 31.3% plan to work according to the qualification obtained, 3.1% plan to pursue their studies at university and only 6.3% plan to go abroad.
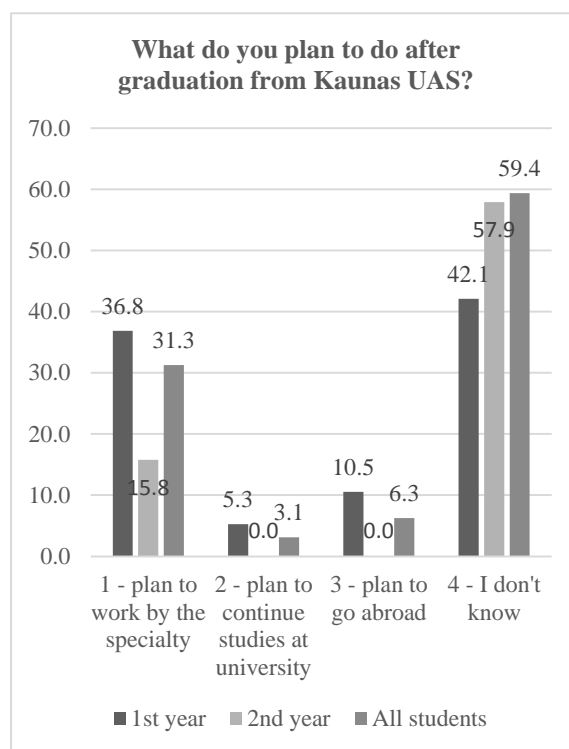

Fig. 2. Student plans after studies from Kaunas UAS

Students' attitudes to the implementation of the study program in the research (questionnaire) were assessed in separate stages:
1. The quality of the study program implementation;
2. Students' activity in the study program implementation process;
3. The organization of the study process at the faculty;
4. The internal culture of the faculty (TF - Faculty of Technology);
5. Attitude towards distance learning;
6. Comments and recommendations.

Students rated the answers to the questions on a scale ranging from 1 (the lowest grade) to 5 (the highest grade).

The averages of the answers to the questions (from 1 to 5) are presented in Figure 3.

Criteria were chosen for display in Figure 3: ratings marked in red colour from 0 to 3; yellow colour – from 3 to 4; green color – from 4 to 5.

We have chosen the following criteria when setting ourselves goals: where it is necessary to

make a great effort to achieve quality – it is red colour, yellow colour – the level of quality is sufficient, and where the level of quality satisfies students – green colour.

Figure 3 shows that only a few aspects were highlighted in green: information on timetables, sequential arrangement of subjects and modules, satisfaction with the chosen study program, and student attendance.

The Kaunas UAS is best prepared in the area of "Subjects and modules sequential arrangement way". Students get an evaluation score of 4.22 out of 5.

With the lowest scores they rated their activity because they were reluctant to participate:

• in the events organized by the Kaunas UAS - 2.09 out of 5 (this year all events were held remotely);

• in the activities of the Student Association - 1.50 out of 5;

• in the activities with lecturers - 1.88 out of 5.

• in exchange programs: Erasmus, etc. - 1.56 out of 5 (studies abroad limited by the pandemic situation in the country and the world);

• in presenting the reports at student conferences (they will have a conference at the end of their studies with the opportunity to present the results of their final theses so they are encouraged to participate in similar events) - 2.72 out of 5.
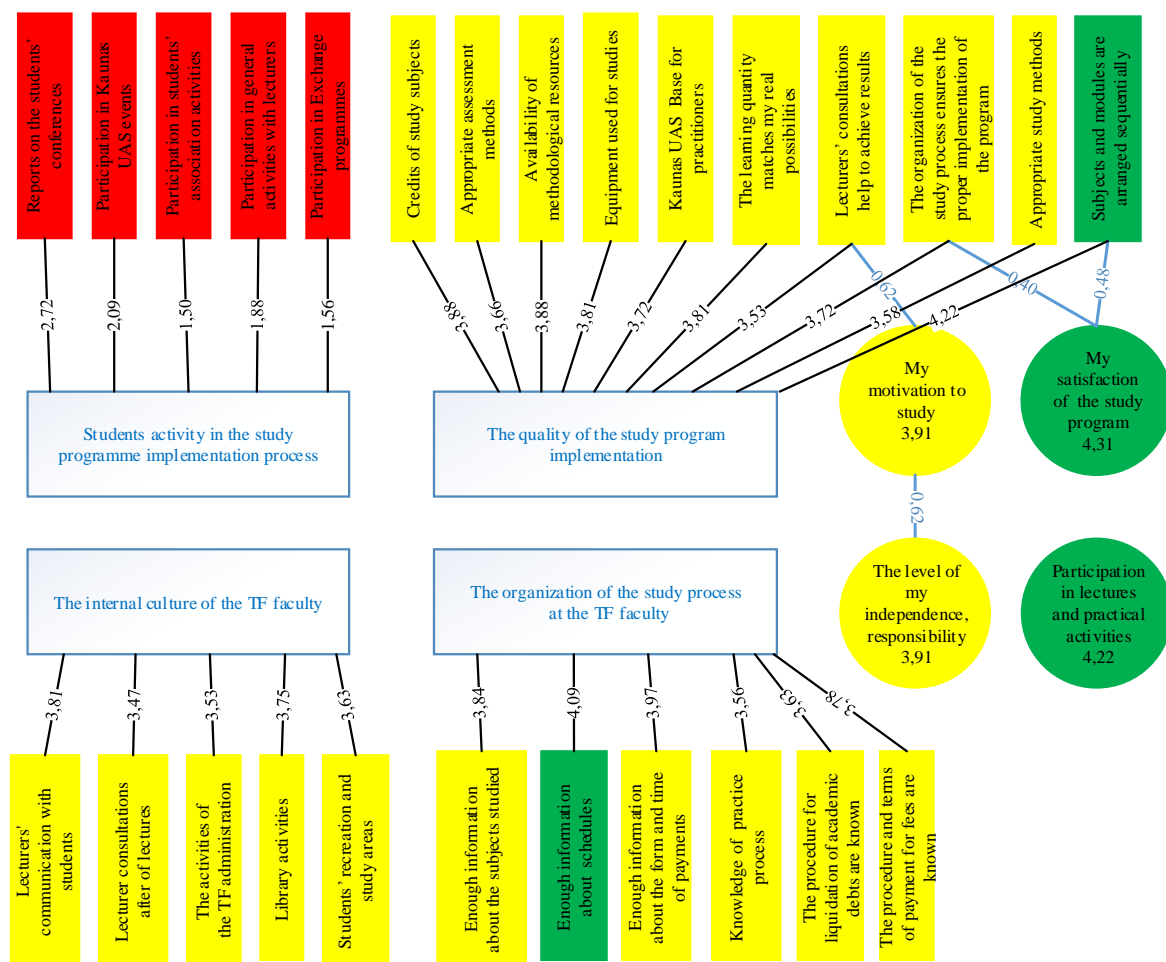

Fig. 3. Evaluation of the study program implementation quality

One of the goals would be to find ways to involve students in active participation in various Kaunas UAS activities and events as well as research activities that would improve mutual communication and cooperation within the team.

In developing this study program, the following areas should be considered:

• **quality of study program implementation.** It was rated by students from 3.53 to 4.22, of which

"Lecturers' consultations help to achieve intended learning outcomes" 3.53 and "Appropriate study methods" - 3.58. This may have been influenced on the increased cost of working time in preparing modules for distance learning and the lack of skills in mastering various new teaching tools as well as the self-assessment of the students' own level of motivation and independence - 3.91. They rated their attendance at lectures at 4.22 out of 5 but this certainly does not reflect the real situation, as not all

students filled in the questionnaires (according to KK regulations, student attendance is required). Absence from lectures or non-participation in lecture activities was one of the most sensitive issues perceived by lecturers. It should also be noted that distance attendance does not necessarily mean the active participation of students in lectures.

• **organization of the study process at the faculty.** In the questionnaire students distinguished this area as a weaker place - the knowledge of practice process (3.56) and the procedure for retaking examinations or tests (3.63). Students still lack the skills to plan their time if they are working. The problem is that they don't meet the deadlines set for assignments. It is difficult for them to coordinate the management of internship contracts between the Kaunas UAS and the company within the set deadlines and it is difficult to find the practice place itself during a pandemic when the situation in the country is diferent. With this in mind, it is planned to constantly fill in the database of practice places which could help them to find it in the companies engaged in similar activities.

• **the internal culture of the faculty.** Lecturers' consultations after the lectures were rated lower (3.47) and its lack may have been due to increased lecturers' work-load during the pandemic. Most lecturers are invited from other higher education institutions and companies, and students themselves are passive in joining distance consultations after the lectures. The activitities of the faculty administration were also rated lower (3.53) because their activities took place from home for most of the academic year making them more difficult to access.

Psychological stress among staff and students could also be a very important factor. They complained about being at home for too long, having limited mobility and not being able to communicate face-to-face with co-courses.

The statistical relationship between the observed variables (i.e. the questionnaire questions) and the correlation coefficients were calculated by comparing the answers to each question with:

- students' motivation to learn (self-rated 3.91 out of 5);
- with attendance of lectures and practical activities (self – related 4.22 out of 5);
- with their satisfaction with studies (4.31, i.e. 68.8% positive);
- with the level of students' independence (self-rated 3.75 out of 5);

The statistical linear relationship between the variables with all the above aspects was weak or moderate (correlation coefficient ρ ranged from 0.2 to 0.62). Lecturers' cosultation was an important factor in increasing students' motivation to learn independently ($\rho = 0.62$). Students' satisfaction with the study program depends on the proper implementation of the study process ($\rho = 0.40$) and the sequent arrangement of subjects ($\rho = 0.48$).

The values of the correlation coefficient above 0.3 are shown in blue lines in Figure 3. This may

have been influenced on the reasons for entering this specialty (which were not assessed in the questionnaire) and the small number of respondents, i.e. too small a research to carry out a broader statistical study.

One of the reasons could have been a new form of learning - distance learning.

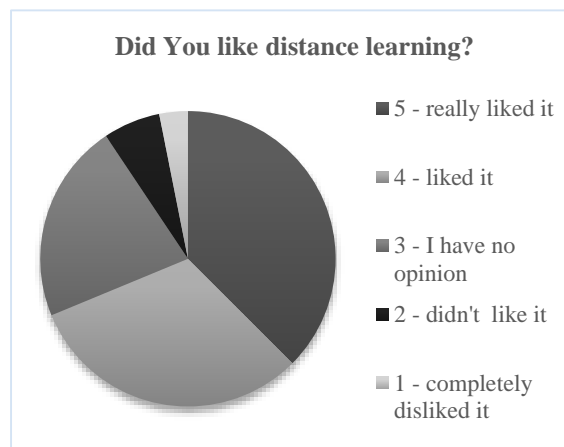Two-thirds of students still enjoyed distance learning and you can see this in Figure 4.

Fig. 4. Evaluation of "Did you like distance learning"

Students pointed out the positive aspects of distance learning: there is no need to go to lectures so there is more time for lectures or longer sleep; a more flexible work schedule; easier to combine lectures and work at the same time; lecturers have become more responsive to all kinds of challenges and new ideas to achieve the goals of the module; self-scheduling developed discipline.

Some students were dissatisfied with this learning system: limited movement from home; a sense of loneliness; less hands-on activities with equipment; higher requirements; lecturers explain less certain tasks; communication with group-mates is remote.

The ability to concentrate is assessed ambiguously: some students mentioned that it is easier for them to concentrate at home while others stated that it is more difficult for them to concentrate at home.
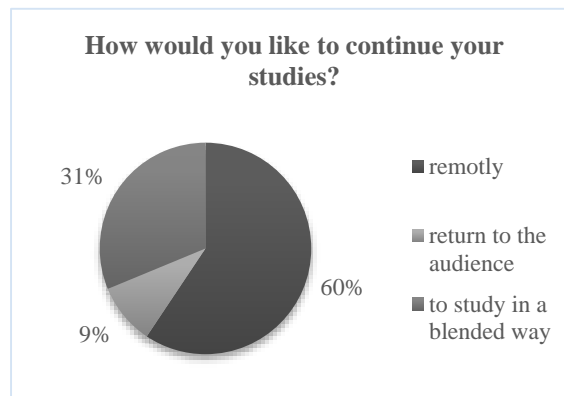

Fig. 5. Assessment of "How would you like to continue your studies"

This was followed by a question about "How would you like to continue your studies in the coming academic year?" (Figure 5):

- approximately 60% of students answered that they would like to continue their studies remotely;
- only 9% would like to return to university;
- and 31% would like to study in a blended way.

Assessments could have improved remotely and it could be one of the motives for continuing studies in the future. The last question was "How could the distance learning affect your results?":

- 31% noted an improvement in results;
- 53% - results neither improved nor worsened;
- 16% - results deteriorated.

Deterioration in results may have been influenced by lower scores: students' motivation to learn (only 3.53 points out of 5) and lack of skills to learn independently (3.91 points out of 5).

Conclusions

1. A survey of the 1st and 2nd year (32 respondents) of the Kaunas UAS study program "Software Systems" was conducted by filling in the questionnaires developed by Google Forms remotely in order to assess the quality of the program from the students' point of view.

2. Summarizing the results of the questionnaire: it can be stated that 68.8% of students evaluate high the implementation of the study program.

3. Students best rated the sequential arrangement of Kaunas UAS subjects and modules modules and subject (score 4.22 out of 5).

4. With the lowest scores (up to 3) they rated their activity: in post-lecture activities, in events organized by the Kaunas UAS, in representative activities, in joint activities with students, organizing student exhibitions or events. At the same time, they were reluctant to participate in the Kaunas UAS research activities. It could happen because all these activities for the past year and a half have taken place remotely.

5. The results of the questionnaires show that the majority of students, i.e. 59.4% have not yet decided what they will do in the future; 31.3% plan to work according to the qualification; 3.1% plan to continue their studies at university; only 6.3% plan to go abroad.

6. The majority of students (60%) remained satisfied with the distance learning form as it opened up wider opportunities to plan their time and master new learning methods.

Recomendation

One of the goals of Kaunas UAS is to develop suitable future specialists in this field.

Taking into account the feedback of the 1st and 2nd year students, the following aspects should be taken into account when improving the study program:

- Adjust the subject assessment methodology which should be more objective and clearly described in the e-modules in the Moodle environment; increase the number of consultations for students; take into account students' comments.
- Lecturers should develop competencies not only in their field of science but also in the application of new teaching methodologies and in the areas of communication with students.
- Lecturers could find / create more videos (such as *Youtube*) or use interactive games to facilitate self-directed learning.
- Lecturers should not translate technical terms into Lithuanian and to use the usual English terms during the 1st year of studies;
- Students should be encouraged to participate in introductory lectures to review the features of the Software Systems study program and to acquaint with the study procedure and administration.

The quality of Kaunas UAS is based on the values of the Kaunas UAS which are also fostered in the mission and vision. Quality helps to achieve the goals set in the strategy of Kaunas UAS. This becomes a strategic goal and a basis for improvement in cooperation with graduates, employers and other stakeholders. Kaunas UAS fosters culture of quality and quality is the responsibility of each of us (Kaunas UAS website <viewed: 2021-06-21>).

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About the authors

dr. Aušra Žvironienė
Lecturer at the Faculty of Mathematics and Natural Sciences,
Kaunas University of Technology, Lithuania
ausra.zvironiene@ktu.lt

Gintarė Jurkševičiūtė
Lecturer at the Faculty of Technologies,
Kaunas University of Applied Sciences, Lithuania
gintare.jurkseviciute@go.kauko.lt