

Expert group joint opinion

Evaluation Procedure: Assessment of Study Field

Higher Education Institution: ISMA University College

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

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Summary of the Assessment of the Study Field and the Relevant Study Programmes

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The study field is well-designed including two StP which are built in such a way that the postgraduate one can be a natural progression from the undergraduate one. Despite that there is a well-described (in the SAR) management structure it appears that this is not implemented in practice and that important academic decisions are not taken by academic members of staff but instead from the management. The assessment methods implemented in the study field could be improved, requiring that examinations are prepared well before the exams together with their solutions/markings schemes giving flexibility and adaptability if something goes wrong at end. There seems to be a very good admissions system in place. In terms of Quality Assurance, there is a quality policy in place but it is not aligned with the current development strategy although the quality assurance system allows the achievement of the aims and learning outcomes of the StF and both StPs. While there seems to exist a student feedback system, the alumni/employers feedback system should be enhanced. In terms of resources, the infrastructure and material resources are sufficient and thought should be given to ensure that ISMA offers the same level of resources in the Fergana branch before launching programmes there. Improvements in ICT and library databases are also suggested at both campuses. The system for funding allocation is reasonable given the size and type of management. Risks regarding the workload balance for teaching staff are detected while experts saw no evidence that any kind of EU/ERAF fund support has been utilised to co-finance investments in provisions. Using such funds could improve the financials of the ISMA. In terms of research, ISMA has defined some well-defined research directions/topics/areas aligned with the International Research Trends in ICT and the StF. However, the reported scientific output is not fully aligned with these research directions. Only a few members of staff are engaged in research on related topics while their publication output is not of the highest standard. The expert group has also noted the absence of a clear mechanism to support academic staff to get involved in scientific research. Student engagement in research should be enhanced. Finally, in terms of Cooperation and Internationalisation, ISMA has established a framework of local collaborations aimed at enriching the educational experience. These collaborations contribute positively to the academic and practical training of students, aligning educational outcomes with industry demands and enhancing overall student employability. Local collaborations have contributed to the enrichment of ISMA's curriculum. However, there is a gap in the availability and transparency of detailed information about these collaborations, which hampers effective evaluation and may limit the understanding of their full impact. Internationally, ISMA has been proactive in establishing partnerships that support both student and staff mobility, enhancing the institution's educational offerings and research capabilities but no evidence of international research engagement has been demonstrated so far. Nonetheless, the support systems for incoming and outgoing participants need strengthening to ensure smoother transitions and integration into ISMA's academic environment.

Both the StP "Information Systems" and the StP "Computer Systems" are well-structured and their content is appropriate for meeting the labour market requirements both in Latvia and Uzbekistan (for the StP "Information Systems" which is planned to be implemented there) and are also compliant with the educational Standard. While the StP "Information Systems" appears to be compliant with the occupational standard "Software Engineer" the StP "Computer Systems" appears to be partly compliant with the occupational standard "System Analyst". There are some well-documented descriptors for all the courses in both StPs that comply with the general aims and objectives of the programme as well as with the StF. The undergraduate programme is designed in such a way that, after graduation, students are oriented towards independent lifelong learning and are able to continue studies at the Master's level. Employers appeared satisfied with the level of the graduates in both programmes. Overall they are both promising StPs for the campus in Riga but

it appears that there is good ground for the implementation of the undergraduate StP in Fergana Uzbekistan if the same level of teaching and learning quality is ensured. ISMA has provided enough resources and provisions for implementing both StPs in Riga. Provisions are refreshed from time to time. Noteworthy modern selection of literature is used for the study process. Planned delivery methods are possible to be implemented by ISMA based on available and offered provisions. Regarding the teaching staff of the programme, the expert group believes that it is understaffed and would definitely benefit from the appointment of more academics. The teaching staff also partially complies with the requirements for the implementation of the regulatory enactments. While a significant proportion of the teaching staff hold PhDs and have industry experience, there are deficiencies in meeting regulatory requirements, such as insufficient scientific publications and H-index scores for some professors and associate professors. Cooperation between the staff appears sufficient however, there are administrative and operational challenges at ISMA that undermine the positive developments like conflicting information about staff recruitment responsibilities indicates a lack of a unified system for attracting teaching staff, as well as the procedure for electing professors, appears insufficient. The teaching staff's workload at ISMA greatly exceeds international norms, which diminishes the quality of education, restricts the introduction of innovative teaching methods, and limits the expansion of practical work experience and scientific activities. Regarding Internships, there is a very good well-documented document describing the Industrial Placement (Trainingship) however there seems to be a limited number of companies that offer Internships to students or get involved in the study process of the StP in Riga. On the contrary, the same does not apply to the Fergana Campus where quite a few companies have demonstrated interest in supporting the StP Information Systems in Fergana. Finally, given that graduate programme students have to demonstrate novelty in their thesis, preferably including research aspects, the ISMA could provide more resources to support these activities.

I - Assessment of the Study Field

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1.1 Management of the Study Field

Analysis

1.1.1. The aims of the StF "Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management and Computer Science" at ISMA University College are intricately designed to align with the strategic development fields of the institution, as well as the evolving needs of society and the economy. The StF aims to prepare professionals who are leaders, highly qualified, innovative, and possess a deep sense of corporate social responsibility. These professionals are expected to contribute significantly to the transformation and development of the national economy (SAR 2.1.1).

The internal quality assurance system within the StF is designed to ensure continuous improvement and efficient performance (SAR 2.2.1). The StP within the field demonstrates a clear and logical interconnection, supporting a cohesive educational pathway for students. The bachelor and master programmes in "Information Systems" and "Computer Systems", respectively are designed to build upon each other, allowing students to progress from foundational knowledge and skills to more advanced and specialized competencies. This progression is carefully managed through the structure and content of the programmes, ensuring relevance and continuity in learning outcomes (SAR 2.1.1).

1.1.2. In the self assessment report (SAR) ISMA University College presents the SWOT analysis (SAR, page 23) of the study field with regard to the set aims by providing the explanations on how the higher education institutions expect to elaborate till the next assessment period. As for the

strengths, one of the aspects is the cooperation with employers that does take place to ensure traineeship placement and final papers development. This was also confirmed during the visit, since all the company representatives indicated that they had or have at the moment interns from ISMA, who are doing their practice. Also companies (Accenture Latvia, Eye Roll) said that comparing the student amount they have from 20 to 50% of ISMA interns. It is also worth mentioning that one of the participants gave an example of an ISMA student giving a technical solution on how to improve the work process, additional instruments for example how to optimize the working process. Graduates are working with Eye roll, working in one project, during the research and project the graduate gave the significant input. The employers indicated that ISMA provides open days, exhibitions, and discussions about the specializations. Mostly have Latvian students, since most work with Latvian companies, so this is a concerning aspect since there is a majority of international students. But there was no knowledge about the various integration of social partners into events like social partners days, or participation in a management of the study field, as a recommendation of feedback of the StP improvement. There was also no specific information about the questionnaires provided to companies after the internship of the students. As for the weaknesses indicated in SAR (page 23) ISMA indicates that students are not sufficiently motivated to engage in scientific research beyond the compulsory requirements of the StP, this was also confirmed by the students during the meeting some of them only know about the research abstract that it is mandatory to prepare from the thesis. But from the other side there are no student conferences organized and students are not promoted to participate in scientific events. This was also seen during the meetings with the students, since some of the international students were not even able to speak properly in English language, also for some it was also a struggle, so experts do think that there is not sufficient control taking into account the language test during the enrollment of the international students. Insufficient number of guest lecturers from foreign universities was also stated as a weakness since students and social partners only indicated that only employers are giving guest lectures presentations for the students during the meetings. As for the opportunities, professional Bachelor StPs in the IT field are in demand in the foreign (e.g. Uzbekistan) market and it was confirmed also by the employers representatives during the meetings in the Fergana. From their perspective it was said that it would be beneficial to open ISMA studies in the IT field, and would like to employ and hire students if they specifically are graduates of the IT field. There are companies that are lacking internal IT specialists that can write the projects or manage the projects. Also this confirms another opportunity that the industry specialists are in demand in the labor market. During the meeting in Fergana it was noted by the employers that there is a need for Back-end specialists (software developers), Android, iOS developers, AI / Data science specialists. As for the threats it is noted that there is an instability of higher education policy, which can be seen with the change of the documentary, also political instability in international markets and complex demographic situation in the country, which shows that the majority of the students are the international students from India, Uzbekistan, and etc. Also, it has to be noted that ISMA has prepared the plan for the development of the study direction [field] (Annex 2.1.1) in SAR, which emphasizes the improvement of the electronic environment and digitalization of the study courses, further promoting cooperation with partners, improving technical bases, and etc. But still there are no keypoints touched like different levels of students' pre-knowledge of mathematics and English. And the plan does not have any terms and indicates a specific number of the key points that are planned to be reached.

1.1.3. In the self assessment report (SAR, page 25) ISMA University College presents that the head of the study direction [field] organizes monthly meetings with the constant participation of the Heads of department and the directors of the study programmes. Other stakeholders, such as Heads of the Study Departments and Career Center, and, etc. are invited also for the discussions. This is concerning since from the expert perspective there was no confirmation of regular meetings and

there was no clear answers for example what was discussed and what challenges were identified for example and how solved. For example during the meeting (with members of the group responsible for the preparation of Self-Assessment report and the person responsible for QA and person responsible for international relations and foreign students) there was no clear answer about the surveys provided for the stakeholders and the decisions made after getting the results and the feedback provided for the stakeholders about the decisions made and plans for the improvements if it would be necessary. First of all it is a worrying factor that the survey's content is provided for the student council, and there is no clearly defined person responsible for the full process from the start till the end getting the feedback from stakeholders. Also, there were different answers during the meetings about how often the surveys are provided, and why they are given in different forms (Google forms and paper forms). There is a bad situation with the surveys and feedback with graduates, and it was confirmed during the meeting with the ISMA staff and during the meeting with graduates. As it was indicated there is a separate person in the Fergana branch which is responsible for the data collection about the surveys. As for the academic complaints, they are done according to the procedures. Regards to setting up the exams. StP director is the lecturer and is always the first person to make the exam form and the StP director is responsible for the quality (but it was not confirmed by the StP director, just stated by the management representative). Also it was confirmed that there is a possibility for appeals and that it is possible after 5 days for the students. It was noted that a study direction council is one of the possibilities where students can come to complain, but students are free to meet the programme director or a vice-director for studies to discuss the problem. There were given examples that sometimes they come individually or like all groups. This was also confirmed by the students that they are willing to reach out if there is a need. As it is noted in SAR (page 25) main responsibilities of the Directors of StP are ensuring the preparation and development of the StP, implementing the changes, coordinating with employers, reviewing the applications for entry into the later stages and of course plan and organize, control implementation of the StP. But for the visit point of view meeting with the programme directors there is no clear answers and that they do not assess the information about: how many students are in the programme field, how many staff and how it is chosen (this is concerning aspect, since it means that department meetings are almost not existing), there is no information about the study content updates and strategy plans how it should be updated, with which institutions they do cooperate and etc. From the expert point of view the programme directors are not fully aware about the full perspective and situation. There is no research in the programme field apart from the conference papers (one journal operated by ISMA) and no international cooperations, apart from the Erasmus exchange. Also during the meetings with the study programme directors of the StF it was stated that students are not preparing any abstracts for the conference, but it was mentioned as mandatory in SAR and provided that it is so by the students. Mostly concerning facts is that there are groups with only one student in specific specialization, and here comes questions about study process sustainability and how qualified studies can be provided. Also there are concerning aspects about the development of the Branch in Fergana, since the programme directors are not fully aware and not really seeing the potential in this, but they did confirm that some staff is willing and is open to give lectures. But since the study quality and the study content in the Fergana Branch would be provided by the Riga ISMA branch it is crucial to build a strong staff and conform to the quality aspects. It should be noted that according to the given structure in the study field and decision making process it would be mandatory to create a new position of a study programme director in the Fergana branch, or at least a person who would be responsible for a quality assurance.

1.1.4. In the self assessment report (SAR, 2.1.4.) ISMA University College presents that the rights to study at ISMA University has each student of Latvia, non-citizen of Latvia, a citizen of the European Union, a citizen of the European Economic Area, or a citizen of the Swiss Confederation and a permanent resident of the European Community as well as a person who has a valid residence

permit. Foreign citizens who do not have a permanent residence permit have the right to study at ISMA in compliance with section 83 of the Law on Higher Education Institutions. Taking into account the application for submission to a StP, you need to present a document certifying a previously acquired education which is recognised in Latvia and meets the requirements of the StP, as well as a document certifying the knowledge of the English language. From the expert point of view, there is a concerning factor about the language certificate, since during the meetings with the students some of the international students were not even able to speak properly in English language (other students even had to translate the questions to Russian), also for some it was also a struggle, so experts do think that there is not sufficient control taking into account the language test during the enrollment of the international students. For the admission process of international students at ISMA University there is a carefully considered mechanism (Annex 1.4. SAR). During the meeting with the students it was noted that ISMA helps with visas and assists preparing documents. The involved stakeholders are informed about the system of the Admission Regulations for the next academic year in the official ISMA website (the information is provided in Latvian and English). Also there is additional information and possibility for the students to start the studies at subsequent stages, according to regulations on studies if the mandatory examinations on the previous stages of studies are passed at another HEI (higher education institution), also information provided in the official website ((https://www.isma.lv/images/FILES/ISMA_Studiju_nolikums_2020_EN.df) for the stakeholders, but it should be noted that regulations are invalid since 21.06.2023, so this means that information is provided with the mistakes for the stakeholders. This opportunity is also confirmed in the presented data in the table (page 27, SAR) number of students who start studies in subsequent study stages. Also during the meetings with the students one student did confirm that some subjects were recognised since he had an additional master diploma. ISMA has developed the "Regulations on recognition of knowledge, skills and competences acquired outside of formal education or acquired through professional experience, but no submissions for such recognition have been received so far (information provided in official website for the stakeholders).

1.1.5. In the self assessment report (SAR, 2.1.5.) ISMA University College presents that implementation of the study process is based on the principles of student-centered education. For example, the study process ensures a variety of student needs through the development of different learning forms. Studies are based on student autonomy, while providing the guidance and support of the academic staff - the description of each study course includes the amount and content of the student's self-study, as well as the methods for its evaluation. Students receive explanations of the assessment and, if necessary, advice on how to improve their work. This was confirmed during the meetings with the students since there was confirmation that it is possible to have consultations and give questions for the professors, but there are no department hours to discuss the main aspects. Also students expressed their opinion that in the Moodle they see necessary information about the course and usually at the first lecture the study course and evaluation system is presented. Also during the meeting with the academic staff it was noted that the person who delivers the study subjects, prepares the planning, the disciplines and is required to give it for the review of the programme director. But there was no clear answer during the meeting how often the study content is reviewed, how often the study content in the Moodle system is renewed. The assessment of students' achievements is performed in compliance with the ISMA Procedures for the organization of testing approved by ISMA Senate on December 19, 2019. Also, it should be noted that the students know about the plagiarism system that does exist, but do not know how it works. This is concerning, since there should be information provided about the evaluated works and percentage of the plagiarism after checking the students works.

As it is indicated in SAR (2.1.5) there are various assessment forms for the students which are as follows: controls test, test, project, and etc. Students confirmed and it was shown during the visit

that students are working on a project, they can choose the topic from the list and at the end of the course it is presented. Some of the projects also were known to employers. The number and kind of mid-term tests is set in the study course description, it is defined by the lecturer of the study course and approved at the meeting of the corresponding Department, but from expert point of view there is a mismatch between different courses in a really wide range, since students indicated for example that for one course they might have eight orders (individual and homework that has to be done to participate in the exam), and for the other only one, also there is no equal system for the evaluation of the study courses for the exams and the student work during the semester. Also, there was a controversy about the exam descriptions during the visit, since there is no such document existing, which would not only show the content of the exam, but also would provide the answers and the corresponding aspects to the study course outcomes. But it should be noted that during the meeting with the students it was noticed that the students gave new examples about the situations in which students' voices were heard about the concerning aspects of the study process and possibility to improve it.

1.1.6. ISMA has concluded an agreement with University of Latvia (additional documentation) on the use of a plagiarism verification system for final papers and other student papers. Amendments to the contract were only submitted to the expert group, the full text of the contract was not available to the experts. Mechanisms and principles for anti-plagiarism is clearly defined. However, real implementation is not provided. In the meetings with staff, students and alumni there was no assurance about the use of the plagiarism system. The programme director, etc., could not give the name of the plagiarism system and explain the principle of their operation. After several requests to submit the results of the plagiarism system check, were submitted in part. In the system, experts were not provided with an approach to assess the similarity of works. Consequently, it is considered that the system is not applied in practice. All the more so given the increasing popularity of AI solutions gained in recent years, this problem has become especially acute. This indicates a very high risk of plagiarism in students' final papers and coursework. It is necessary to bring the system to life, supplemented by a tool for controlling the use of AI. Stakeholders are not involved in the students final thesis preparation stage. According to Cabinet regulations No. 305 "Noteikumi par valsts profesionālās augstākās izglītības standartu" in the state examinations commissions at least half is from representatives of professional organisations or employers in the sector. However, stakeholders and expert groups timely do not receive thesis similarity reports and do not receive student thesis before the defence date.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

The StP within the field demonstrates a clear and logical interconnection, supporting a cohesive educational pathway for students. The bachelor and master programmes in "Information Systems" and "Computer Systems", respectively are designed to build upon each other, allowing students to progress from foundational knowledge and skills to more advanced and specialized competencies. Strengths, weaknesses, opportunities and threats of the StF are defined and integrated into development planning documents. As a strength it should be noted that company representatives indicated that they had or have at the moment interns from ISMA, who are doing their practice. Also companies (Accenture Latvia, Eye Roll) said that comparing the student amount they have from 20 to 50% of ISMA interns. It is also worth mentioning that one of the participants gave an example of an ISMA student giving a technical solution on how to improve the work process, additional instruments for example how to optimize the working process. As for the weaknesses indicated in SAR, ISMA indicates that students are not sufficiently motivated to engage in scientific research beyond the compulsory requirements of the StP, but more concerning is that there is not sufficient

control taking into account the language test during the enrollment of the international students. As for the opportunities, professional Bachelor study programmes in the IT field are in demand in the foreign (e.g. Uzbekistan) market and it was confirmed also by the employers representatives during the meetings in the Fergana, but also Latvian employers confirmed the need in the market. The management structure of the StF is defined in the SAR (2.1.3.), but not corresponding to the real situation which was discovered during the meetings, since there is no clear information about the feedback and quality improvement concerning the surveys for the stakeholders, and especially there is no information about the study content updates and strategy plans how it should be updated, with which institutions they do cooperate and etc. talking about the StP directors positions. It is considered that the plagiarism system is not used in practice, which indicates the high risk of plagiarism in students' final papers and courseworks. There is no clearly defined person responsible for the full process from the start till the end getting the feedback from stakeholders (including the surveys for graduates, students and employers) and the structured system of how the results are used and disseminated with the stakeholders. Also, there was a controversy about the exam descriptions during the visit, since there is no such document existing, which would not only show the content of the exam, but also would provide the answers and the corresponding aspects to the study course outcomes. But it should be noted that during the meeting with the students it was noticed that the students gave new examples about the situations in which students' voices were heard about the concerning aspects of the study process and possibility to improve it. A system has been set up and procedures developed for the admission of students, for the recognition of the study period, professional experience, prior formal and non-formal education and for the assessment of students' achievements and learning outcomes, they are logical and effective, the involved stakeholders are informed about the system. And though it was noted that students do get the help concerning the admission documents there is not sufficient control taking into account the language test during the enrolment of the international students.

Strengths:

1. For the admission process of international students at ISMA University (including the help for the students with the documentation) there is a carefully considered mechanism and information is provided for in the official website for the stakeholders in Latvian and English languages.
2. Also there is additional possibility for the students to start the studies at subsequent stages, according to regulations on studies if the mandatory examinations on the previous stages of studies are passed at another HEI (this shows positive statistics in the enrollment of the students).
3. There are companies that are lacking internal IT, confirming the opportunity that the industry specialists are in demand in the labor market.
4. Students are aware and do use the opportunity to discuss their problems with the study direction council if they have any complaints, but students are free to meet the programme director or a vice-director for studies to discuss the problems.
5. Employers do have from 20 to 50% interns from ISMA and they are satisfied with their knowledge solving technical solutions.

Weaknesses:

1. It is considered that the plagiarism system is not used in practice, which indicates the high risk of plagiarism in students' final papers and courseworks, especially AI solutions gained in recent years.
2. There is a mismatch between different courses in a really wide range, since students (for one course there might have eight orders, and for the other only one), also there is no equal system for the evaluation of the study courses for the exams and the student work during the semester.
3. There is no clear management system how often the study content is reviewed, how often the study content in the Moodle system is renewed and who is responsible for the per-review of the updated study course description or study content.

4. There is not sufficient control taken into account during the language test which is provided during the enrolment of the international students.
5. There is no clearly defined person responsible for the full process from the start till the end getting the feedback from stakeholders (including the surveys for graduates, students and employers) and the structured system of how the results are used and disseminated with the stakeholders.
6. Programme directors are not fully aware about the full perspective and situation in the StF and there is no strategy on how the study process quality would be assured in the Fergana branch.
7. Prepared plan for the StF development does not have any terms, KPI's and fully covers all weaknesses.
8. There is a possibility that studies in ISMA are provided or partially provided in Russian, which is not in accordance with the accreditation data.
9. Insufficient number of guest lecturers from foreign universities was also stated as a weakness and there is no certain cooperation with the institutions from abroad.

1.2. Efficiency of the Internal Quality Assurance System

Analysis

1.2.1. ISMA has established a quality policy which is publicly available on the webpage of the HEI and can be accessed here: https://www.isma.lv/images/FILES/ISMA_Kvalitates_politika_2020_EN.pdf. It can be found on the web page under section "ISMA" → "About ISMA" → "Documents". The existing quality policy has been approved in April of 2019 in alliance with ISMA University of Applied Sciences Development Strategy for 2018-2023. As clarified during the meeting with members of the group responsible for the preparation of SAR, the person responsible for QA and a person responsible for international relations and foreign students, 03/04/2024, the current quality policy has not been updated yet in accordance with the ISMA Development Strategy for 2024-2030. It was stated that it is in a stage of review at this point of time and will be updated in the nearest future. There is a separate development strategy that has been developed for the purpose of focusing on the Fergana branch and can be found also on the webpage: https://www.isma.lv/images/2024/dokumenti_lv/2019_Fergana_branch_development_strategy_19-29_eng.pdf under a name of a document - "Fergana branch (Uzbekistan) ISMA (Latvia) Development Strategy for 2019 - 2029". It includes separate SWOT analysis, indicating strategic aims and objectives of the Fergana branch.

In general, the existing quality assurance system allows the achievement of the aims and learning outcomes of the StF and both StPs implemented. The established system has good possibilities for ensuring continuous improvement, development, and efficient performance of the StF and the relevant StPs. However, it will be necessary to invest some more effort from the entire institution due to certain shortcomings in the implementation of the designed system, which are described in more detail below and analysed under the following paragraphs.

1.2.2. According to the meeting with the director of the StP: "Information systems", 03/04/2024, there is a procedure in place of StP content review that takes place twice per year. Based on the SAR p.31 stated information, study course programmes, methodological materials, study literature and proposed study paper (research and final paper) topics are reviewed and updated once in an academic year. Presumably, based on the stated information by the director of the StP: "Information systems", the StP content can be reviewed more than once a year, if needed. Based on the information provided in this aforementioned meeting, during the study year, the internal self-assessment and quality improvement system operate continuously. At the end of the study year the weaknesses and strengths, changes, development opportunities and plans of the HEI are discussed at the General Assembly. However, it has to be noted that based on the provided materials and the

information that the expert group gathered throughout the visit days, there have been some controversies and different information heard on this matter, when asked more specifically on how the procedure of study content review is done. It is not clear how often the study content in the Moodle system is renewed and who is responsible for the perreview if the updated study course description or study content. If such a system is not in place at the moment, it is of necessity to develop it.

In the case of the Fergana branch, based on the meeting with ISMA Fergana (Uzbekistan) study process coordinator, methodologist, IT specialist, librarian, manager for foreign students, 08/04/2024, the study process is conducted by Latvia in all StPs. The Uzbekistan Ministry of Education gives them suggestions and subjects that would be needed to add but everything is governed by ISMA in Latvia. It is hard to manage but it is beneficial for the students of Uzbekistan. It has to be noted that it was also stated in the meeting with ISMA Fergana (Uzbekistan) branch management, 08/04/2024, that in case of Fergana branch, one problem for them is to open a new StP/StF as there has to be approval by the Uzbekistan government. There is a need at the banks, finance sector to have IT field specialists, thus such a decision has been made to open a new StF in Fergana. In the ideal scenario, ISMA wishes and plans to combine professors from Riga and Tashkent and the distribution would be 50/50.

In accordance with the meeting of representatives of QA, 03/04/2024, it was stated that student surveys are performed in two types of ways - in paper and electronically. In accordance with the Meeting with students of the StP "Information systems", 04/04, 2024, the student surveys are conducted twice per year/ once per semester. For a successful student survey procedure and collection of results, the Student Council of ISMA in Riga is held responsible. According to the existing procedure, the marketing team prepares the Google form, and afterwards, there are links for evaluation sent to the Student Council that they further send to students. The Student Council representatives can see the link to the answers. The results are summarized by the Student Council and then afterwards there are plenty of people reviewing this. It has been stated in the meeting with representatives of QA, 03/04/2024, that the student surveys of course evaluations and lecturers are electronically available on Moodle all the time. During the Moodle presentation on 03/04/2024, the expert group saw where students can easily access the surveys and freely fill them out any time necessary. However, in the opinion of the expert group, it is not a common practice for Student Council to be the first instance to review student survey results and be the party that ensures the survey collection and analysis. It is seen to be the responsibility mainly of the Head of Quality Assurance together with StP Directors and teaching staff. Unfortunately, the expert group could not meet the Head of Quality Assurance due to sick leave. In the opinion of the expert group, the Student Council should not be the responsible entity for student surveys and the existing structure has to be reviewed. According to the information provided by the Assistant to the Chancellor, the response rate to the student surveys are approximately 50%, which is sufficient, taking into account that surveys are not mandatory and cannot be forced upon students to be filled. Although, the higher the response rate from students, the better it is to understand the general student satisfaction with their studies. It is worth mentioning that one of the students stated in the meeting with students of the StP "Information systems", 04/04/2024, that they also had a survey where they had to express their opinion on use of AI technologies in their studies, which is a good initiative by ISMA.

Based on the information that has been gathered onsite in Fergana branch Meeting with ISMA Fergana (Uzbekistan) branch management (Fergana Branch President, Director and Executive Director) 08/04/2024, at the premises there are three consultants that every day assist students with any issues, including inclarities of the study process. The consultants are the ones to report the feedback from the student side to the branch management director. In case, a student is lacking behind in their performance of tasks and duties, the StP director is notified and aware of the situation. There is an Academic Register that works with the students at the branch and alerts

students individually, if they have not done a specific task. In addition to the aforementioned procedures, based on the meeting with ISMA Fergana (Uzbekistan) branch academic staff (consultants), 09/04/2024, it was clarified that after each semester the study department receives a survey from students on their satisfaction with the lecturers and study process, which are later on further sent to ISMA in Riga.

According to the QA meeting 03/04/2024, it is comparably harder to contact graduates and ensure their involvement in QA processes. Some of them are active and responsive, especially those that they cooperate with for provision of student internships, but there is also a substantial group of graduates that are inactive and unresponsive. During the meeting with ISMA Fergana (Uzbekistan) study process coordinator, methodologist, IT specialist, librarian, manager for foreign students, 08/04/2024, it was stated that in case of Fergana branch, the communication with graduates is closely maintained as they have a database where they work at the moment and can easily reach out to them. In most cases, graduates are employed in state companies or do their own businesses. Some of the graduates are also current employers and internship providers for students with whom they are maintaining communication. In both locations of ISMA - Riga and Fergana, the expert group observed a lack of formal communication with graduates. Despite the fact that it was stated in the SAR p.34 that there is analysis of graduate surveys and one of the graduates in the meeting with graduates of the study programmes "Computer systems" (47483) and "Information systems" (42483), 04/04/2024, stated that he did receive a survey after finishing his Bachelor degree, it is clearly noticeable that informal communication dominates the feedback process as none of the other graduates recalled filling the survey. However, an expert group did receive confirmation that such surveys are conducted by ISMA in Riga.

Based on the provided documents by ISMA representatives on Moodle platform, there is a clear separation from employer satisfaction survey and internship survey for student performance, which is positive. Based on the QA meeting, 03/04/2024, in regards to employer surveys, they are stated to be responsive, cooperative and never refuse to help. However, it is easier to receive feedback from them through meetings in person rather than to fill out formal papers. Based on the meeting with the director of the StP "Information systems", 03/04/2024, the expert group received a more detailed clarification that employers are a part of the Defence Committee and in most of the cases, the communication with employers outside internships is informal. During the meeting with ISMA Fergana (Uzbekistan) study process coordinator, methodologist, IT specialist, librarian, manager for foreign students, 08/04/2024, it was stated that in case of Fergana branch that the employers come to ISMA directly and ask for specific field specialists. The expert group has detected that there is close cooperation with employers, especially in the Fergana branch, which is a good indicator of the necessity of students for internships and graduates of ISMA for future recruitment. However, it has to be outlined that there is a demand for formal means of proof for such cooperation as well that would be highly necessary for the future as a form of QA maintenance and development. Thus, if possible, the expert group encourages ISMA to find proactive ways to involve employers in QA mechanisms formally as well. The provision of internships is carried out in accordance with the rules issued by ISMA. However, the internship contracts and reports submitted (<https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/2017/PS-251.pdf>, Moodle internships samples. Regulation of internship <https://www.isma.lv/studentiem/prakse>) correspond only partially to the StP to be assessed, a large part of the internship contracts provided to the experts are in line with another StP. Nevertheless, the following observations were made. In practice, an individual work task and achievable results for each student are not provided, nor is the internship manager provided and a report of the practice manager is submitted later, the student does not carry out self-assessment

Based on what has been observed throughout the onsite visit days and gathered in regards the internal procedures in all of the meetings, it has to be concluded that the feedback loop is not closed with the involved stakeholders - students, graduates and employers. Based on SAR p.31, students

receive the results of the survey individually and the results in a summarized form are discussed at the meeting of the respective Study Direction Council. However, none of the students when asked how they receive feedback on the issues they have raised in the surveys mentioned that they received survey results in a summary form individually. What they did specify was in regards to complaints and suggestions procedure that is further analyzed under 1.2.3. Based on the meetings with graduates and employers and also basing on the fact that most of them communicate with ISMA informally, the expert group is not convinced there is a feedback loop closure, which has to be encouraged to be implemented.

1.2.3. Based on the information that has been provided in the SAR p.33 as well as gathered during onsite visit, it is clear that there is a mechanism developed for submission of student complaints and suggestions. The procedure is regulated by the ISMA QMS procedure “Nonconformance Management” and is described in detail in “Internal Regulations of ISMA University of Applied Sciences for Students” under Section VI, which clearly states that ISMA and student communication takes place either in writing or electronically using electronic signature. Students have the right to submit applications, complaints and proposals to the director of the corresponding StP or to the vice-rector for the corresponding field of activity. Students submit their applications, complaints and proposals in due form to the Rector’s Office in accordance with the official procedure implemented at ISMA. In accordance with “Nonconformance Management” document procedural scheme outlined in p.3, after the respective complaint has been received, the responsible person evaluates whether immediate response is needed. In case it is, the following actions are taken. If not, the received information is reviewed in 2 days. After that, there is a review mechanism if any preventive or corrective actions need to be taken. If yes, then after the corrective action has been done in 1 day time, the applicant is informed. If the decision is that the corrective action is not necessary, then analysis of the reason why such a matter happened in the first place.

Based on the information that was collected in the meeting with students of the StP “Information systems” (42483), 04/04/2024, they rarely choose to go through the official procedure and rather try to solve any issues or possible complaints directly reaching out to the StP Director. As stated by the students, there was a recent replacement in StP director, thus, it may take some time for the person to adapt to their new role. However, in other cases, students can go to the Student Council and Study Department to address any matters related to the quality of the study process. In most cases, students stated that they feel open to approach problems directly with their lecturers or StP director. Lecturers are open to questions or matters that are issues at the beginning of their lectures.

It can be stated that the mechanism developed for submission of student complaints and suggestions is effective, promotes the implementation of improvements, students are informed about such opportunities and receive feedback.

1.2.4. Based on the information provided in the SAR p.34, ISMA obtains and analyzes various forms of data which applies to the StPs, such as 1. Data on students; 2. Data on teaching staff; 3. Survey results; 4. Expenditure on the improvement of the material and technical base. However, during the meetings onsite, it was not clearly explained what is the exact mechanism of data collection and who are the responsible persons of specific analysis performance, except those that were clarified, such as student survey summaries and analysis that are performed by the Student Council in Riga. There are many informal contacts with employers and graduates when collecting information and ideas for improving StPs. Experts confirmed that surveys with students are being performed regularly in Fergana and Riga. As mentioned prior under analysis of 1.2.2. there is no feedback loop to stakeholders in regards to the results of the performed analysis and based on their provided feedback. Based on the information provided to the expert group, ISMA does not have set up KPIs and there is no process to collect data/measure the achievement of the set goals, which is advised to be implemented in the future processes.

1.2.5. Important information on the StF and the StPs are published on the ISMA website and can be found here: <https://www.isma.lv/> . Information is provided in Latvian and English, which are the languages in which StPs of the StF are being offered and delivered. Additionally, ISMA's webpage is also provided in Russian. Students can find information about the offered programmes on the website, however, there is limited information on the study courses that are included in each of the StPs. There is an uploaded video with some relevant information of what is covered in the StP, however, it would be useful to have a file of a list of included study courses (study curriculum) on the website for each of the StPs. The website also includes information about study fees per one study year, which is indicated here: <https://www.isma.lv/en/for-applicants/tuition-fees>. The study fee is set to be EUR 3000 on the website, however, in the meeting with ISMA Fergana (Uzbekistan) branch management, 08/04/2024, it was stated that the study fee is EUR 2500. It may be that the study fee differs in the branch of Fergana. There seems to be lack of updated information on possible improvements of the StPs as the reports that are provided on the website when reviewing the information on the StPs are from the time period of 2013 to 2017, which is more than six years old - <https://www.isma.lv/en/study-programmes/professional-bachelor/information-systems> and <https://www.isma.lv/en/study-programmes/master/computer-systems> .

The expert group observed that the webpage lists a short-cycle programme "Applied Information Technology" which is not being evaluated in this accreditation process. ISMA should make sure that post accreditation process, only accredited StPs are to be listed in the webpage. [<https://www.isma.lv/en/study-programmes/first-level-higher-education/applied-information-technology>]

Based on the information that is provided on the website compared to the information that is provided on the E-platform, there is a contradiction in terms of qualification that is to be obtained after graduation for the Professional Bachelor programme. On the webpage, it is stated that students receive a qualification of System Analyst and on E-platform it is stated that students receive a qualification of Software Engineer. There is also a lack of information on the amount of credit points (CP) or ECTS that students must acquire during their studies.

Even if it has been clearly observed during onsite visit, that implementation languages of the StP are Latvian and English, on AIKA database there is shown that the StP are implemented in Latvian. Based on the information accessible to the expert group, ISMA had a chance to do the changes in the system if they are implementing studies in two languages starting from the year of 2016, that has not been implied. However, this information is stated on ISMA website, which causes contradiction.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

ISMA has established a quality policy that mostly ensures continuous improvement, development, and efficient performance of the StF and the relevant StPs. However, it is not in its current state and updated in accordance with the new development strategy. It is publicly available on the institution's website. Its quality assurance system allows the achievement of the aims and learning outcomes of the StF and both StPs. A formal system of communication for collecting and gathering feedback information should be established with the graduates and employers. In place is a mechanism developed for the submission of student complaints and suggestions, it is effective, promotes the implementation of improvements, and students are informed about such opportunities. ISMA does not have set up KPIs and there is no process to collect data/measure the achievement of the set goals. There are minor inconsistencies with information provided during onsite visit in regards tuition fees with what is stated on the website. Some documents are outdated that are present on the website. It is also stated on the webpage that students receive a qualification of System Analyst and

on E-platform it is stated that students receive a qualification of Software Engineer. There is also a lack of information on the amount of credit points (CP) or ECTS that students must acquire during their studies.

Strengths:

1. Various forms of submission of complaints and suggestions;
2. Student surveys are easily accessible to students on Moodle any time.

Weaknesses:

1. There is a lack of feedback loop closure to the involved stakeholders in the QA mechanism.
2. The communication with graduates and employers are more based upon informal communication.
3. The Student Council is performing student survey analysis and monitoring in Riga, which shall not be their duty.
4. Lack of a list of study courses that are included in the StP on the website that would be easily accessible to students that are considering applying for studies at ISMA.
5. Lack of clarity who is the responsible person/entity of data collection and how data collection is being performed at ISMA.
6. Outdated documents/information on the website.
7. In-clarity on how the content of the study courses is reviewed.

Assessment of the requirement [1]

- 1 R1 - Pursuant to Section 5, Paragraph 2.1 of the Law on Higher Education Institutions, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing its internal quality assurance system:

Assessment of compliance: Partially compliant

The internal quality system is in place. However, there is limited data and lack of systematic gathering of data from graduates and employers in place. There is no feedback on the received results of summaries (the loop is not closed) to these two groups. The feedback gathering mechanisms should be formalized in a written form. There is a lack of key performance indicators specified and there is no process to collect data/measure the achievement of the set goals. There are also some inconsistencies in information such as who is the responsible person of data collection and how data collection is being performed at ISMA. The information on the website is outdated such as the information on the StPs are from the time period of 2013 to 2017 and also the current quality policy document, which is stated to be currently under review.

- 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

ISMA has established a quality policy and procedures for assuring the quality of higher education. However, the current version of quality policy is outdated.

- 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

ISMA has accepted the mechanism for the development and internal approval of the StPs of the higher education institution/ college, as well as the supervision of their performance within the framework of the ISMA QMS.

- 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 published.

Assessment of compliance: Fully compliant

A process has been developed and included in the framework of the ISMA QMS: Ensuring the basic study process, as well as specific structural units/officials responsible for the process – ISMA Vice-rector for Studies, ISMA Vice-Rector of Academic Work, ISMA Department of Studies, ISMA Departments, and ISMA Training Centre. ISMA personnel, including students, have been introduced to ISMA's internal regulatory enactments, which regulate the criteria for evaluating student achievements, such as ISMA's Regulations on Studies, ISMA Procedures for the Organisation of Testing, the procedure for academic recognition of study courses at ISMA, ISMA Traineeship Regulations.

- 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: Fully compliant

ISMA has developed the procedures and mechanisms for assuring the qualifications of the academic staff and the work quality. The process is included in the ISMA QMS framework: Human resources management and development, as well as certain structural units / officials responsible for the process have been appointed - ISMA Vice-Rector for Administrative Work, ISMA Personnel Department, and ISMA Departments.

- 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: Partially compliant

ISMA ensures the collection and analysis of the collected information, but in the field of surveys with employers and graduates, they should formalize and further develop these procedures.

- 7 1.6 - The higher education institution/ college ensures continuous improvement, development, and efficient performance of the study field whilst implementing its quality assurance systems.

Assessment of compliance: Partially compliant

ISMA does have some mechanisms implemented to ensure continuous improvement, development, and efficient performance of the StF through the implementation of its quality assurance systems. However, it has to be noted that there are also some inconsistencies in information such as who is the responsible person of data collection and how data collection is being performed at ISMA. The information on the website is outdated such as the information on the StPs are from the time period of 2013 to 2017 and also the current quality policy document, which is stated to be currently under review.

1.3. Resources and Provision of the Study Field

Analysis

1.3.1. The analysis is based on information provided in the self assessment report (SAR), section 2.3.1. [SAR 2.3.1]. The section provides insight on budgeting and the financial allocation process within the ISMA. ISMA Revenues come from tuition fees, training courses, contract research, other

research activities, and rent, utilities and other services. They note that no state funding is received for the activities.

ISMA Board takes into account several parameters when assigning distribution of funding (budgeting) for a specific StF and its StPs, like (citation from SAR):

- 1) Ensuring administrative-economic activity;
- 2) Ensuring the functionality of the premises being used;
- 3) Provision of the study process with teaching aids;
- 4) Ensuring the social life of the HEI (student events, student involvement, freshman ball, traineeship conferences, ISMA festival, etc.);
- 5) Social benefits for students (budget places, etc.);
- 6) Renewal and supplementation of teaching equipment (computer software, etc.);
- 7) Promotional activities (promotion of StPs, including in social networks, organisation of Olympiads, laboratory days, etc.).

Practical planning of fund distribution is done by the Financial Department, and approved by the Rector. Overall 27-32% of the funding is allocated for salaries and research, including 5-6% for the purchase of library resources and databases.

During the Riga visit, experts were able to learn and discuss the financial support system in ISMA during meetings with the management, StP directors and staff. Experts understood the system (or procedures) key steps to be:

- 1) Academic staff requests provisions and other financial means they require.
- 2) The needs are evaluated yearly, when, together with the Financial Department, it is planned on what is needed for continuing a successful study process.
- 3) Final decision rests on the management board. Payments are signed off by the board.

Experts understood that the same system is used also to evaluate funding scientific activities. More notably ISMA supports its own yearly conference proceedings, and provides support for some research activities for students during thesis preparations, and a few research projects for academic staff. [Meeting with the HEI management],[Meeting with the director of the StF and director of the StP: "Computer systems" (47483)], [Meeting with the director of the StP: "Information systems" (42483)], [Meeting with the academic staff]

Experts were provided with examples by the StF Director on a recent positive decision to invest in new robotic programmable devices. [Meeting with the director of the StF and director of the StP: "Computer systems" (47483)]

Experts also learned that academic staff are actively looking, and suggesting each other to use nowadays widely available resources, like Microsoft Azure free credits and resources for students, lightweight open-source tools for study processes. [Meeting with the director of the StP: "Information systems" (42483)]

expert group conclude that there is no dedicated yearly budget for research, although some research focused activities proposed by teaching staff as supported (e.g. participation in conferences, research projects). Overall it appears that the system for funding scientific and / or applied research is sporadic and funding decisions appear to be taken opportunistically when need arises and not based on a predefined yearly research budget. expert group opinion of the system is that it is primarily business, not academically driven (which is understandable given the small management team and being privately owned), the system seems to be partially sufficient for now, given that experts did not hear any strong complaints in the meetings, and it corresponds to the aforementioned parameters when assigning the distribution of funding.

1.3.2. ISMA describes infrastructure for the study process in SAR 2.3.2, as well as in [SAR 3.3.1 - 42483] and [SAR 3.3.1 - 47483].

ISMA provides study locations (buildings):

- 1) In Riga, Latvia - Valērijas Seiles (former Lomonosova) street 1 (building 5, building 6 and 7).

Expert group visited the premises on 3rd and 4th of April, 2024. The buildings appear to be recently renovated with a fresh look from the outside and the inside. ISMA has an on-premises Cafe, and nearby grocery store Rimi. Situated in Riga, easily accessible by public transport and other urban mobility means. During the premises tour, experts saw several lecture / class rooms, equipped with computers, projectors, and interactive whiteboards. Computers had preinstalled software for studies, like Microsoft Visual Studio, Vensim, Mathcad, and others. At the time of tour, one class room was set up to work with Keyestudio platforms, arduino based educational kits for robotics studies, and experts witnessed a class in action. SAR lists that Riga site has 4 auditoriums with a total number of 73 computers for studies. [SAR 2.3.2]. Experts saw that at least one of the rooms was equipped with several networking devices for studies (Mikrotik routers, access points, as well as HP enterprise routers). Some auditoriums are also equipped in a configurable manner to allow students group work (easy-to-move chairs with small desks).

2) In Fergana, Uzbekistan - former Fergana Officers House - building allocated by Fergana City Council, and repaired by ISMA. It contains 11 auditoriums, 2 computer classes with 21 computers. Three experts visited the premises on 8th and 9th of April, 2024, while two experts joined the meetings remotely. During the tour on premises experts were able to observe that:

- a) Premises are located in a state-owned building, which ISMA is renting.
- b) First building has been renovated by ISMA (150k investment) with fresh equipment and fresh furniture. Thus the building, although historic, appears to be looking very good.
- c) Second building is undergoing reconstruction, paid by the State. They plan to finish it by the end of next year.
- d) Experts saw a conference hall (not too big, thought) that can accommodate all 50-60 students
- e) Experts saw a classroom with $4 * 6 = 24$ seats for lectures
- f) Experts saw two classrooms, each set up with ~ 10 computers.
- g) Conference hall, lecture rooms and classrooms have TV screens (65-80") with audio setup, with mobile microphones.
- h) Nearby the university has sports infrastructure - stadium, etc. Agreement in place to use them.
- i) Information for students, posters, etc, is in English and the local language. Experts saw posters where Fergana ISMA students were invited to participate in a conference in ISMA Riga.

Overall ISMA Fergana infrastructure can physically accommodate the current 50-60 students in existing Business administration and Tourism programmes as well as additional 50+ students in the planned Information Systems UG programme.

Online infrastructure: website for public and internal communications (portal my.isma.lv) for lecture schedule, academic staff contacts, Moodle, Digital library.

In addition, for Fergana branch, ISMA has secured access to:

1) Information Resource Center of Fergana State University - ISMA students can use unlimited resources of the information center. The Information Center recently purchased modern English books on request of ISMA.

2) Cooperation agreement between ISMA Fergana Branch and Fergana Regional Information Library Centre "Ahman Fargoni" - Fergana branch students can request books from the city library.

In Riga branch, ISMA has provided material and technical means for StF in form of:

1) equipment for practice and lab works: robotic programming kit, arduino maker learning kits by keyestudio, solar tracking learning kits, technical training systems by Lucas-Nulle, Networking lab is equipped with Mikrotik, Dlink, Synology and other relevant manufacturer equipment.

2) study rooms equipped with computers with pre-installed software, e.g. Visual Studio Professional, Microsoft Office 2019, Android Studio, PTC Mathcad Prime, Arduino IDE, Audacity, Vensim, GIMP, Inkscape.

3) Microsoft Azure Dev Tools, Oracle VM VirtualBox virtual environments are used during teaching and studies,

In Fergana branch experts were not able to see material and technical means for Information

Systems programme implementation. It was explained during meetings [Meeting with Fergana branch management] that provisions will be procured after successful accreditation of the StF. In Experts opinion this is a reasonable plan and the management team seems to understand the steps that need to be taken to get the provisions in Fergana. Overall, ISMA needs to ensure that the same resources (hardware, software) which are available in the campus in Riga, are available in Fergana. Overall ISMA provided material and technical availability is sufficient as acknowledged by academic staff and what experts were able to see during on-premises visit, and via provided additionally asked list of hardware and software tools used for study process.

The system and procedures for the improvement and purchase of material, methodological, informative, etc. provision is covered in previous criteria evaluation (1.3.1).

Expert group note that equivalent resources should be provisioned for the Fergana branch to ensure similar quality.

In experts group experience it is quite common to see use of EU/ERDF funding support for supporting investments in the infrastructure (buildings, renovations, provisions). In case of ISMA, experts failed to notice EU/ERDF co-funding for infrastructure, and it seems most of repairs and renovations were done in private manner. In experts opinion if possible ISMA should pursue all possibilities of additional funding. Using such funds could improve the financials of the ISMA.

1.3.3. The system and procedures for the improvement and purchase of methodological and informative provisions is provided in SAR 2.3.3 - in short - funds are planned yearly, StP and StF directors cooperate and coordinate new subscriptions and orders. Orders over 15000 EUR per year are reviewed by ISMA administration and approved by ISMA Rector. Librarian compares the suppliers and prepares the purchase order. After receiving the new literature - staff and students are informed of the new additions.

The SAR in detail describes the available library and database resources. Library (assuming Riga location) is 286 m², with 2177 on-site available titles, or more specifically, 517 titles for IT topics. [SAR 2.3.3] Experts visited the library and were able to see a variety of IT field related books that were mostly quite fresh (<10 years or newer), which in experts opinion is very good. In experts opinion the number of titles available for IT fields is very impressive given the size of the HEI. ISMA also has an electronic library with digital books.

Regarding the online resources and databases - ISMA provides access for the students to EBSCO and Scopus databases, as well as other databases not relevant to the IT field (International Monetary Fund publications). To experts' understanding, currently most scientific articles are obtained using open access type of databases (Google Scholar, Index Copernicus, Open research Library and others). In Experts opinion this can provide only bare minimum for scientific and research activities. This was also supplemented in meetings with students, when inquired about research activities during thesis preparation, students mentioned that they have used library and database resources. Although some articles can be acquired via open-access, students expressed the wish to be able to use IEEEExplore and ACM Library subscription for article download. One student had the possibility to use his IEEEExplore account from the previous HEI, and would prefer if ISMA provided IEEEExplore access.[Meeting with students from both StPs]. [SAR 2.3.3]. IEEEExplore and ACM-library are key portals that the department needs to acquire subscription so that students can get access to scientific articles related to the StF

Library working hours seem not to satisfy master level students, as usually their lectures start at 18:00, but library staff working hours are till 16:00 (although library is open as long as the building is open, there is no staff in library to provide book or copy services).

In Fergana branch ISMA premises currently has a small library. On the other hand, ISMA Fergana has agreements with two nearby libraries, where students can receive required literature - Fergana city library, Regional city library. ISMA Fergana library working hours are 09 - 18. Occasionally students can come work here on Saturdays and Sundays.

1.3.4. ISMA provides several ICT solutions to improve their operations quality and efficiency.

ISMA has a dedicated IT Department that provides support for creating, developing and maintaining integrated information systems; ensuring data communication services, data centers; and providing IT service support.

Notable ICT solutions used are:

- 1) Moodle e-learning system, used for all study programmes and all students.
- 2) Video conferencing by Zoom and Big Blue Button for remote/online classes and for distance learning.
- 3) Integrated information system for premises management, study planning, scheduling.
- 4) On premises data-centre for self hosted servers, surveillance system, data systems.
- 5) Digital surveys are used for quality control and improvements.
- 6) Azure Dev Tools and Oracle VM VirtualBox virtual environments for study process.

[SAR 2.3.4]

ISMA encourages students to train presentation skills in many study courses, and are encouraged to use online collaboration platforms like Google Collab or Jupyter Notebooks, Jupyter Lab.

ISMA demonstrated the use of the Moodle platform, which is used extensively to share course materials and information to students. Experts have access via expert login to the Moodle platform and can see two study courses, and the contents seem to be detailed and well prepared for the students. There are course descriptions, course contents.

ISMA also introduced us to their appointed Distance Learning Methodist, who demonstrated us courses in Moodle prepared for Distance Learning StP deployments. There have also been prepared guidelines for academic staff on how to prepare contents for Distance Learning type of studies. [Tour on premises, Moodle demonstration]

In some cases in Moodle experts observed differences in grading between Course Description documents, and description in the Moodle study course. The issue could be a minor, nevertheless for clarity of students, the grading information should match.

Students use ISMA info system (my.isma) for time tables and other relevant information, although experts learned that time-tables are shared with students in a digital downloadable format - word/pdf, and are asked to regularly (once per week) to download and check for changes for this weeks schedule. Although no complaints about the system were given by involved stakeholders, in experts opinion at some point ISMA should consider adopting a fully digital time table and scheduling system, and also providing its own web app for Android / Iphones. [Meeting with students][Additional meeting with study planner / methodist]

ISMA does not provide edu email accounts for students, and rely on communication with student's personal email accounts. This also results in students not having access to educational type of ICT solutions, e.g. Microsoft Teams, and other MS365 products, which was explicitly mentioned by a student that would be beneficial. [Meeting with students].

During a visit to the Fergana branch, experts were able to observe that Wireless internet (Wifi) connectivity was stable in ISMA Fergana premises, and with sufficient bandwidth to facilitate Zoom meetings. Thus remote teaching via Zoom can be implemented well. On the other hand, an IT specialist shared his insight that it is not typical in Uzbekistan, in Fergana to have stable and high bandwidth network connection at home. Thus ISMA should pay attention for students enrolling in Distance Learning programmes, if they plan to study mostly from their homes, and stable high bandwidth network availability should be a prerequisite to enrolling student to distance learning programme.[Meeting with Meeting with ISMA Fergana (Uzbekistan) study process coordinator, methodologist, IT specialist, librarian, manager for foreign students.]

1.3.5. From the on-site visit experts understood that the decision to open a new teaching staff position is made by the StF Director together with the Rector and Management Board. The recruitment and sourcing is the responsibility of the Head of HR. Usually job positions are posted in

local public resources and webpages (www.cv.lv, others), as well as directly approaching selected persons. [Meeting with Management] SAR provides a description on how the candidates are evaluated.[SAR 2.3.5]

Academic positions appointment process is described in ISMA document “Nolikums par akadēmiskajiem amatiem.” Elected title positions (professors, asoc.professors) are implemented according to the legal requirements. [https://www.isma.lv/images/FILES/ISMA_nolikums_par_akademiskajiem_amatiem_2021_1.pdf]

ISMA has adopted a Human Resources Development Strategy, that also describes ISMA efforts for attracting qualified teaching staff and other HR development aspects. [SAR 2.3.5], [Strategy, https://www.isma.lv/images/2024/documents_en/ISMA_Cilvkresursu_attstbas_stratija_lat_ENG.pdf]

Experts conclude that ISMA acknowledges the importance of qualified teaching staff and has established a documented and processual basis for successful implementation in future. In last years it seems that ISMA has recruited new teaching staff, indicating that the procedure are working. Expert group was able to observe during meetings in Fergana that in Fergana branch ISMA employs teaching assistants. ISMA HR related procedures should reflect on how the assistants are selected, recruited and managed.

1.3.6. Analysis of the submitted information [SAR 2.3.6] describes the process for teaching staff development. ISMA evaluates teaching staff performance by (1) self-evaluation; and (2) student surveys. Student survey results are consolidated by the Student council and provided to the StF Director. Based on the survey results, the StF Director with involved stakeholders decide how to act upon the feedback. Two key actions are described that happen out of the performance evaluations: 1) Qualifications are improved by taking part in various seminars and courses, both as participants, and as teachers. Example given for English language courses.

2) Participation in Erasmus+ is given preference to better evaluated teaching staff. ISMA also states that in their opinion, best qualification rising is achieved through their involvement in research, and cooperation with business representatives. Experts agree with this statement, that research is a good way to improve qualifications, although in experts opinion, evidence of research activities currently undergoing by ISMA academic staff is rather limited and should be increased.

Recently ISMA has adopted a new strategic planning document - “HUMAN RESOURCES DEVELOPMENT STRATEGY”, [Strategy, https://www.isma.lv/images/2024/documents_en/ISMA_Cilvkresursu_attstbas_stratija_lat_ENG.pdf] that includes SWOT analysis, vision and mission, HR development strategic priorities, aims, objectives and achievable results, as well as strategy implementation. The document outlines plans related to this criteria evaluation in priorities such as:

- 1) Renewal of human resources,
- 2) Development and professional growth of human resources,
- 3) Retaining and motivating human resources.

The planned actions and expected outcomes are well thought of, and includes a wide variety of actions to ensure ISMA teaching staff and general staff are of high quality. Experts evaluate the document to be of high quality content and suggest ISMA carry out these plans. ISMA teaching staff confirmed that ISMA supports professional development in the form of Erasmus projects, attending courses and seminars and training, both locally and abroad (ISMA covers travel, accommodation, etc.).

1.3.7. ISMA [SAR 2.3.7] lists remuneration hours allocated for organizational and research work. Allocated academic hour rates for the organizational and research work seems to be appropriate (e.g. 1 ac.h/1 A4 page of study material or slide).

Expert group reviewed provided Study plans [Annex 3.2.4],[Annex 4.2.4] for both StPs, interviewed responsible persons, and by additional request experts received from ISMA a table with list of

teaching staff in IT direction with their respective contact hours per semester [Additional document Info_Teaching_Staff_IT.xlsx]. From the information experts understood, the average academic teaching contact hours workload is 7 - 10 hours per week of direct contact activities, while reaching 16 hrs/week and 14.5 hrs/week for most involved personnel. In experts opinion this is a reasonable number, and does provide enough time for additional tasks for the person, for example, to prepare for the lectures, or to carry out research and administrative tasks. Experts would suggest to ISMA to try to ensure the work load does not exceed 12 hrs/week for the professors, to ensure enough time for additional administrative and research efforts. When launching the programme in Fergana, it is necessary to ensure that the workload balance of teaching staff remains balanced.

In several cases it seems that, given the chance, the elective study courses are selected, a teaching staff could not perform all undertaken, e.g. academic work + 150 hrs Director of StP + additional private workplaces, if any.

On top of that, launching the programme in the Fergana branch implies that teaching staff will have to carry out additional academic workload in the block / module approach (2-week blocks) in Fergana. Expert group opinion is that the current workload balance is reasonable, but should be revised by ISMA when launching the StF in Fergana branch, and mitigate the workload balance risks by increasing the number of teaching staff involved in this StF.

1.3.8. ISMA provides excellent support for students, as is critical and expected from a private HEI. ISMA mentions most important to be [SAR 2.3.8]:

1. Support and facilitation for multicultural backgrounds
2. Facilities fit for students with reduced mobility
3. Provides solutions with a variety of pedagogical methods to accommodate both full and part time students.

ISMA support for students was acknowledged by students themselves, and their experiences how ISMA has helped them. Some examples:

- 1) Help with residency permit, by preparing documentation to submit to The Office of Citizenship and Migration Affairs (in Latvian - Pilsonības un migrācijas lietu pārvalde (PMLP))
- 2) Accommodating payment schedule to four installments for study year,
- 3) Help to set up VISA to move to Latvia
- 4) Onboarding events in form of Orientation day.

It was mentioned several times that students find the academic staff to be easily accessible, are forthcoming, establish an open and free atmosphere to ask questions and provide consultations. [Meeting with students]

Although SAR 2.3.8 states that facilities are fit for students with reduced mobility, experts observed that some classes are on higher floors and no elevators are present, and no lifts on stairs are present.

In some cases it might be beneficial if ISMA could also help with setting up accommodation for students.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

Provided infrastructure and material resources are sufficient and thought should be given to offer the same level resources in the Fergana branch. Improvements in ICT and library databases are suggested. System for funding allocation is reasonable given the size and type of management. Risks regarding the workload balance for teaching staff are detected.

Experts saw no evidence that any kind of EU/ERAF fund support has been utilized to co-finance investments in provisions. Using such funds could improve the financials of the ISMA.

Strengths:

1. Good quality renovated buildings in Riga from inside and outside.
2. Excellent support for students.
3. Library contains modern IT related literature.
4. HR Development Strategy puts ISMA in good position for further development of teaching staff.
5. Distance Learning Methodist position helps to prepare and ensure quality distance learning study courses.

Weaknesses:

1. Library does not provide database access to IEEE Xplore and ACM Library.
2. Library working hours could align better with master students' lecture times.
3. Using student personal email addresses, and not providing edu accounts, limits possibility on providing students with ICT solutions like Microsoft 365.

1.4. Scientific Research and Artistic Creation

Analysis

1.4.1. According to SAR, 1.1 since its establishment ISMA has set Excellence in Research and Innovation as one of its strategic visions. The synergy between research and the study process is set as one of the fundamental goals of this vision. In addition to this ISMA have set specific goals that relate to (1) the integration of doctoral student and other young scientists in the international scientific environment, (2) the development of impactful new products and technologies (socially and economically), (3) the transfer of knowledge, integration into international networks as well as in European research through joint mobility projects and (4) publication of scientific results in high quality international dissemination channels. According to SAR, 1.1 it appears that ISMA has set some targeted objectives [O.2.1-O.2.11] to achieve the set goals in research excellence.

According to SAR, 2.4.1 it appears that in 2015 ISMA restructured the organization of scientific research to align it with the strategic development plan of the University. This included the identification of Research directions according to the interests of students and employers. These include: (1) The Administration and Security of Computer Systems, (2) Intelligent Training Systems, (3) Intelligent Training Systems, (4) Applied Computer Media Design (5) WEB Technology Information Systems and (6) Intelligent Nanosystems. Main topics of research include Machine learning methods and artificial intelligence, ICT and electronics, Semi-automatic asynchronous logic synthesis in the XILINX system, Mobile App and Artificial Intelligence.

It is the opinion of the expert group that these research directions/topics/areas are aligned with the International Research Trends in ICT. Nevertheless, the reported scientific output [SAR, Annex 2.4.2] does not appear to be fully aligned with these research directions. Only 3 of the academics appear to carry out research on the targeted research areas. More specifically, only the following academic members of staff for whom, publications and projects have been provided appear to be relevant to the identified research focus areas:

- 1) Andrejs Bondarenko work relates to Machine Learning/AI
- 2) Viktors Gopejenko on AI, asynchronous logic synthesis in the XILINX system
- 3) Alexander Mrochko, various topics directly related to ICT

The remaining academics whose works have been reported in [Annex, 2.4.2] appear to be on topics not directly related to the StF. The experts have managed to verify this through the meetings with the StF director as well as with the resident academic staff.

More specifically Aleksandrs Bereznojs specialization and work appear to be related to mathematical modeling, Jelena Caiko work appears to be interdisciplinary and relates to various areas in Electrical Engineering and Power Systems, Romans Djakons on areas related to learning, education and University governance, Juris Roberts Kalnins on topics related to chemical processes and dust grains,

Rostislavs Kopitovs on areas not directly related to ICT (Financial Company Value, Investments in Higher Education, geopolitical matters etc.), Liepa Evija on topics related to Economy, Society and business, Oksana Pozdnyakova on topics related to educational technologies, Tatjana Lapaine on non-ICT topics, Ivars Linde on topics related to Educational Governance, Viktoriia Riashchenko on non-ICT projects (mostly business or society related topics), Inese Trušiņa on Sustainability, on Valentīna Djakona on business, Valentīna Djakona on human resources and employability.

Most of the reported works are conference papers. No evidence of publication at reputable dissemination channels (e.g. journal publications to high-impact factor journals).

It seems that many of the academics appear in publications with many authors. Although this might not necessarily be bad, it does not provide any evidence of research independence and capacity to drive research.

There is no evidence of doctoral programmes related to this StF which does not seem to satisfy the strategic objective of the institution to engage doctoral students in scientific research.

As it is claimed in SAR 2.4.1 a large part of research is carried out in the final theses. Some student theses have been provided during the site visit which verified that some evidence of scientific/research work is being done both at the UG and PG level however it is doubtful whether such results could lead to the development of impactful new products and technologies aligned with the Institutional Strategic Objectives. No evidence of such development was provided. It was also reported during the [meeting with the StF director, 03/04/2024] that students have to present their work at the Conference organized annually at ISMA, however this conference does not appear to be peer-reviewed.

Most of the scientific output of the academic members of staff as reported in SAR, Annex 2.4.2 does not appear to be published in reputable journals nor in any well-known international conferences related to the StF. Additionally, SAR, Annex 2.4.2 does not provide evidence of engagement with International Research and/or mobility activities in the identified key topics of research. The academic members of staff which are included in SAR, Annex 2.4.2 appear to work in projects which are only funded by National Funding Agencies and not all of them are related to the StF.

1.4.2. It is evidence that two out of four academics mentioned in SAR, 2.4.2 produce scientific research output that is directly relevant to the StF. These are Bondarenko Andrejs and Gopejenko Viktors who appear to be quite research active on topics that are aligned with the main thematic areas of the StF. However, it is not clear how the scientific results from the other two academic members of staff who are named in SAR, 2.4.2 (Kalniņš Juris and Riaschenko Viktoriia) are relevant to the main focus areas of the StF (Physics/Astronomy and Economics/Business).

No concrete evidence on how the outcomes of any of the research or scientific works of the academic members are integrated in the study process in the StPs of all levels.

1.4.3. It appears that the academic staff engages in national collaborations through projects funded by national agencies but it appears that there is lack of engagement in International projects (e.g. EU funded projects such as Horizon 2020, Erasmus+ etc). This does not seem to satisfy the ISMA strategic objective for integration into international networks as well as in European research.

Regarding Publications, there are two works reported in SAR 2.4.3 which do demonstrate some international collaboration across various countries, however they do not constitute significant scientific outputs one is just a review on Machine Learning and Artificial Intelligence and the other one does not directly relate to the StF, nor they are published in any of the top tier journals in the discipline (e.g. IEEE or ACM). Additionally, in none of these two multi-author works the main author appears to be from ISMA.

1.4.4. According to SAR, 2.4.4, it appears that ISMA has put in place some motivational incentives for teaching staff to engage in research in the form of awards, merits and recognitions. Also staff is

required to fill in a table regarding their scientific and professional activities which would only incentivise them to self-reflect on their performance without actually supporting them on how to engage. It appears that there is no evidence of any mechanism to practically support the engagement of academic members of staff in research like financial support to participate in conferences, training and mentoring of early-stage researchers, sabbatical schemes, internal research funding, training on how to engage in international research and innovation calls etc. [Meeting with the StF field Director, 03/04/2024].

1.4.5. According to SAR, 2.4.5 ISMA recognizes through its strategic priorities that students need to get involved in scientific research which is the expected objective of all modern Universities around the world. It is also expected that as part of their studies, all students should engage with elements of research but it is the opinion of the expert group that this should not be regarded as an indicator of involvement in scientific research. Student involvement in scientific research could be demonstrated through practical involvement of students in the scientific research work of their professors/lecturers, publication and/or contribution in scientific outputs. ISMA has not demonstrated such indicators nor is there any evidence of a mechanism to support the students to get involved. It was pointed out during the [Meeting with the StF Director, 03/04/2024] that UG and PG students are obliged to present their work at the conference organized at ISMA which is recognized by the experts as an excellent mechanism in getting experience on how to present scientific results but it cannot be on its own an indication of scientific involvement.

1.4.6. According to SAR, 2.4.6 it appears that ISMA is implementing measures that are reported with regards to attracting students, improving the material and technical base, promoting creativity and international cooperation, and developing students' professionalism. Although all these definitely constitute good practices which could have a positive impact on the study process in various ways they are not necessarily innovative. Innovations could be related to the use of data analytics and/or artificial intelligence for the identification of good potential student markets, identification of students at risk, plagiarism and bad academic practice detection and others. Nevertheless, the business incubation reported in [SAR, 2.4.6] could potentially be a rather innovative way of supporting students to develop their ideas and possibly create business opportunities for them.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

Overall ISMA has defined some well-defined research directions/topics/areas that are aligned with the International Research Trends in ICT and the StF. However, the reported scientific output does not appear to be fully aligned with these research directions. Only few members of staff are engaged in research on related topics while their publication output is not of the highest standard (absence of publications to reputable conference proceedings or journals). Additionally, there seems to be no evidence of engagement in International Research project or any other international collaboration while some national research funding has been acquired. The expert group has also noted the absence of a clear mechanism on how to support academic staff to get involved in scientific research. Student engagement in research appears to be limited to the presentation at a locally (at ISMA) organized conference which appears not to be peer-reviewed.

Strengths:

1. Well-defined research directions which are aligned with the StF.
2. Quite good engagement in nationally funded research projects.

Weaknesses:

1. Only a few academic members of staff are researching topics related to the research directions. 2. Not all of them appear to be fully covered yet. New members of staff need to be appointed or existing members of staff need to engage in research related to the identified research directions and produce outputs of better research quality. (not just conference papers but also publications to reputable journals related to the identified research directions.)
3. Many academics appear as co-authors in publications with many other authors. Multi-authored publications, although not always bad, do not constitute evidence of research initiation or research independence, especially if the researcher is not named first (or last) on that publication.
4. It appears that the academic staff engages in national collaborations through projects funded by national agencies but it appears that there is a lack of engagement in International projects (e.g. EU funded projects such as Horizon 2020, Erasmus+ etc). This does not seem to satisfy the ISMA strategic objective for integration into international networks as well as in European research
5. It appears that there is no specific mechanism to support the involvement of teaching staff (e.g. training, sabbatical schemes, teaching load reduction, funding to go on conferences etc.) in scientific research and/or applied research apart from some motivational requirements or incentives.
6. Student involvement in scientific research appears to be limited to presenting their work in a non-peer-reviewed conference organised annually at ISMA.

Assessment of the requirement [2]

- 1 R2 - Compliance of scientific research and artistic creation with the level of development of scientific research and artistic creation (if applicable)

Assessment of compliance: Partially compliant

There exist well-defined research directions that are aligned with the StF and follow the International research trends however not many academic members of staff are involved with research related to the StF (only 3). In this context, scientific work/Research needs to be improved. Academic members of staff need to publish works at peer-reviewed conferences and journals. Currently, the publication record of academics is mostly in non-peer-reviewed conferences. Also, they should engage in International Research activities, not just locally funded research. There is a lack of institutional support to academic members of staff to do high-quality research mostly because they appear to be very loaded with teaching or there appears to be a lack of financial or other (e.g. sabbatical scheme, reduced teaching scheme, trainings etc) to support them. Student involvement in scientific research appears to be minimal in presenting their work at a non-peer-reviewed conference organized at ISMA.

1.5. Cooperation and Internationalisation

Analysis

1.5.1. ISMA has established a network of local collaborations with major educational institutions, such as the University of Latvia and Riga Technical University, as well as a range of other entities including employers, governmental organizations, and scientific institutes (SAR 2.5.1). A list of the number of cooperation agreements (Annex 2.5.1) was submitted. Collaborations with top universities like Daugavpils University facilitate the development of joint StPs, enriching the curriculum and providing students with access to diverse academic environments from various fields. The Smart Technologies Research Center, established in partnership with Ventspils University of Applied Sciences, is an example of how local collaborations can significantly enhance the research landscape. Engagements with local companies, such as Air Baltic Corporation AS, provide students with valuable internships and placement opportunities, aligning academic theories with practical

industry demands. This bridges the gap between education and employment, enhancing student employability upon graduation. Regular interaction with employers and industry through events like the annual Internship and Employment conference ensures that students are exposed to the latest industry trends and potential job opportunities. The establishment of the Nanotechnology Laboratory and involvement in European Regional Development Fund (ERAF) projects like the design in a reconfigurable environment and the development of a new preventive eye muscle training device are indicative of the innovative research being undertaken at ISMA. ISMA employs a wide array of criteria to choose its partners, focusing on general educational compatibility, the efficiency of operations, and overall reputation. While these criteria are significant, they do not specifically cater to the nuanced needs of IT and related fields, which require specialized knowledge and cutting-edge technological capabilities.

A noted issue is the lack of accessible detailed information regarding the specifics and outcomes of recent collaborations. This gap hinders proper assessment and may obscure the understanding of the impact and value derived from these partnerships. During meetings, there appeared to be a disconnect between the management's reports and the programme directors' confirmations regarding ongoing collaborative activities. This lack of clarity and difficulty in verification suggests a need for better documentation and communication within the institution regarding collaborative efforts. The current criteria for selecting partners focus broadly on general educational compatibility and reputation but do not prioritize advanced technological resources and expertise in emerging IT areas such as artificial intelligence, machine learning, cybersecurity, and blockchain. For instance, there are no significant collaborations with institutions known for their advanced IT labs or substantial research output in these cutting-edge areas, leaving a gap in specialised training and exposure for IT students.

1.5.2. ISMA's cooperation with international institutions indeed covers a broad range of activities and partnerships, focusing significantly on the IT StF (SAR 2.5.2, Annex 2.5.1). The partnerships are strategically chosen to align with the educational needs, which is crucial for achieving the aims and learning outcomes of the IT StPs. Collaborations with other institutions provide ISMA students access to specialized knowledge and skills that are essential in the IT field, such as advanced computing technologies and innovative software development practices. Overall, ISMA's strategic approach to selecting partners based on the specific requirements of the IT field and its related StPs contributes to achieving the desired educational and professional outcomes, preparing students for the IT industry challenges. ISMA has established various international partnerships under the Erasmus+ programme and other bilateral agreements, enhancing its educational activities. ISMA has very good international cooperation, including several meetings with ministers and embassy staff and consular services from different countries. These partnerships span across Europe, Asia, and beyond, reflecting a diverse and international approach to education. ISMA has engaged in multiple Erasmus+ collaborations that directly involve the IT StF. For example, partnerships with institutions like the University of Granada and others focus on exchanging knowledge and resources in areas such as computer science and information technologies, which are pivotal for the IT field. The establishment of a Start-up Centre in Fergana signifies ISMA's commitment to fostering innovation and practical skills, which are essential for IT students. This centre likely serves as a hub for IT entrepreneurship and technology transfer, providing students with first-hand experience in start-up culture and business development in the tech sector. Fergana branch international cooperation with Asian and European universities after the opening of the StP. The plans are credible and significant. For example, Fergana branch is planning to cooperate with graduates of Asian universities.

Despite the extensive network of collaborations, there is a noted lack of specific projects or publications directly emerging from these partnerships, particularly in cutting-edge IT research. This gap might limit the depth of research and innovation exposure for IT students. Many of the

international agreements are not specifically tailored to the unique requirements of the IT StPs. Instead, they often cover a broad range of subjects, which might dilute the focus needed for specialized IT education and research.

1.5.3. ISMA actively engages in international campaigns and educational exhibitions to raise its profile and attract foreign students, indicating a proactive approach to internationalization. The establishment of representative offices in strategic locations like Uzbekistan, Ukraine, Kazakhstan, and Switzerland helps to maintain a presence in these regions, facilitating easier access for potential students and partners. Collaboration with agents in countries like India and Azerbaijan helps to bridge cultural and logistical gaps, making the enrolment process smoother for prospective students from these regions. Employing "ISMA messengers," (SAR 3.5.3) where current students and alumni help recruit through word-of-mouth, leverages personal testimonials, which can be more persuasive than traditional marketing methods. Hosting international conferences provides a platform for showcasing ISMA's academic environment to potential teaching staff, promoting academic exchange and potentially recruiting high-calibre teaching staff interested in ISMA's research and teaching opportunities. Mobility programmes provide students and staff with exposure to different educational systems and cultures, enriching their academic and personal experiences. This exposure leads to a broader understanding of the subject matter, especially with practical and diverse teaching methods that are observed in other institutions. Both students and staff build valuable international networks that aid in academic collaborations (ERASMUS).

However, there is minimal support provided for incoming students and staff once they commit to joining ISMA. This lack of support deters potential candidates who require more structured assistance in transitioning to a new academic and cultural environment. The reliance on personal contacts for teaching staff recruitment and collaboration limits the scope to those within the existing network, potentially overlooking broader opportunities or more suitable candidates outside this circle. The absence of detailed information on teaching staff engagement beyond Erasmus programme activities lacks structured programmes for staff development and integration, which are crucial for long-term academic enrichment and retention, especially taking into account teaching staff load (in some cases over 15 contact hours per week) (Answers to request received on 08.04.2024.). The limitation of robust research projects and employment opportunities at ISMA not only impacts students' educational and career trajectories but also affects the university's standing in the academic community.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

ISMA has established a framework of local and collaborations aimed at enriching the educational experience. These collaborations contribute positively to the academic and practical training of students, aligning educational outcomes with industry demands and enhancing overall student employability. Local collaborations have significantly contributed to the enrichment of ISMA's curriculum. However, there is a gap in the availability and transparency of detailed information about these collaborations, which hampers effective evaluation and may limit the understanding of their full impact. Internationally, ISMA has been proactive in establishing partnerships that support both student and staff mobility, enhancing the institution's educational offerings and research capabilities. These collaborations are strategic, although there remains a need for a more focused approach, particularly in aligning partnerships directly with the specialized needs of the IT field. The mobility programmes are a significant asset, offering both students and staff valuable international exposure and opportunities for academic growth. Nonetheless, the support systems for incoming and outgoing participants need strengthening to ensure smoother transitions and integration into ISMA's academic environment.

Strengths:

1. ISMA has established a broad network of partnerships with both local and international entities. These collaborations enrich the curriculum and provide students with valuable learning experiences across different academic environments.
2. The establishment of representative offices in countries like Uzbekistan, Ukraine, Kazakhstan, and Switzerland, and the strategic use of agents in countries like India and Azerbaijan, demonstrate ISMA's commitment to internationalisation and its ability to attract foreign students effectively.
3. The establishment of the Smart Technologies Research Centre and the Nanotechnology Laboratory highlight ISMA's focus on advancing capabilities.
4. Participation in programmes like Erasmus+ enhances the mobility of students and staff, which contributes positively to the study process by bringing diverse perspectives and expertise that benefit the entire academic community.

Weaknesses:

1. ISMA's partnerships do not sufficiently cater to the specialised technological and educational needs of the IT field.
2. The documentation and communication about the specifics and outcomes of collaborations are insufficient.
3. The current support mechanisms for incoming students and staff are not credibly structured, which may deter potential candidates who require more comprehensive assistance when integrating into a new academic and cultural environment.
4. ISMA is a notable lack of specific projects or publications emerging from partnerships, particularly in cutting-edge IT research.

Assessment of the requirement [3]

- 1 R3 - The cooperation implemented within the study field with various Latvian and foreign organizations ensures the achievement of the aims of the study field.

Assessment of compliance: Partially compliant

While ISMA has numerous collaborations, the specificity and direct impact of these partnerships on the IT StF could be enhanced. The existing agreements often encompass broad educational and research objectives without a targeted focus on the evolving needs and technological advancements specific to IT. There is insufficiently detailed, accessible information regarding the specifics and measurable outcomes of recent collaborations. SAR and additional documentation do not consistently highlight outcome-oriented evaluations of partnerships, such as specific advancements in IT research, changes in teaching methodologies, or direct impacts on student employability and skill enhancement within the IT sector. The strategic alignment of partnerships specifically with the IT StF's objectives needs regular review and realignment to ensure that all collaborations directly support the intended educational outcomes and keep pace with technological advancements. The scientific collaboration especially with research projects with local and international institutions have to be improved.

1.6. Implementation of the Recommendations Received During the Previous Assessment Procedures

Analysis

ISMA received six key recommendations in the previous evaluation. In the provided document [Annex 2.6.1] ISMA explains achieved outcomes for the recommendations.

1) Recommendation: Activate work of the programme council, involve all kind of stakeholders in the decision-making process.

Experts comment: ISMA has involved students, employers and industry partners to participate in the Study Direction Council. Expert group was provided with protocols that showed the process for evaluating and improving the StP.

2) Recommendation: Develop academic staff's qualifications on more regular and planned mode.

Experts comment: Three activities are implemented - HR strategy created, Held regular conferences, Developed internally (and offers externally) training courses and seminars.

3) Recommendation: Intensify students' international exchange.

Experts comment: Implemented regular informative work with students has resulted in regular student participation in international mobility programmes.

4) Recommendation: Cooperation with other HEI in the region would help to raise the level of programmes.

Experts comment: ISMA carried out relevant actions, although achieved outcomes are probably incorrectly described (improvements to StP and courses) in the provided document [Annex 2.6.1].

Nevertheless, the list of cooperation agreements [SAR Annex 2.5.1, table 2] shows 39 new agreements since 2012, and 40 new agreements for ERASMUS+ since 2012, which is an excellent result. Number of agreements for regional HEI's is 11 (Latvia, Lithuania, Poland).

5) Recommendation: Scientific research in areas other than nanotechnology should be intensified.

Experts comment: Implemented - ISMA teaching staff has participated in other areas than nanotechnology. ISMA mentions in the SAR [Annex 2.6.1] topics - Machine learning methods and artificial intelligence; Semi-automatic asynchronous Logic synthesis in Xilinx; Mobile application and Artificial intelligence. Recent project:

ERAF project: Methods and Tools for the Design in Reconfigurable Environment No. 1.1.1.1/16/A/234

ERAF project: ERAF Project Research and Application Methodology Development of a New Preventive Eye Muscle Training and Strengthening Device EYE ROLL No.1.1.1.1/20/A/038

Provided information reflects expert group opinion and evaluation of previous recommendation implementation.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

Experts evaluate the implementation to be sufficient and with good intent. Study Direction Council creation is a good step forward. Maybe in the future it could also include Uzbekistan, Fergana stakeholders.

Strengths:

1. In experts opinion, given the size of ISMA, regarding international cooperation, 39 new agreements since 2012, and 40 new agreements for ERASMUS+ since 2012 is an excellent result.
2. Study Direction Council exists not only formally but also practically, and should be continued to ensure StP contents and quality matches industry expectations and modern trends in computer sciences.

Weaknesses:

1. Although scientific activities in areas other than Nanotechnology has been carried out, in 12 years

(since last accreditation process) expert group would expect to see more scientific activities.

2. Although Study Direction Council involves industry as stakeholders, from meeting notes it seems that mainly it is one company's representative who is present in the meetings. Experts would suggest to invite more industry stakeholder representatives to the meeting for more insights, especially from better known companies from IT sector in Latvia, e.g. Accenture, Dynatech, Swisscom, and others.

Assessment of the requirement [4]

- 1 R4 - Elimination of deficiencies and shortcomings identified in the previous assessment of the study field, if any, or implementation of the recommendations provided.

Assessment of compliance: Fully compliant

All recommendations from previous evaluation are implemented, with clear vision forward.

1.7. Recommendations for the Study Field

Short-term recommendations

1. Scientific work/Research needs to be improved. Academic members of staff need to publish works at peer-reviewed conferences and journals in topics related to the StF as well as the Research directions according to the interests of students and employers which the university has identified as described in SAR, 2.4.1. Currently, the publication record of academics is mostly in non-peer-reviewed conferences. The expert group believes that a reasonable key performance indicator for a research-active academic members of staff should be at least on peer-reviewed publication at a reputable international conference every year and one Journal every two years.
2. Also, they should engage in International Research activities, not just locally funded research. The institution should be able to demonstrate engagement in international research proposal writing and the acquisition of research funding on topics related to the StF within the next two years.
3. The experts' group recommend the appointment of at least two more research-active academic members of staff within the next two years on topics related to the StF to cover all the topics included in the identified Research Directions mentioned in SAR, 2.4.1.
4. The HEI should demonstrate within the next two years the development and implementation of Research Support Mechanism to financially or otherwise support the academic members of staff to engage in international high-impact research.
5. Develop a comprehensive on-boarding programme for foreign students and staff that includes language support, cultural orientation, and academic mentoring to ease their transition and integration into the university environment.
6. Ensure regular updates and discussions(at least once per semester) with all stakeholders, including StP directors, students, external partners on StP development and necessary improvements
7. Implement a formal way of feedback mechanism (surveys) from graduates and employers
8. Assign a responsible person who is conducting QA manager responsibilities and tasks. Student surveys cannot be analysed and monitored by the Student Council.

9. Implement feedback loop closure to the involved stakeholders in the QA mechanism, meaning that there are survey report summaries sent out to all of the parties involved who have participated.
10. Supplement the information accessible on the website in regards to StP courses. For example, currently, there is no list of study courses taught in the StPs available. It is needed for the students to know what kind of study courses ISMA are offering in the specific StPs.
11. Implement a clear structure within the administrative system who is the responsible person of data collection and how data collection is being performed at ISMA.
12. Update the documents and information on the website. For example it was identified that the current QA policy is outdated (until 2023). ISMA should review all the documents uploaded on their website and ensure that they are up to date.
13. Develop a structure of how the content of the study courses is reviewed.
14. Enable student access to IEEE Xplore and ACM Library full text databases.
15. Introduce more IT related teaching staff to distribute study courses more evenly, to reduce personnel risks.
16. Ensure the usage of the plagiarism system for all academic members and engage them to use it during the subject evaluation.
17. Provide equal system for the evaluation of the study courses for the exams and the student work during the semester.
18. Provide sufficient control during the language test which is provided during the enrolment of the international students.
19. Establish a mechanism, which includes an internal regulatory framework with set clear responsibilities, specified oversight mechanisms of QA, which also include clarification on how these actions help to meet the strategic objectives of ISMA
20. Assign clear responsibilities and regular oversight mechanisms can ensure that collaborations are not only maintained but are also evolving to meet the strategic objectives of ISMA. Making regular updates and discussions with all stakeholders involved in collaborations, including programme directors, students, and external partners, can foster a more cohesive approach to managing and leveraging these partnerships.

Long-term recommendations

1. Appoint as many Resident academic staff at Fergana branch to replicate identical teaching experience as at the Riga Campus.
2. Consider undertaking ERAF co financed projects to boost certain aspects, e.g. infrastructure, provisions, etc.
3. Demonstrate evidence of the practical engagement of more students (more importantly PG ones) in scientific research which is not limited to the presentation of their Thesis results at the conference organized annually at ISMA.

4. Regularly assess the effectiveness of recruitment strategies through feedback from new students and staff, adjusting tactics as necessary to ensure they meet the needs of both the institution and its international recruits effectively.

5. Establish specific frameworks for each collaboration that clearly define the roles, expected outcomes, and performance metrics related to IT advancements. Actively seek and prioritize partnerships with tech companies, IT research institutes, and other entities that are leaders in technology innovation. There should be a concerted effort to increase the visibility of outputs from international collaborations, such as publishing joint research findings in esteemed IT journals and showcasing innovative projects at international tech forums.

II - "Information systems" ASSESSMENT

II - "Information systems" ASSESSMENT

2.1. Indicators Describing the Study Programme

Analysis

2.1.1. The StP "Information Systems" is fully compliant with the StF "Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science" . As pointed out in SAR 3.1.2 the focus is on the acquisition of skills and competencies to produce well-rounded professionals that can work as software engineers within the national or international market.

The StP "Information Systems" fits seamlessly under the StF "Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science" due to its comprehensive coverage of study courses relevant to the StF. By addressing key topics and objectives off the broader field, the StP prepares students for diverse career opportunities within the dynamic and multifaceted industry.

2.1.2. The name of the StP "Information Systems" is a rather clever choice on behalf of ISMA for a professional bachelor degree that gives a more general perspective to the skills and competencies of its graduates creating employment opportunities for them in a wide range of industries as Software Engineers which is claimed to be the main focus). Experts opinion is that it is an appropriate title.

The code of the StP (42483) code appears to be appropriate and relates perfectly to the StF as well as the format, structure and content of the StP. In line with the regulations of the Cabinet of Ministers of June 13, 2017 No. 322 "Noteikumi par Latvijas izglītības klasifikāciju" (Regulations on Latvian education classification), the first two digits ("42") refer to second-level professional higher education (fifth-level professional qualification and professional bachelor's degree) or second-level professional higher education (fifth-level professional qualification), which can be implemented after general or vocational secondary education. The duration of studies in full-time studies is four years (which is the duration of the StP under evaluation) while the the third digit ("4") corresponds to Natural sciences, mathematics and information technology, the fourth digit ("8") to Computing and the fifth digit ("3") to Computer systems, databases and computer networks.

As a professional bachelor the StP appears to be aligned with the Latvian Cab.Reg.No.305 - and aligned with the professional/occupational Standard "Software Engineer" as defined in [<https://registri.visc.gov.lv/profizglitiba/dokumenti/standarti/2017/PS-250.pdf>] and the qualification structure of the Electronic and Optical Equipment Production, Information and Communication Technology sector agreed at the December 15, 2021 meeting of the Professional Education and Employment Tripartite Cooperation Sub-Council (PINTSA). According to this alignment StP objectives

and learning outputs are relevant, appropriate and interrelated.

It should be noted that the duration of the StP "Information Systems" was changed and now provided in these positions: Full-time intramural 4 years - Riga (Latvian and English) , Full-time intramural 4 years - Fergana (English), Part-time extramural 4 years and 5 months - Riga (Latvian), Part-time distance learning 4 years and 5 months - Riga (English). The duration of studies allows one to optimally learn in compliance with all the requirements of the programme. In accordance with the requirements of the Law on Higher Education Institutions, the full-time studies programme of 240 ECTS is implemented within 4 years or 8 full semesters, which provides for the acquisition of 30 ECTS in each study semester. On the other hand, in part-time studies, 4 years and 5 months or 9 semesters are allocated for the implementation, arranging the number of credits to be acquired by semesters as evenly as possible. The last study semester is dedicated only to completion of qualification traineeship and Bachelor's thesis (SAR, page 104). So far, part-time studies have been implemented only in the form of extramural studies, but now the decision has been made to switch to part-time distance learning offer in English, creating the distance learning materials, which will allow one to fully acquire all the necessary knowledge, skills and competences of Software Engineer, as well as will help students by maintaining closer contacts in the distance learning environment, which could be a wise since part-time intramural studies has not been implemented yet due to the small number of interested parties, but still the students indicated that there is a need of possibility to work and study at the same time.

2.1.3. As it is presented in the self assessment report of the StP "Information Systems" the following changes in the indicators describing the StP have occurred since the issuance of the previous accreditation in the Bachelor's StP "Information Systems", taking into account the comments and recommendations provided by the accreditation experts during the previous accreditation of the StF, changes in the demand structure, by updating the StP according to the needs of the labor market and trends of scientific development, namely, the aim and objectives of the StP are corrected, the awarded degree and qualification, the programme code, the forms of implementation of the StP are specified. The name, the amount and duration of the StP, admission requirements and final examinations remain unchanged. It is planned to start the implementation of the Bachelor's StP at ISMA Ferghana branch in Uzbekistan. First of all the changes in form, type, and duration of the StP were changed, the duration changes are provided in detail in the previous chapter. It is important to mention that according to the changes in the Law on Higher Education Institutions studies are not conducted in Russian starting from January 1, 2019, only in Latvian and English. The awarded degree has changed – upon the completion of the StP, a professional Bachelor 's degree in Computer and Information Science will be awarded. In accordance with the regulations of the Cabinet of Ministers of June 13, 2017 No. 322 "Noteikumi par Latvijas izglītības klasifikāciju" (Regulations on Latvian education classification), the code of the StP "Information Systems" according to the group of educational programmes "Datorsistēmas, datubāzes un datortīkli" Computer systems, databases and computer networks) has been changed to 47483 (or 0612 according to ISCED-F2013). It seems that this was a mistake on behalf of ISMA in the SAR, 3.1.1 as the code of the undergraduate programme is 42483 (The code in the Latvian version of SAR 3.1.1 appears correct) . The most important aspect it is indicated that the aim, objectives and learning outcomes of the StP have been adjusted according to the comments and recommendations of accreditation experts, the structure of qualifications developed by NEP (Councils of industry experts), the Latvian National Development Plan for 2021-2027 (LNAP 2021-2027), as well as the needs of the labour market and science development trends, harmonizing them with ISMA strategy and the goal of the StF. Also, it should be mentioned that 2.6.1. annex indicates that these aspects were adjusted according to the previous recommendations by the experts and prepared as a outcomes to be achieved, but it is not really clear how the 4th recommendation - Cooperation with other HEI in the region would help to raise the level of programmes do fully complain, and there are no clear examples what was adjusted

and how often in the StP content perspective. During the meeting with the StP director it was stated that the StF content is reviewed twice per year, but could not indicate the specifics or clear example of what really was changed. Also, it should be noted that additionally provided annex Nr. 4 Implementation of ISMA aims and objectives also indicates that StPs have been updated; study courses have been introduced in accordance with the demand of the labor market, but there is no specific timing how often and what was done and how it was disseminated between stakeholders. Important aspect is that during the discussions with the students they also indicated that they would appreciate it if there would be new study courses like cybersecurity. Evaluating the number of students in the Bachelor 's StP "Information Systems" it can be seen that the number of students is steadily increasing. Overall, it can be concluded that the bachelor's programme "Information Systems" is quite promising for further development and promotion both in the capital of Latvia and in the Fergana Branch in Uzbekistan, as well as in distance learning. There is demand and the statistics show its stability. This was confirmed during the visit in the Fergana branch, since the employers indicated that if the IT studies were opened in the branch, they would like to employ and hire students if they specifically are graduates of the IT field, especially: Back-end specialists (Software developers), Android, iOS developers, AI / Data science specialists. Also during the meeting with ISMA Fergana study process coordinator (methodologist, IT specialist, librarian, manager for foreign students) it was noted that new staff members will be appointed for the position after accreditation. It should be noted for an IT programme, it will work like in a BA and tourism programme - all coordination from Riga.

2.1.4 As it is presented in the self assessment report StP "Information Systems" is relevant and important for the development of the national economy of Latvia. In accordance with the goals and directions of action defined in the Latvian National Development Plan for 2021-2027, the StP offers high-quality and accessible education, preparing specialists who understand the importance of innovative solutions and the application of technologies, as well as the importance of a rationally managed organizational and technological ecosystem, and are able to create and implement such, are focused on offering knowledge-intensive products and services with high added value. The StP is designed in such a way that, after its graduation, students are oriented towards independent lifelong learning and are able to continue studies at Master's level. This was also confirmed during the meetings with students - few students are freelancers, managing websites, programming. It is possible to have a change in the timetable, go to a distance mode. The employers indicated during the meeting with experts that students not only have good cloud computing and communication skills, but even provide additional instruments for example how to optimize the working process. As for the graduates it was noted that studies helped to be more of a software developer and gave a career start knowledge. ISMA regularly conducts graduate surveys so as to find out the progress of former students after graduation, including employment indicators, places of work and further studies. Since the surveys are conducted electronically, using the ISMA alumni database, those graduates who went abroad from Latvia also participate in them. But as it was mentioned in SAR chapter 2.1.4. The information was not confirmed during the meeting with graduates and even the representatives responsible for the preparation of the self-assessment report indicated the problems collecting the data. Only about 15% of all respondents indicated that their current occupation was not directly related to ICT (SAR, page 105), but it should be noted that only 5 graduates with their working positions indicated within the specific working position in IT sector, with no concrete data detailing the size of surveys and the year that there included, this suggest to overview the provided surveys and full methodics for gathering the data and concerning important aspects like quantity, timing and etc. But it should be noted that during the meeting with the Fergana branch employers representatives they indicated that they would like to open an IT field in Fergana at ISMA and would like to employ and hire students if they specifically are graduates of the IT field.

Conclusions on this set of criteria, by specifying strengths and weaknesses

The StP "Information Systems" fully corresponds to the StF "Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science" and is fully in line with the aim of the StF to prepare competent, self-improvement-oriented and innovative-thinking professionals in the field of computer science and informatics who are competitive in the global market, comply of the StP with the StF. It should be noted that the duration of the StP "Information Systems" was changed and now provided in various positions: full-time intramural, part-time extramural 4 Part-time distance Riga and Fergana and giving opportunity to study in English and Latvian. The StP is designed in such a way that, after its graduation, students are oriented towards independent lifelong learning and are able to continue studies at Master's level. This was also confirmed during the meetings with students - few students are freelancers, managing websites, programming. It is possible to change the timetable, go to a distance learning mode. The employers indicated during the meeting with experts that students not only have good cloud computing and communication skills, but even provide additional instruments for example how to optimize the working process. As for the graduates it was noted that studies helped to be more of a Software Engineer and gave a career start knowledge. Study process is possessed towards independent lifelong learning and are able to continue studies at Master's level." after a detailed analysis in the next part about the content of the study programme and methods of implementation. Overall, it can be concluded that the bachelor's programme "Information Systems" is quite promising for further development and promotion both in the capital of Latvia and in the Fergana Branch in Uzbekistan, as well as in distance learning. There is demand and the statistics show its stability. Employers indicated that if the IT studies were opened in the branch, they would like to employ and hire students if they specifically are graduates of the IT field, especially: Back-end specialists (software developers), Android, iOS developers, AI / Data science specialists. There is no concrete data detailing the size of surveys and the year that they included, this suggests an overview of the provided surveys and full methodic for gathering the data and concerning important aspects like quantity, timing, and etc.

Strengths

1. Students not only have good cloud computing and communication skills, but even provide additional instruments for example how to optimise the working process.
2. Study process is possessed towards independent lifelong learning and are able to continue studies at Master's level.
3. Students are already working during their studies as freelancers, managing websites, programming, having the possibility to have a change in the timetable, and going to a distance learning mode.
4. The title, degree to be obtained, professional qualification or degree and professional qualification of the StP, aims, objectives, learning outcomes and admission requirements are interrelated.

Weaknesses

1. Lack of the specifics, detailed size and survey methods are not providing clear data and feedback from the graduates.
2. There is no clear data about the feedback in accordance with real changes in the study content and clear system of specifics and how the changes are implemented and disseminated between the stakeholders.

2.2. The Content of Studies and Implementation Thereof

Analysis

2.2.1. The course descriptors provided in SAR, Annex 3.2.5 are well structured and comply with the aims and objectives of the StP “Information Systems”. According to SAR 3.2.1 the content has been designed to meet the needs of the Industry, producing skilful professional software engineers who possess the required knowledge and skills in programming, software engineering, computer network architecture, IT project management, information security as well as competencies in business management and soft skills like critical thinking, communication etc. The expert group opinion is that the structure of the StP as well as the content of the modules are appropriate to meet the labour market requirements both in Latvia and Uzbekistan as well as the scientific needs. The StP complies with national regulations including the education standard and the occupational standard. More specifically, SAR, Annex 3.2.1 demonstrates the compliance of the StP with the Education standard with regards to the aims, learning outcomes, amount (ECTS), duration, proportion of compulsory and elective modules, traineeship and state examination amount and number of study projects, as well as the amount of contact hours, the provision of a module for building professional competence in entrepreneurship (9 ECTS), the compliance with the requirements of the Environmental Protection and Civil Protection and Disaster Management Law. It also satisfies the requirement for a sixth-level professional qualification award, the possibility of continuing education at a PG level and as well as the Basic principles and procedures for the assessment of the acquisition of the StP. In addition to this, SAR, Annex 3.2.2 demonstrates very clearly the compliance of the StP with the occupational standard “Software Engineer” in terms of Skills and attitudes, professional knowledge and competencies necessary for the performance of the basic tasks and duties of the professional activity in areas like Research, planning and management of software development activities, Software algorithm and operational scenario planning, Software development, Software integration and implementation as well as in terms of knowledge and skills relevant to laws and standards binding on the field, regulations, communication principles, labour-related issues, social and civic skills and professionalism in general.

2.2.2. N/A

2.2.3. According to [SAR, 3.2.3] the implementation of the StP includes a wide and diverse range of study methods and teaching approaches like lectures, seminars, analysis of practical situations, discussions, presentations, independent works individually and in groups, on-line lectures, video lectures, online tests, using various innovative tools and applications such as sli.do, Kahoot!, Socrative.com, etc. Lecturers have the flexibility to choose the methods and approaches in their courses according to the specificity of their study course and its role in the StP, the practical activities within the study process, as well as the principles of student-centered education, the observance of which at the higher education institution gives students additional powers and imposes additional duties and responsibilities. The opinion of the expert group is that these methods constitute a balanced hybrid of traditional and modern (innovative) methods which maximize the likelihood of achieving the learning outcomes of the individual study courses (modules) as well as the ones of the StP in general. Additionally to the academic contact hours, students are expected to spend a considerable amount of time on independent study (typically more than the contact hours as indicated in the course descriptors [SAR - Annex 3.2.5]) which is typical at an UG level to allow students to develop independence and self-learning capabilities which is particularly important for the work that they are expected to carry out as professionals when they graduate. It is an added benefit to the StP that industry professionals are included in the study process as guest lecturers which promotes the topicality of the study content and allows students to better understand the dynamics of the local industry. All these promote a student-centered approach which is very important at this level as they emphasize on the student experience while students build real-world

skills, learn from professionals, and develop confidence in their field.

The Moodle e-learning platform is also used for the implementation of the StP both for teaching purposes (uploading material) and or assessing the students. Some parts of the StP appear to be delivered online which according to Latvian Regulation Cabinet of Ministers 8th of February 2022, No. 111, this is acceptable as long as no more than 50% of delivery is done online. As the programme is planned to be offered in Distance-Learning Mode the expert group has the opinion that the resources, the materials, methodology, and the plan which is in place to implement for this mode of delivery is sufficient. The expert group also evaluates positively the ISMA has appointed a dedicated professional to act as distance learning methodologist for this mode of delivery. On the contrary the absence of a University Euroam Framework is evaluated negatively. Regarding Distance-Learning ISMA needs to ensure that for those modules that require practical work, provisions should be taken so that online-delivery replicates the experience of on-site delivery.

The content of the study process is claimed in SAR, 3.2.3 to be the same between the two campuses (Riga and Fergana) which should be the desired and expected case with the only difference between the study course at Fergana is delivered in an intensive two-week block mode which although it can be acceptable it might be quite demanding for students or put some students with extenuating circumstances (illness or other reasons) in disadvantage. Students of the StP BA in Business Administration in Fergana have mentioned during the meeting with the expert group that there are cases where 2 weeks of block delivery might not be enough for difficult courses or for courses that include practical work. The StP team could consider the simultaneous delivery of courses at the two campuses with resident (at Fergana) staff for courses that might be more demanding than others.

2.2.4. The StP “Information Systems” includes a total of 30 ECTS for traineeship split into 3 separate study courses in semesters (4,6,8) for full-time students and in semesters 4-9 for part-time and distance learning (DL) students. The learning objectives, tasks and assessment criteria of these traineeship study courses are clearly described in the respective descriptors in SAR, Annex 3.2.5 and they are evaluated as achievable. The involvement of industrial professionals in the setting and updating of tasks described in SAR, 3.2.4, as well as the feedback received from students is evaluated positively.

As described in SAR 3.2.4 there is a wide range of traineeship opportunities offered to the students of the StP “Information Systems”. The objectives of these traineeships are communicated to the companies so that there is no deviation from the training/learning plan. It is claimed in SAR 3.2.4, that the flawless operation of each traineeship appears to be ensured through regular surveys of the companies, but the expert group has not received concrete evidence during the meeting with the employers that this is actually implemented.

A good document is available that describes the Traineeship Regulations at ISMA [SAR, Annex 3.2.6]. It sets out and defines clearly the procedure for the organisation, implementation and defence of traineeship on the professional higher education StPs at ISMA.

During the meeting with the employers in Fergana it was noted that there is a strong collaboration with a good number of employers who would be interested to offer internships to students or full-time employment to graduates of the StP and/or get involved in the study process. This is evaluated very positively by the experts' group.

2.2.5. N/A

2.2.6. In SAR, 3.2.6 the StP team have provided a statistical analysis of the topics of the final theses of the students over the last 10 years (2013-2022). Over this period of time students have undertaken projects related to Information systems, management IS, BI, ERP; Programming, DB; Web technology/app, Social Media; Network and Telecommunication; Cyber Security; Big data, AI, IoT, ML; Cloud Computing, Blockchain. These topics not only are relevant to the StP but they also

constitute some of the most modern research trends in Information systems. As pointed out in SAR, 3.2.6 students' interests changed over the years towards networking, telecommunications and big data. It is not clear which member of the academic staff has expertise in these areas. Although not always possible, students can relate their thesis to their traineeship. It would have been ideal if ISMA could find more ways to engage Industries that are relevant to topics that students undertake for their thesis in their traineeship programmes. Students appear to do quite well in their final thesis which marks ranging between 5 and 10.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusion:

Overall, the StP is well-structured and its content is appropriate for meeting the labour market requirements both in Latvia and Uzbekistan and is also compliant with the national regulations and the occupational standard. There are some well documented descriptors for all the courses in the StP that comply with the aims and objectives of the StP. These define a variety of teaching approaches which is evaluated positively as well as a good balance between contact hours and independent study. The StP would definitely benefit from the appointment of an academic member of staff with Computer Networking Expertise. While there is very good a well documented document describing the Industrial Placement (Trainingship) there seems to be a limited number of companies that offer Internships to students or get involved in the study process of the StP in Riga. On the contrary, the same does not apply for the Fergana Branch where quite a few companies have demonstrated interest in supporting the StP in Fergana.

Strengths:

1. The module descriptors provided in [SAR, Annex 3.2.5] are well structured and comply with the aims and objectives of the StP "Information Systems".
2. The structure of the StP as well as the content of the modules are appropriate to meet the labour market requirements as well as the scientific needs.
3. The StP complies with national regulations including the education standard and the occupational standard.
4. A variety of teaching approaches and tools are used that constitute a balanced hybrid of traditional and modern (innovative) methods which maximize the likelihood of achieving the learning outcomes of the individual study courses (modules) as well as the ones of the StP in general.
5. Good balance between contact hours and independent study.
6. A document (policy) on Traineeship Regulations is available.

Weaknesses:

1. There appears to be a lack of expertise in topics related to Networking and Telecommunications (judging from the research work of academic staff) that students typically show interest in, for the final thesis. This together with the claimed difficulty [SAR, 3.2.6] to secure traineeships for students in their chosen thesis topic would potentially not ensure the required support to those students.
2. Not many companies are available to offer Internships to students or get involved in the study process of the StP.

Assessment of the requirement [5] (applicable only to master's or doctoral study programmes)

- 1 R5 - The study programme for obtaining a master's or doctoral degree is based on the achievements and findings of the respective field of science or field of artistic creation.

Assessment of compliance: Not relevant

N/A

2.3. Resources and Provision of the Study Programme

Analysis

2.3.1. As there are two StPs in the StF that are directly related to IT, there is an overlap of provisions and resources, and is already described in this Joint opinion document section 1.3. This section contains only unique aspects for this exact StP.

ISMA provides descriptions of used provisions in [SAR 3.3.1 - Information Systems]. They mention that besides providing theoretical material, they provide practical environments and software, as example, in “Mathematic Modelling” - Vensim PLE; in “Robotics” - Arduino computing and educational platforms, Keyestudio solutions, in “Computer Networks Architecture” Mikrotik network devices are used.

Insight of what provisions and software solutions are used in study process can be found in study course descriptions [Annex 3.2.5] - for example, using Visual Studio, GoogleCollab, Jupyter Notebooks, Visual Studio Code, in “Optimization Theory and Large Systems Synergetics” - MathCAD and Microsoft Excel, version controls Git, Databases, Dockers, virtualization, cloud environments.

Given that Information Systems is unique in the way most of the development and educational toolkits and software solutions used in the industry are available for free for educational purposes, ISMA provides aforementioned provisions that fully ensures study and learning outcomes for the StP. Even more, study courses use modern and up-to-date industry trend toolkits in the study process, such as Git, Dockers, Visual Studio Code, Python with scientific libraries and so on.

Study course description quality is, and compulsory reading and recommended reading items are modern and fresh.

In Fergana branch the planned delivery method for part of study courses in two to three week block/module based delivery might not deliver sufficient level of knowledge for students for the knowledge-intensive topics in computer science.

Another of the planned delivery methods of the programme is distance learning. The aforementioned use of modern software provisions and IT support personnel facilitates the requirements for distance learning.

2.3.2. N/A

2.3.3. The self assessment report [SAR 3.3.3 - Information Systems] provides insight on sources of funding and allocation of funding, as well as break-even point for number of students for the UG StP. Sources of funding primarily are tuition fees (75%), other scientific activities (11%), training courses (6%), contract research (5%), renting of premises, utilities, services (3%).

The SAR section provides breakdown of costs for four programme implementation scenarios:

1. Costs for a full-time student group (8 students) in Riga for the ISMA bachelor StP “Information Systems”.
2. Planned costs for a full-time student group (20 students) at ISMA Fergana Branch for the StP “Information Systems”.
3. Costs for a part-time extramural student group (3 students) at ISMA bachelor StP “Information Systems”.
4. Costs for a part-time distance learning student group (5 students) at ISMA bachelor StP “Information Systems”.

The financials in tables reflects what the SAR states: “To ensure the profitability of the programme the minimum number of students in the StP, regardless of the language of studies, is 8 students in

full-time studies in Riga and 20 students in Fergana, 3 students in part-time extramural studies, and 5 students in distance learning studies.”, for tuition fees in Riga: 2500 EUR per year, in Fergana - 3000 EUR per year.

Experts find the financial data to be believable, as it also includes allocated finances for tests, defenses, supervision, review of students work, as well as for Fergana implementation - Transportation costs and business trip costs (“dienas nauda”). These two travel related positions adds up to 31.4% of Fergana 20 student group costs (37 travel events, each for 1500 EUR + 498 days * 40 eur).

Number of minimum students in Riga does not pose a big challenge, given that in recent years the number of students in the Information Systems programme has been much higher (50-70 students enrolled) than the required minimum of 8.

On the other hand, Fergana branch's planned minimum number of 20 students to be profitable is much more challenging. Although Business Administration and Tourism programmes do enroll 15-20 students yearly, not all of them stay for all 4 years (some prefer to relocate to Riga to continue studies here). This poses a challenge for Fergana branch financial stability and probably is already under scrutinous review by ISMA management. Experts recommend ISMA management to pursuit every possibility to receive support by Fergana and Uzbekistan, as they seem to be the main driver for opening Information systems programme in Fergana, and as such, should support ISMA, e.g. by reducing rent costs of building, co-financing teachers or their business trips, etc. In experts opinion it is possible to have a successful Information Systems programme there, but might be challenging to attract and keep the 20 students.

Fergana branch costs do not include consultants as a separate line of cost (maybe they are included in Administration and infrastructure costs).

It is worth noting that ISMA has managed to keep the dropout number of students, that helps with financial stability. The dropout rate is lower compared to other Latvian HEI's in the IT study direction. On the other hand, Experts group was informed during meeting with management [Meeting with management] that ISMA is aware of the risk that some international students who enroll in the HEI are not motivated to study , and use ISMA as a platform for migration to Europe, thereby posing risk for ISMA financial plans, study plans. It is not clear to experts how high the risk is, as it does not directly appear in some noticeable number of dropout students, or pose risks to financial stability.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

ISMA has provided enough resources and provisions for implementing the StP in Riga. Provisions are refreshed from time to time. Noteworthy modern selection of literature is used for the study process. Planned delivery methods are possible to be implemented by ISMA based on available and offered provisions.

Riga branch programme funding and number of students is stable and easy to achieve, while the requirement of 20 students in Fergana might pose a challenge. ISMA should explore additional local Uzbekistan government and municipality support in case 20 students do not enroll, to ensure programme delivery.

Strengths:

1. Provisions include all necessary components for learning outcomes, and provides means for hardware tinkering in robotics laboratories.
2. Study course implementation required provisions are provided, and modern tools and solutions are used throughout the study process.
3. Enrolled number of students in Riga branch ensure stable and upwards trend

Weaknesses:

1. Minimum number of 20 students in Fergana branch Information Systems programme to be profitable can be challenging.
2. In the Fergana branch hardware provisions need to be acquired before launching the programme there.
3. In the Fergana branch teaching assistants need to be recruited before launching the programme.

Assessment of the requirement [6]

- 1 R6 - Compliance of the study provision, science provision (if applicable), informative provision (including library), material and technical provision and financial provision with the conditions for the implementation of the study programme and ensuring the achievement of learning outcomes

Assessment of compliance: Fully compliant

Provided study provisions are fully compliant to outcomes of the UG StP. ISMA provides all necessary tools and support for students for a successful study process.

2.4. Teaching Staff

Analysis

2.4.1. The qualification of the teaching staff members involved in the implementation of the StP partially complies with the requirements for the implementation of the StP and the requirements set forth in the regulatory enactments, enabling the achievement of the aims and learning outcomes of the StP and the relevant study courses. A significant proportion of the teaching staff, including docents and lecturers, hold PhDs—with at least two-thirds of the staff being PhD holders—and the inclusion of trainers with industry experience enhances the preparation of new specialists, offering valuable practical knowledge transfer to students, there are areas requiring attention.

An examination of professors and associate professors listed in the VIIS database (<https://www.viis.gov.lv/>), SAR 3.4.1, and Annex 2.3.2 indicates that most teaching staff have been re-elected. The Cabinet regulations on the "Procedure for Assessing the Scientific, Pedagogical, or Artistic Creativity Results of Candidates for Professor or Associate Professor Positions and Current Holders" and Law on Higher Education Institutions dictate the election criteria for these roles in professional StPs, focusing on specific practical and academic experiences. However, the scientific and professional qualifications of some professors and associate professors at ISMA only partially meet these criteria, such as the number of scientific publications and H-index. For instance, Professor Djakons Romans has three indexed publications, Mrochko Aleksander has one, and Riashenko Viktorija has three publications that do not fulfill the regulatory requirements for professors. Similarly, Associate Professors like Djakona Valentina lack indexed publications. Ivars Linde has two indexed publications, and Zaiga Oborenko has one (SCOPUS database).

CVs, which demonstrate extensive practical experience and expertise, contribute valuable insights into the professional requirements and practical applications of the subjects taught. For instance, industry professionals like Dmitrijs Skorodihins, who has extensive experience in IT security and education, highlight the importance of practical, hands-on experience in teaching vocational subjects. For instance, Aleksandrs Berežņojs, with extensive experience as an Assistant Professor at ISMA University College and a Security Manager at TietoEVRY, emphasizes the need for practical skills in Web Application Security and Computer Security Principles. Andrejs Bondarenko, a Senior Data Scientist at CTCO and Lecturer at ISMA University, highlights the integration of practical data science applications into the curriculum. Jelena Čaiko, Professor and Head of the study direction at ISMA University, with a rich background in telecommunications and information technology, underscores the importance of practical and research-based knowledge in digital education and

artificial intelligence. Jurijs Čižovs, a Data Scientist at SIA "C.T.Co" and a Researcher at Riga Technical University, focuses on the implementation of practical data science and software development skills in academic programmes. Romans Djakons, with over 40 years of experience in academic leadership and research, emphasizing the necessity of integrating practical experience in teaching roles, Aleksander Mrochko, with over 44 years of professional experience in natural sciences and computer technologies, highlighting the importance of extensive practical knowledge, Viktorija Riashenko, with over 17 years of experience in business administration and economic activity, showcasing the critical role of practical expertise in vocational education corresponds to at least 15 years professional experience (Law on Higher Education Institutions). However, this experience is only partially related to the IT field. Valentina Djakona, with over 20 years of experience in international business communications and translation, emphasizing the integration of practical skills in vocational education, Evija Liepa, with over 20 years of academic and administrative experience in business and technical education, highlighting the importance of practical expertise, Ivars Linde, with over 40 years of experience in higher education, marketing, and international banking, illustrating the necessity of extensive practical knowledge in teaching roles corresponds to at least 10 years experience, but this experience does not correspond to the subject to be taught (Law on Higher Education Institutions).

Despite multiple requests for ISMA to provide documentation on the election processes of academic staff—such as advertised vacancies, submitted documents for decision-making, voting protocols, council evaluations, international assessments, and annual performance evaluations as stipulated in Sections 33 and 34 of the Law on Higher Education—only partial information has been received. Notably, details on annual assessments are still outstanding. Consequently, the qualifications of many associate professors and professors do not align with the regulatory requirements, significantly impacting the achievement of the aims and learning outcomes of the StP and relevant courses.

Consequently, in light of the information available, the qualifications of a large number of associate professors and professors do not meet the requirements outlined in the regulatory enactments. This significantly reduces the achievement of the Aims and learning Outcomes of the StP and the relevant study Courses.

2.4.2. Based on the insights provided in SAR 3.4.2 and Annex 3.2.4, the composition of the leading teaching staff is relatively stable and reflects positive changes since the last accreditation. Notably, the strategic inclusion of industry professionals has increased the proportion of unelected teaching staff, responding effectively to the rising demand for practical skills and competencies. This shift aligns with the needs of students and employers, potentially enhancing the programme's practical relevance and competitiveness. Furthermore, the robust academic foundation is evident as the majority of staff hold PhDs, which supports rigorous scientific research activities within the programme. In the Fergana branch it is planned to attract local teaching staff and a plan study process in 2-3 weeks modules. This is good. However, in some cases related to programming or other complex tasks the time could be too short (meeting with students in Fergana). In Fergana there is a credible possibility to attract local staff, but in that case all staff have to be approved by Latvian regulations.

However, administrative and operational challenges at ISMA undermine these positive developments. Conflicting information regarding the responsibility for staff recruitment—whether it falls to the programme director or to management (based on both meetings) —indicates a significant lack of a unified system for attracting teaching staff. This disorganization compromises the stability and quality of the teaching staff, thereby impacting the effective implementation of the StP. Additionally, the absence of hospice and open lectures, crucial for the election of professors,

reveals a failure to meet mandatory academic requirements, potentially jeopardizing the programme's academic rigor and transparency.

Further concerns arise from the delayed submission of essential documentation such as course descriptions, applications, student class lists, and staff workload, which were provided only after repeated requests. Information from meetings with the teaching staff indicates that staff workload greatly exceeds the number of contact hours per week accepted in international practice, with staff members engaging in at least double the generally accepted number of contact hours. This excessive workload diminishes the quality of education, restricts the introduction of innovative teaching methods, and limits the expansion of practical work experience and scientific activities. Such operational inefficiencies raise serious doubts about ISMA's ability to manage staff workloads effectively, especially with plans to expand the programme, such as the proposed opening of a StP in Fergana, Uzbekistan. Without reasonable planning of the teaching staff workload, the sustainable development and quality assurance of the StP are at risk.

2.4.3. N/A

2.4.4. Based on the provided information in Annex 2.3.2 and considering the academic staff's publication records and practical experience, it can be concluded that not all members of the academic staff at ISMA have fulfilled the requirements outlined by the Law on Higher Education Institutions.

Professor Jelena Caiko has a substantial number of publications (35 publications with an H-index of 7), all aligned with her affiliation to RTU, meeting the requirements. Professor Viktors Gopejenko has 26 publications and an H-index of 5, meeting the requirements. Other professors such as Romans Djakons (3 publications, H-index of 0) and Kopitovs Rostislavs (1 publication, H-index of 1) do not meet the standards based on their publication records (SCOPUS database). Associate Professors like Valentina Djakona with no publications.

Aleksandrs Berežņojs, Andrejs Bondarenko, Jurijs Čižovs have demonstrated significant experience in practical IT roles within the industry in the last 5 years. Jelena Čaiko, Romans Djakons, Valentina Djakona, Irina Gonsalesa-Ortisa, Viktors Gopejenko, Juris Roberts Kalnins, Ivars Linde, Alexander Mrochko, Zaiga Oborenko have roles that are more academic and research-focused, without practical industry experience. Moreover, provided CVs are partially only related with IT field, there are managers, head of a business incubator (Viktorii Riashchenko), English teachers, and business management staff. Staff has roles that are more academic and research-focused without practical industry experience that limits exposure to the real-world challenges and dynamics of the IT industry. The fully understand and address the practical implications and complexities, knowledge of the latest industry trends, technologies, and best practices, which impacts ISMA ability to provide relevant and up-to-date guidance to students or contribute to industry collaborations effectively is not credibly provided based on the teaching staff experience and scientific activities.

ISMA annually organizes a scientific conference where employees, students and teaching staff submit articles. Several articles were featured. The articles cover the latest scientific directions. For students, participation in this conference is desirable. However, this conference is not peer-reviewed, since an internationally recognized team of reviewers is not attracted, the journal is not indexed in any scientific database known in the field, and the articles are considered extended abstracts since they contain only 2 pages, and the number of references is limited (on average 2-6 references). Therefore, the inclusion of this conference between the scientific activities of the teaching staff and between scientifically internationally recognised publications cannot be considered correct.

2.4.5. The mechanism for mutual cooperation of the teaching staff at ISMA, as delineated in SAR 3.4.5. mostly is robust and effective in achieving the aims of the StP, particularly in fostering the

interconnection of study courses within the programme. The teaching staff's cooperation in developing and updating StPs and course descriptions, improving methodological work is structured into clear, functional blocks. The process of discussing and approving the content of study courses involves regular council meetings, departmental meetings, and informal interactions among teaching staff. These gatherings ensure that there is a continuous evaluation and harmonization of course content, thus avoiding unnecessary overlaps and enhancing the relevancy and interconnectedness of the courses offered. The annual "Open Learning and Distance Education" conference and initiatives such as the Erasmus+ Staff Teaching and Training Week (SAR 3.4.5) provide platforms for ongoing professional development. These forums allow the teaching staff to stay updated on modern educational practices and to share experiences, thereby continually enhancing the quality of the educational offerings. The emphasis on interdisciplinary relations and international collaboration, especially through guest lectures and seminars involving educators from abroad, broadens the educational perspective offered to students and staff. Such interactions enrich the StPs and foster a more comprehensive educational environment. The student-to-teacher ratio of 14:1, excluding guest lecturers, indicates a favourable environment for personalized and interactive learning, which is crucial for effective education and the achievement of learning outcomes.

The insufficient alignment of scientific research with the StPs in Information Technology, Computer Science, and related fields does not ensure that the curriculum remains at the forefront of technological advancements. While the report provides a comprehensive overview of the collaborative mechanisms in place, it does note a gap in the documentation and recognition of various other professional development activities beyond the ERASMUS programme. While informal meetings among teaching staff are mentioned in meetings with administration, there is a lack of detailed reporting on the outcomes of these interactions.

While a significant proportion of the teaching staff at ISMA hold PhDs and have industry experience, which positively impacts the transfer of practical knowledge to students, there are notable deficiencies in meeting regulatory requirements. Many professors and associate professors have insufficient scientific publications and H-index scores, which do not comply with the stipulated criteria for academic positions. The incomplete submission of required documentation concerning staff election processes and annual assessments raises concerns about transparency and procedural adherence. Administrative inconsistencies, such as unclear responsibilities for staff recruitment and an excessive workload exceeding international norms, compromise the stability and effectiveness of the teaching staff. Although ISMA has established mechanisms for mutual cooperation among the teaching staff, which help in achieving the interconnectedness of study courses, there is a noted insufficiency in aligning scientific research with educational content, especially in technologically driven programmes.

Conclusions on this set of criteria, by indicating strengths and weaknesses

Conclusions:

The teaching staff at ISMA partially complies with the requirements for the implementation of the study programme and the regulatory enactments. While a significant proportion of the teaching staff hold PhDs and have industry experience, there are deficiencies in meeting regulatory requirements, such as insufficient scientific publications and H-index scores for some professors and associate professors. The composition of the leading teaching staff at ISMA has remained relatively stable and reflects positive changes since the last accreditation. The mechanism for mutual cooperation among the teaching staff at ISMA is mostly robust and effective in achieving the aims of the study programme and fostering the interconnection of study courses. Regular council meetings, departmental meetings, and informal interactions ensure continuous evaluation and harmonization of course content, avoiding unnecessary overlaps and enhancing the relevancy and interconnectedness of the courses offered. However, there are administrative and operational

challenges at ISMA that undermine the positive developments. Conflicting information about staff recruitment responsibilities indicates a lack of a unified system for attracting teaching staff. The absence of hospice and open lectures, crucial for the election of professors, reveals a failure to meet mandatory academic requirements. The teaching staff's workload at ISMA greatly exceeds international norms, which diminishes the quality of education, restricts the introduction of innovative teaching methods, and limits the expansion of practical work experience and scientific activities. This raises concerns about ISMA's ability to manage staff workloads effectively, especially with plans to expand the programme. The scientific research activities of the academic staff at ISMA are not fully aligned with the study programmes in Information Technology, Computer Science, and related fields. The annual scientific conference organized by ISMA, while a valuable initiative, does not involve peer-reviewed publications or engage an internationally recognized team of reviewers. This limits the academic value of the conference in terms of contributing to recognised scientific research.

Strengths:

1. A significant proportion of the teaching staff at ISMA hold PhDs, with at least two-thirds of the staff being PhD holders.
2. The strategic inclusion of industry professionals among the teaching staff brings valuable practical knowledge to the students.
3. The composition of the leading teaching staff has remained relatively stable, reflecting positive changes since the last accreditation. This stability is crucial for maintaining the continuity and quality of education.
4. The teaching staff's cooperation in developing and updating StPs is well-structured, involving regular council meetings and informal interactions.
5. The programme benefits from international collaboration, including guest lectures and seminars involving educators from abroad. This broadens the educational perspective offered to students and staff, enriching the StPs and fostering a more comprehensive educational environment.

Weaknesses:

1. A significant gap in meeting the regulatory requirements, particularly in terms of scientific publications and H-indexes for some professors and associate professors.
2. The transparency and documentation of the election processes of academic staff and their annual performance evaluations is not clear.
3. Conflicting information about the responsibility for staff recruitment indicates a significant lack of a unified system for attracting and managing teaching staff.
4. Information indicates that the teaching staff's workload greatly exceeds international norms, which diminishes the quality of education, restricts the introduction of innovative teaching methods, and limits the expansion of practical work experience and scientific activities.
5. The annual scientific conference organised by ISMA, while a valuable initiative, does not involve peer-reviewed publications or engage an internationally recognised team of reviewers. This limits the academic value of the conference in terms of contributing to recognised scientific research.

Assessment of the requirement [7]

- 1 R7 - Compliance of the qualification of the academic staff and visiting professors, visiting associate professors, visiting docents, visiting lecturers and visiting assistants with the conditions for the implementation of the study programme and the requirements set out in the respective regulatory enactments.

Assessment of compliance: Partially compliant

While a significant portion of the staff holds PhDs and brings essential industry experience to the programme, there are notable deficiencies in scientific publications and H-index scores. This gap highlights a discrepancy between the qualifications of many staff members and the regulatory standards required for their positions. Furthermore, the procedural transparency in staff elections and annual performance evaluations remains unclear, with only partial documentation provided despite multiple requests. This lack of full transparency and the reported inconsistencies in administrative practices, such as unclear responsibilities for staff recruitment, compromise the stability and effectiveness of the teaching staff. Additionally, while ISMA has implemented structured cooperation among its teaching staff and engages in international collaborations, the lack of alignment between research activities and the curriculum in technologically driven programmes is a concern. The annual scientific conference organized by ISMA, although commendable as an initiative, does not meet the criteria of involving peer-reviewed publications or recognized reviewers, thereby limiting its academic impact.

2.5. Assessment of the Compliance

Requirements

- 1 1 - The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard

Assessment of compliance: Fully compliant

StP is compliant to Regulations No. 305 of the Cabinet of Ministers of June 13, 2023 "Regulations on the Standard of State professional higher education") based on the provided compliance table [Annex 3.2.1].

- 2 2 - The study programme complies with a valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided if the completion of the study programme leads to a professional qualification (if applicable)

Assessment of compliance: Fully compliant

Compliance to Professional standard "NACE 62.01 Software Engineer" (PS250) is provided by the mapping table in [Annex 3.2.2].

- 3 3 - 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 561 , Paragraph two and Section 562 , Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Fully compliant

Study course descriptions, provided in [Annex 3.2.5], comply with the requirements set forward in Section 561 , Paragraph two and Section 562 , Paragraph two of the Law on Higher Education Institutions, and are provided in two languages - Latvian and English.

Expert group was provided access via ISMA Moodle platform where English versions for two study courses are published, and Latvian versions for courses "Datortīklu drošība" and "Datoru eksperimenti un modelēšanas tehnoloģijas".

- 4 4 - The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure according to which state recognised documents of higher education are issued.

Assessment of compliance: Fully compliant

Provided diploma template [Annex 3.1.1] complies with regulations set forward in (Cab.Reg.No

202, <https://likumi.lv/doc.php?id=256157>).

Note that there has been a recent update in legislation (26.03.2024) that should be taken into account when preparing next diplomas.

- 5 5 - 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 Higher Education Institutions.

Assessment of compliance: Not relevant

N/A

- 6 6 - 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 Higher Education Institutions.

Assessment of compliance: Not relevant

N/A

- 7 7 - 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 (if applicable).

Assessment of compliance: Not relevant

N/A

- 8 8 - 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

Compliance ensured by a provided document, signed by ISMA Rector, confirming the knowledge of the state language of the teaching staff to be C1 or higher. [Annex 2.3.3]

- 9 9 - 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 (if applicable).

Assessment of compliance: Fully compliant

Provided document, signed by ISMA Rector, confirms the teaching staff's knowledge of the English language at level B2 or higher. [Annex 2.3.4]

Note that experts subjectively evaluate that in some cases, self-reported C1 and C2 levels are a bit inflated and experts would subjectively evaluate the actual level to be of B2. No complaints about language skills were given by students or graduates.

- 10 10 - The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

Assessment of compliance: Fully compliant

Provided study agreement templates [Annex 2.1.5] complies with requirements set forward in Cabinet regulations No 70 "Mandatory Provisions to be Included in the Study Agreement" (<https://likumi.lv/ta/id/152072-studiju-liguma-obligati-ietveramie-noteikumi>).

- 11 11 - The higher education institution / college has provided confirmation that students will be provided with opportunities to continue their education in another study programme or another higher education institution or college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.

Assessment of compliance: Fully compliant

ISMA has provided opportunities to continue studies in the given circumstances in Riga Technical University, Rezekne Academy of Technologies, Transport and Telecommunication Institute.

[Annex 2.1.3]

Note, that although formal compliance is validated, this requirement also will apply to students in Fergana branch, and it, for them to receive the Latvian HEI diploma, another Latvian HEI undertakes the study process, which means that the new HEI should somehow accommodate providing continuation of studies for students in Fergana itself, or ask the Fergana branch students to relocate to Latvia.

- 12 12 - The higher education institution / college has provided confirmation that students are guaranteed compensation for losses if the study programme is not accredited or the study programme's license is revoked due to the actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.

Assessment of compliance: Fully compliant

Compliance validated through provided document [Annex 2.1.4].

- 13 13 - The joint study programmes comply with the requirements prescribed in Section 55.(1), Paragraphs one, two, and seven of the Law on Higher Education Institutions (if applicable)

Assessment of compliance: Not relevant

N/A

- 14 14 - Compliance with the requirements specified in other regulatory enactments that apply to the study programme being assessed (if applicable)

Assessment of compliance: Not relevant

N/A

Assessment of the requirement [8]

- 1 R8 - Compliance of the study programme with the requirements set forth in the Law on Higher Education Institutions and other regulatory enactments.

Assessment of compliance: Fully compliant

Study programme compliance with the requirements set forth in the Law on Higher Educations and other regular enactments.

General conclusions about the study programme, indicating the most important strengths and weaknesses of the study programme

ISMA has successfully updated the Information Systems StP to modern contents required by the industry. It appears to be aligned with the the StF covering comprehensively topics related to the respective field. Steady number of incoming students ensures stability and growth of the StP, as well as competitive remuneration packages for teaching staff. The StP is well-structured and its content is appropriate for meeting the labour market requirements both in Latvia and Uzbekistan and is also compliant with the national regulations and the occupational standard. There are some well-

documented descriptors for all the courses in the StP that comply with the aims and objectives of the StP. It is designed in such a way that, after graduation, students are oriented towards independent lifelong learning and are able to continue studies at Master's level. Employers appeared satisfied with the level of the graduates of this StP. Overall it is a promising StP both for the campus in Riga and has the potential to be successful when implemented in Fergana Uzbekistan if the same level of quality is ensured.

ISMA has provided enough resources and provisions for implementing the StP in Riga. Provisions are refreshed from time to time. Noteworthy modern selection of literature is used for the study process. Planned delivery methods are possible to be implemented by ISMA based on available and offered provisions. Regarding the teaching staff of the programme, the expert group believes that it is understaffed and would definitely benefit from the appointment of more academics especially with expertise in Computer Networking Expertise. The teaching staff also partially complies with the requirements for the implementation of the regulatory enactments. While a significant proportion of the teaching staff hold PhDs and have industry experience, there are deficiencies in meeting regulatory requirements, such as insufficient scientific publications and H-index scores for some professors and associate professors. Cooperation between the staff appears sufficient however, there are administrative and operational challenges at ISMA that undermine the positive developments like, conflicting information about staff recruitment responsibilities indicates a lack of a unified system for attracting teaching staff, as well as the procedure for electing professors, appears insufficient. The teaching staff's workload at ISMA greatly exceeds international norms, which diminishes the quality of education, restricts the introduction of innovative teaching methods, and limits the expansion of practical work experience and scientific activities. Regarding Internships, there is very good a well-documented document describing the Industrial Placement (Trainingship) however there seems to be a limited number of companies that offer Internships to students or get involved in the study process of the StP in Riga. In the contrary, the same does not apply for the Fergana Campus where quite a few companies have demonstrated interest in supporting the StP in Fergana.

Strengths:

1. The title, degree to be obtained, professional qualification or degree and professional qualification of the StP, aims, objectives, learning outcomes and admission requirements are interrelated.
2. StP courses are well balanced and cover most of modern software developers and system analysts aspects. The module descriptors provided in SAR, Annex 3.2.5 are well structured and comply with the aims and objectives of the StP "Information Systems". The structure of the StP as well as the content of the modules are appropriate to meet the labour market requirements as well as the scientific needs.
3. The StP complies with national regulations including the education standard and the occupational standard.
4. Provisions include all necessary components for learning outcomes, and provides means for hardware tinkering in robotics laboratories.
5. Study course implementation required provisions are provided, and modern tools and solutions are used throughout the study process.
6. Academic staff members have industry experience.
7. Balanced skill set of programme graduates, with good motivation and communication. Graduates have the ability to engage in lifelong learning and/or continue at postgraduate studies
8. Low drop-out rate of students
9. Very good feedback about the programme from students, and mouth-to-mouth recommendations and advertisements on the programme (most of the students joined ISMA because a friend recommended it).
10. Recently renovated buildings in Riga attract students.

11. A document (policy) on Traineeship Regulations is available.
12. The strategic inclusion of industry professionals among the teaching staff brings valuable practical knowledge to the students.
13. The composition of the leading teaching staff has remained relatively stable, reflecting positive changes since the last accreditation.
14. The teaching staff's cooperation in developing and updating StPs is well-structured, involving regular council meetings and informal interactions.
15. The programme benefits from international collaboration, including guest lectures and seminars involving educators from abroad. This broadens the educational perspective offered to students and staff, enriching the StPs and fostering a more comprehensive educational environment.
16. Promising setup for the development of the StP in Fergana.

Weaknesses:

1. Some international students who enroll in ISMA are not motivated to continue studies, and use ISMA as a platform for migration to Europe, thereby posing risk for ISMA financial plans, study plans.
2. Internship topics and thus reports could be better aligned with professional outcomes and skills for the StP. Some are too simple. Not many companies are available to offer Internships to students or get involved in the study process of the StP.
3. There appears to be a lack of expertise in topics related to Networking and Telecommunications (judging from the research work of academic staff) that students typically show interest in, for the final thesis. This together with the claimed difficulty (in [SAR, 3.2.6]) to secure traineeships for students in their chosen thesis topic would potentially not ensure the required support to those students.
4. On average final thesis topics could be more challenging.
5. Minimum number of 20 students in Fergana branch Information Systems programme to be profitable can be challenging.
6. Lack of infrastructure at the Fergana Campus which needs to be acquired before the launch of the StP.
7. Lack academic staff at the Fergana Campus that need to be appointed before the launch of the StP.
8. Lack of the specifics, detailed size and survey methods are not providing clear data and feedback from the graduates.
9. There is no clear data about the feedback in accordance with real changes in the study content and clear system of specifics and how the changes are implemented and disseminated between the stakeholders.
10. A significant gap in meeting the regulatory requirements, particularly in terms of scientific publications and H-indexes for some professors and associate professors.
11. The transparency and documentation of the election processes of academic staff and their annual performance evaluations is not clear.
12. Conflicting information about the responsibility for staff recruitment indicates a significant lack of a unified system for attracting and managing teaching staff.
13. Information indicates that the teaching staff's workload greatly exceeds international norms, which diminishes the quality of education, restricts the introduction of innovative teaching methods, and limits the expansion of practical work experience and scientific activities.
14. The annual scientific conference organized by ISMA, while a valuable initiative, does not involve peer-reviewed publications or engage an internationally recognized team of reviewers. This limits the academic value of the conference in terms of contributing to recognised scientific research.

Evaluation of the study programme "Information systems"

Evaluation of the study programme:

Good

2.6. Recommendations for the Study Programme "Information systems"

Short-term recommendations

1. Appoint at least 2 more permanent academic staff (at least one with expertise in computer networking and cybersecurity) for the StP in Riga to ensure that the overall teaching load of academic members of staff does not exceed 12 contact hours per week.
2. For the StP (Bachelor in Information Systems) which is planned to be implemented in Fergana ensure that academic staff goes to Fergana to deliver their courses ensuring that: (1) no more than 50% of the teaching is done online and (2) reasonable time is spent in face to face delivery for courses that include practical work (not limited to two weeks).
3. For the StP (Bachelor in Information Systems) which is planned to be implemented in Fergana appoint one academic member of staff to act as the coordinator between the two campuses (Riga and Fergana) whose main responsibility should be the smooth and identical delivery of the StP in Fergana to that in Riga ensuring the same student experience of the students at the two campuses.
4. Appoint at least 1 member of academic staff in Fergana (in addition to the academic coordinator mentioned above) and 2-3 consultants (teaching assistants) to support the study process.
5. Develop and implement a clear and accessible documentation system for all processes related to the election and performance evaluations of academic staff. This should include a digital archive that can be regularly updated and easily audited to ensure compliance and transparency.
6. Clearly define and communicate the roles and responsibilities related to staff recruitment and management. This could involve establishing a central human resources team dedicated to academic staff recruitment and retention, thereby resolving conflicts and inconsistencies in the current process.
7. Conduct a thorough review of the current workload distribution among the teaching staff. Adjustments should be made to align with international norms, possibly through hiring additional staff or adjusting teaching responsibilities and class sizes to reduce the strain on current staff.
8. Ensure that no more 50% of the teaching is done online to align with the Latvian Regulation Cabinet of Ministers 8th of February 2022, No. 111.
9. Ensure the specific, detailed size and survey methods for providing clear data and feedback from the graduates.
10. Ensure the clear data about the feedback in accordance with real changes in the study content and clear system of specifics and how the changes are implemented and disseminated between the stakeholders.

Long-term recommendations

1. Find more ways to engage more employers from Industries that are relevant to topics that students undertake for their thesis in their traineeship programmes.

2. Create a developmental programme for professors and associate professors to meet the required standards in scientific publications and H-indexes. This could include workshops on research methods, writing for publication. Additionally, provide support for research projects and collaborations that can lead to publications in indexed journals (especially in Q1 and Q2).

3. Transform the annual scientific conference into a peer-reviewed event by engaging an internationally recognised editorial board and ensuring that proceedings are indexed in reputable scientific databases.

II - "Computer Systems" ASSESSMENT

II - "Computer Systems" ASSESSMENT

2.1. Indicators Describing the Study Programme

Analysis

2.1.1. As it is presented in SAR (page 71) The Master's StP "Computer Systems" fully corresponds to the StF "Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science", including the acquisition of such skills and competencies as business process analysis, creation and re-planning of IT solutions, preparation of technical documentation according to ICT industry standards etc., while promoting the development of leadership skills, as well as the understanding of the importance of cooperation and lifelong learning in one's profession, which is fully in line with the aim of the study direction to prepare competent, self-improvement-oriented and innovative-thinking professionals in the field of computer science and informatics who are competitive in the global market. Taking into account the aforementioned strategic documents, as well as the nature of the professions defined in the Qualification Structure of the electronic and optical equipment production, information and communication technology industry, the aims and learning outcomes of the StP have been formulated, as it is noted in SAR, page 22.

2.1.2. The name of the StP is the Master's StP "Computer Systems", which combines the key words of the degree to be obtained - Professional Master's degree in Computer and Information Science and the qualification to be obtained - System Analyst (SAR, page 72). The StP is coordinated with the requirements of the corresponding Occupational Standard "System Analyst" and the qualification structure of the Electronic and Optical Equipment Production, Information and Communication Technology sector agreed at the December 15, 2021 meeting of the Professional Education and Employment Tripartite Cooperation Sub-Council (PINTSA). Also, it should be noted that the aim, objectives and learning outcomes of the StP have been adjusted according to the comments and recommendations of accreditation experts, the structure of qualifications developed by NEP (Council of industry experts), the Latvian Development Plan for 2021-2027, ISMA strategy, the goal of the study direction and correspond to the 7th level of the Latvian Qualification Framework. In accordance with the regulations of the Cabinet of Ministers of June 13, 2017 No. 322 "Noteikumi par Latvijas izglītības klasifikāciju" (Regulations on Latvian education classification), the code of the StP "Computer Systems" according to the group of educational programmes "Datorsistēmas, datubāzes un datortīkli" (Computer systems, databases and computer networks) has been changed to 47483 (or 0612 according to ISCED-F 2013).

As it is presented in the self assessment report it is stated that the StP "Computer Systems" study duration of 2.5 years (in full-time studies) is no longer relevant. According to the changes in Law on Higher Education Institutions studies are not conducted in Russian, only in Latvian and English (starting from 1st of January, 2019). The studies are planned: Full-time intramural 90 ECTS (Latvian

and English), Full-time intramural 120 ECTS (English), Part-time intramural 2 year and 5 months 120 ECTS (English), Part-time distance 2 years 90 ECTS or 2 years and 5 months 120 ECTS (English). There are also changes adjusted according to the variants of the StP, worth mentioning that all the studies are implemented in English (only full - time intramural studies also available in Latvian): at least level B2 on the English language proficiency. From the expert point of view the important changes are accurate since the majority of the students that are studying are the international students, which do require the possibility to have studies provided in English version. All these aspects are presented and more detailed information provided in admission regulations for the academic year (Protocol No. 8-22, October 27, 2022), provided in official ISMA website (https://www.isma.lv/images/2024/documents_en/ISMA_Uznemsanas_noteikumi_2023-2024_ENG.pdf).

2.1.3. In the self assessment report it is stated that the StP “Computer Systems” was updated with the following changes in the indicators describing the StP since the issuance of the previous accreditation in the Master’s StP “Computer Systems”, taking into account the comments and recommendations provided by the accreditation experts during the previous accreditation of the StF, changes in the demand structure, by updating the StP according to the needs of the labor market and trends of scientific development, namely, the aim and objectives of the StP are corrected, the awarded degree, the programme code, the forms of implementation, the amount and duration of the StP are specified. As the name and awarded qualification, final examination remained unchanged, but changes made were presented in SAR (table in page 68). Most important aspects that need to be taken into account are changing the amount of the StP (ECTS), for the 2nd level and obtaining a Bachelor’s education. There were strategic decisions made towards the study duration and language proficiency, more information provided in the previous section. The awarded degree has changed - upon the completion of the StP, Masters’ degree in computer science and informatics awarded. And in accordance with the regulations of the Cabinet of Ministers of June 13, 2017 No. 322 the code of the StP. It should be noted that the aim, objectives and learning outcomes of the StP have been adjusted according to the comments and recommendations of accreditation experts, the structure of qualifications developed by NEP (Councils of industry experts), the Latvian National Development Plan for 2021-2027 (LNAP 2021-2027), as well as the needs of the labor market and science development trends, harmonizing them with ISMA strategy and the goal of the study direction. Also, it should be mentioned that 2.6.1. annex indicates that these aspects there adjusted according to the previous recommendations by the experts and prepared as a outcomes to be achieved, but it is not really clear how the 4th recommendation - Cooperation with other HEI in the region would help to raise the level of programmes do fully complain, and there there no clear examples what was adjusted and how often in the StP content perspective. During the meeting with the StP director it was stated that the StF content is reviewed twice per year, but could not indicate the specifics or clear example of what really was changed. Also, it should be noted that additionally provided annex No. 4 Implementation of ISMA aims and objectives also indicates that StPs have been updated; study courses have been introduced in accordance with the demand of the labor market, but there is no specific timing how often and what was done and how it was disseminated between stakeholders. Evaluating the number of students in the Master’s StP “Computer Systems” since previous accreditation it can be seen that the number of students increased every year from 16 students in 2013 to 225 students in 2023 (SAR, page 75). This also complies with the increased possibilities to study in the English language in Riga, Latvia and various study forms, since the biggest increase is observed in studies in English (table provided in SAR, page 75). One of the reasons for the programme's popularity in Uzbekistan is the low level of IT development and the high demand for specialists in this field. This was also confirmed during the visit in the Fergana branch, since the employers indicated they would like to employ and hire students if they specifically are graduates of the IT field at ISMA Riga branch, especially: Back-end specialists (software developers), Android, iOS

developers, AI / Data science specialists.

2.1.4. In the self assessment report it is stated that the StP “Computer Systems” is relevant and important for the development of the national economy of Latvia. StPs are required to prepare the specialist to understand the importance of rationally managed organizational and technological ecosystems taking into account Latvia’s National Development Plan for 2021-2027, and it is noted that the specialists are trained to realize their competences and accept the challenges of the modern labor market. In addition, the implementation of the programme is aimed at international cooperation and involvement in world science and innovation developments. These aspects were adjusted during the meetings with the employers from Latvia and Uzbekistan, since from their point of view ISMA provides remote lectures and recordings, giving opportunities for students to be more accessible. The discussion about the work and study process showed that there are possibilities to do both, since there is a possibility to choose the working hours usually in the company. One of the participants gave an example of an ISMA student giving a technical solution on how to improve the work process, additional instruments for example how to optimize the working process. Also it was noted that graduates are working with Eye roll, working in one project, during the research and project the graduate gave significant input there the company was working with multiple partners. During the visit companies also indicated that interns are usually enrolled in various work activities in consulting companies, or for example in cooperation with Hello IT company there are possibilities to teach pupils from 8 years for the ISMA interns or graduates. In SAR it is noted that ISMA regularly conducts graduate surveys so as to find out the progress of former students after graduation, including employment indicators, places of work and further studies. Since the surveys are conducted electronically, using the ISMA alumni database, those graduates who went abroad from Latvia also participate in them. But during the visit this information was not confirmed. As it was mentioned in an earlier chapter by the vice-rector for studies, it was noted that they have more difficulties reaching out to get the feedback from the graduates. Also during the meeting with graduates only one from six people did remember about the surveys provided to the graduates. The positions indicated by the graduates are mainly related to the education acquired in the field of IT - data analyst, system administrator, software tester, programmer in companies of various fields (SAR, page 74). But it should be noted that information is suggested as insufficient, since there is no indication from what period this data was taken, how many participants were participating in it, also knowing from the previous experiences that the surveys are not conducted in a specific order. Also, as many employers confirmed that there are many ISMA graduates working in their companies, there should be surveys and data provided from the employers or Universities position, for example how many students started working at the companies after their practice.

2.1.5. N/A

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

The StP “Information Systems” is fully compliant with the “Information Technology, Computer Hardware, Electronics, Telecommunications, Computer Management, and Computer Science”. There is a variety provided for the study duration. According to the changes in Law on Higher Education Institutions studies are not conducted in Russian, only in Latvian and English (starting from 1st of January, 2019). There are also changes adjusted according to the variants of the StP, worth mentioning that all the studies are implemented in English (only full- time intramural studies are also available in Latvian language): at least level B2 on the English language proficiency. From the expert point of view the important changes are accurate since the majority of the students that are studying are the international students, which do require the possibility to have studies provided in

English version. Evaluating the number of students in the Master's StP "Computer Systems" since previous accreditation it can be seen that the number of students increased every year from 16 students in 2013 to 225 students in 2023 (SAR, page 75). This also complies with the increased possibilities to study in the English language and various study forms, since the biggest increase is observed in studies in English (table provided in SAR, page 75). In the SAR it is noted that ISMA regularly conducts graduate surveys so as to find out the progress of former students after graduation, including employment indicators, places of work and further studies. Since the surveys are conducted electronically, using the ISMA alumni database, those graduates who went abroad from Latvia also participate in them. But during the visit this information was not confirmed. As it was mentioned in an earlier chapter by the vice-rector for studies, it was noted that they have more difficulties reaching out to get the feedback from the graduates. Also during the meeting with graduates only one from six people did remember about the surveys provided to the graduates.

Strengths

1. Many employers confirmed that there are many ISMA graduates working in their companies, indicating that interns are usually enrolled in various work activities in consulting companies and that there is a potential for new vacancies if there would be opened IT studies in Fergana.
2. Potential of the increased student amount in the StF.

Weaknesses:

1. There is no clear feedback and methodic concerning the gathering data from the employers.
2. There are no clear examples of what was adjusted and how often in the StP content, aims, objectives and learning outcomes are updated.

2.2. The Content of Studies and Implementation Thereof

Analysis

2.2.1. The StP "Computer Systems" includes a well-structured curriculum (as described in SAR, Annex 4.2.4) that is relevant and sufficient to fulfill the aim of the StP to develop innovative and systemically thinking, lifelong learning-oriented system analysts who are competitive in the global labour market, who are oriented in the field of computer science, understand the basic principles of business processes analysis and IT system functionality, are able to plan and implement IT solutions, coordinate and supervise teamwork demonstrating leadership and cooperation skills.

The 90-ECTS route includes 30 ECTS (15 ECTS in compulsory and 15 ECTS of elective courses) that aim to provide an in-depth understanding of the latest achievements in the industry's theory and practice. Compulsory courses include Machine Learning Algorithms and NoSQL Database Technologies which are two of the most popular topics in the modern Computer Systems Industry that every professional in this industry should have some knowledge of while elective courses include options in topics of equal importance giving some flexibility to the students to customize their learning based on their preferences or strengths. According to the StP plan [SAR, Annex 4.2.4], Another 30 ECTS are devoted to research work, innovation work, project work and management. 9 ECTS are on compulsory courses on topics related to Computer Experiments and Modelling and Research Methods while 12 of those are obtained from professional courses based on the specialization choice of the students in areas related to Information Security Management, Data Engineering or Machine Learning Engineering (4 3-ECTS modules each) while additional elective non-specialization options are offered. The remaining 9 ECTS are on traineeship. The last 30 ECTS are allocated to the Masters Project.

The 120-ECTS route includes 30 additional ECTS on compulsory study courses that aim to bring students who do not hold a relevant bachelor's degree to the level that they should be in order to cope with the remainder of the course. These include modules related to Mathematics for System

Analysts, Security and Privacy Compliance, System Approach to Computer System Design, Programming for Data Science. If students hold a relevant academic bachelor degree they also join the 120-ECTS route but they have to complete the traineeship which accounts for 30 ECTS. Beyond these 30 ECTS the remainder of the StP programme is the same with the 90-ECTS route.

The study course descriptors provided in SAR, Annex 4.2.5 are well structured and comply with the aims and objectives of the StP “Computer Systems Systems”.

The experts’ group opinion is that the structure of the StP as well as the content of the modules are appropriate to meet the labour market requirements as well as the scientific needs. StP complies with national regulations regarding the educational standard but it is partly compliant with the occupational standard. More specifically, SAR, Annex 4.2.1 clearly demonstrates the compliance of the StP with the Education standard for both the 90-ECTS and the 120-ECTS route with regards to the aims, learning outcomes, amount (ECTS), duration, proportion of compulsory and elective modules, mandatory content for the particular field of study, professionalism and business competencies, the amount of contact hours and the basic Basic principles and procedures for the assessment of the acquisition of the StP.

SAR, Annex 4.2.2 demonstrates the partial compliance of the StP “Computer Systems” with the Occupational Standard “System analyst” in terms of system analysis planning and management, analysis of existing solutions and their context, exploration of the requirements of the interested parties, analysis of requirements and design, evaluation of a solution, requirements lifecycle management, consultation and cooperation as well as in terms of knowledge and skills relevant to laws and standards binding on the field, regulations, communication principles, labour-related issues, social and civic skills and professionalism in general. The expert group have noted that specific clauses of the occupational standard are not satisfied mostly because they are justified in SAR - Annex 4.2.2 with only optional (elective) courses that enrolled students might not choose study either because they chose something else or because they are on a specialization route that does not offer the courses that satisfy those occupational standard clauses. More specifically, it is likely that students on any specialization route will choose modules that do not satisfy clauses 4.4.2, 4.4.3, 5.7 and 5.8. Also clauses 4.2.2, 4.3.1,, 4.6.1 and 4.7.1 of the occupational standard are satisfied only by students following the Data Engineering specialization route. Finally, clause 4.6.2 is likely not to be satisfied by students on the Information Security Management pathway. It is also worth noting that the submitted SAR - Annex 4.2.2 makes reference to courses that are not part of the course like: Programming for Data Science (9), Security and Privacy Compliance(9), System Approach to Computer System Design(6), Mathematics for System Analysts (6) and Mathematics for System Analysts(6).

Finally, there is a very clear and sufficient mapping of the study courses against the learning outcomes of the StP (see [SAR, Annex 4.2.3])

Given that there are numerous optional courses under the 3 specialization pathways and that the number of enrolled students appear to be around 10, the StP Team needs to ensure a minimum number of students for specialization routes or courses within a specialization route are offered only if a minimum number of students expresses interest for that route/course. The experts’ group believes that this number of students should be at least 5.

2.2.2. It is claimed in SAR, 3.2.2 that Master Students are expected to demonstrate, in addition to the technical competencies, their ability to conduct theoretical research and apply the latest achievements and knowledge in the field through their Master Thesis. Although this in theory satisfies the requirement to award the degree based on research work there exists no evidence whether such works have ended up in some research findings or publications. It is also claimed [SAR, 3.2.2] that students demonstrate their research skills through the presentation of their work but fundamentally this on its own is not a demonstration of research skills but communication skills.

2.2.3. According to SAR, 3.2.3 the implementation of the StP “Computer Systems” includes a wide and diverse range of study methods and teaching approaches like lectures, seminars, analysis of practical situations, discussions, presentations, independent works individually and in groups, on-line lectures, video lectures, online tests, using various innovative tools and applications such as sli.do, Kahoot!, Socrative.com, etc. Lecturers have the flexibility to choose the methods and approaches in their courses according to the specificity of their study course and its role in the StP, the practical activities within the study process, as well as the principles of student-centered education, the observance of which at the higher education institution gives students additional powers and imposes additional duties and responsibilities. The opinion of the expert group is that these methods constitute a balanced hybrid of traditional and modern (innovative) methods which maximize the likelihood of achieving the learning outcomes of the individual study courses (modules) as well as the ones of the StP in general. Additionally to the academic contact hours (24 hours for FT and 16 for PT students per 3 ECTS) students are expected to spend a considerable amount of time on independent study (typically more than the contact hours as indicated in the module descriptors) which is typical at PG level to allow students to develop independence and self-learning capabilities which is particularly important for the work that they are expected to carry out as professionals when they graduate. It is an added benefit to the StP that industry professionals are included in the study process as guest lecturers which promotes the topicality of the study content and allows students to better understand the dynamics of the local industry. All these promote a student - centred approach which is very important at this level as they emphasize on the student experience while students build real-world skills, learn from professionals, and develop confidence in their field.

2.2.4. There is a 9-ECTS compulsory traineeship in the 90-ECTS StP and a 39 compulsory ECTS in the 120-ECTS StP only for students who hold an academic bachelor degree. It is claimed in SAR, 3.2.4 that in mutual cooperation between a student and a supervisor of the Master's thesis, the tasks of the qualification traineeship may be supplemented or adjusted according to the topic of the Master's thesis, which is also defined in the description of the traineeship.

Qualification traineeship should consolidate and demonstrate the practical skills, which have been acquired during the studies while the professional traineeship which is undertaken by academic degree holders aims to the application of basic theoretical knowledge of ICT in practice. The learning objectives, tasks and assessment criteria of these traineeship study courses are clearly described in the respective descriptors in SAR, Annex 4.2.5 and they are evaluated as achievable. The involvement of industrial professionals in the setting and updating of tasks described in SAR, 3.2.4, as well as the feedback received from students is evaluated positively. According to SAR 3.2.4 there is a wide range of traineeship opportunities offered to the students of the StP “Computer Systems”. The objectives of these traineeships are communicated to the companies so that there is no deviation from the training/learning plan. The flawless operation of each traineeship appears to be ensured through regular surveys of the companies. A very good document is available that describes clearly the Traineeship Regulations at ISMA. It sets out and defines clearly the procedure for the organization, implementation and defense of traineeship on the professional higher education StPs at ISMA. Overall the traineeship programme seems to be well structured and documented. There seems to be a good mechanism in place for creating internship opportunities for students through various initiatives (e.g. the organization of the international conference “Internship and Employment” at ISMA every November) as well as the establishment of collaborations with local companies both in Latvia and Uzbekistan.

Since the programme is implemented in the English Language ISMA should ensure that admitted students meet the minimum admission criteria with regards to English language. It was noted during the meeting with the students that there was one student with significant communication problems in English. She could not express herself at all in English while she could only understand parts of

the questions raised to her. Her mother tongue is Russian. Communication with the student was done through another student who acted as an interpreter between English and Russian. It appears that the student currently attends English courses to improve her language skills but she is still enrolled on the course and it was difficult for the expert group to evaluate how she manages to cope with the study programme requirements.

2.2.5. N/A

2.2.6. In SAR, 3.2.6 the StP team have provided a statistical analysis of the topics of the final theses of the students over the last 10 years (2013-2022). Over this period of time students have undertaken projects related to Information systems, management IS, BI, ERP; Programming, DB; Web technology/app, Social Media; Network and Telecommunication; Cyber Security; Big data, AI, IoT, ML; Cloud Computing, Blockchain. These topics not only are relevant to the StP but they also constitute some of the most modern research trends in Information systems. Statistics provided in SAR 3.2.6 indicate that most topics related to big data technologies and cloud computing, while software development and information security issues have always caused students' interest. Although not always possible, students can relate their thesis to their traineeship. It would have been ideal if ISMA could find more ways to engage Industries that are relevant to topics that students undertake for their thesis in their traineeship programmes. Students appear to do quite well in their final thesis which marks ranging between 6.5 and 10.

Final thesis in general meet the requirements set for final thesis, for example, in the final thesis there is practical application, individual contribution of the student is observed, scientific publications are discussed. However, the process of choosing the final topics and their relationship to the specialization areas mentioned on the website is not clear. After explanation by the teaching staff and programme directors according to the field of research, the student chooses the topic of the final thesis. However, the process of choosing a topic is not stipulated. Given that this is a professional programme, working together with the industry, for example, by attracting a consultant, is very important. Therefore, the publication of final papers on the report, their placement on the website, Moodle, MyISMA or other place accessible to students is recommended.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

Overall, the StP is well-structured and its content is appropriate for meeting the labour market requirements in Latvia and is also compliant with the educational standard but it is partly compliant with the occupational standard "System Analyst". The expert group have noted that specific clauses of the occupational standard are not satisfied mostly because they are justified in SAR - Annex 4.2.2 with only optional (elective) courses that enrolled students might not choose study either because they chose something else or because they are on a specialization route that does not offer the courses that satisfy those occupational standard clauses. More specifically, it is likely that students on any specialization route will choose modules that do not satisfy clauses 4.4.2, 4.4.3, 5.7 and 5.8. Also clauses 4.2.2, 4.3.1., 4.6.1 and 4.7.1 of the occupational standard are satisfied only by students following the Data Engineering specialization route. Finally, clause 4.6.2 is likely not to be satisfied by students on the Information Security Management pathway. It is also worth noting that the submitted SAR - Annex 4.2.2 makes reference to courses that are not part of the course like: Programming for Data Science (9), Security and Privacy Compliance(9), System Approach to Computer System Design(6), Mathematics for System Analysts (6) and Mathematics for System Analysts(6).

The StP defines two study options: a 90 ECTS and a 120 ECTS option. The expert group observed that only the 120 ECTS StP is offered to the students even though there are students in the

programme who hold a professional bachelor in a related field (also from ISMA) who according to the university regulations should have registered to the 90 ECTS programme. There are some well documented descriptors for all the courses in the StP that comply with the aims and objectives of the StP. These define a variety of teaching approaches which is evaluated positively as well as a good balance between contact hours and independent study. The StP would definitely benefit from the appointment of an academic member of staff with Computer Networking Expertise. While there is a very good and well-documented document describing the Industrial Placement (Trainingship) there seems to be a limited number of companies that offer Internships to students or get involved in the study process of the StP in Riga. The expert group evaluates negatively the fact that there are quite many specialization pathways (Information Security Management, Data Engineering, Machine Learning Engineering) with each pathway having 4 optional courses which together with the 5 non-specialization course options sum up to quite many options for the current number of enrolled students. It appears that courses or pathways are offered in cases where a very low number of students express interest to enroll. On the negative side, the expert group also note the absence of strong evidence of students' involvement in research and the fact that not many companies are available to offer Internships to students or get involved in the study process.

Strengths:

1. The module descriptors provided in SAR, Annex 3.2.5 are well structured and comply with the aims and objectives of the StP "Information Systems".
2. The structure of the StP as well as the content of the modules are appropriate to meet the labour market requirements as well as the scientific needs.
3. The StP complies national education standard .
4. A variety of teaching approaches and tools are used that constitute a balanced hybrid of traditional and modern (innovative) methods which maximize the likelihood of achieving the learning outcomes of the individual study courses (modules) as well as the ones of the StP in general.
5. Good balance between contact hours and independent study.
6. ISMA provides remote lectures and recordings, giving opportunities for students to be more accessible, and also ability to do both work and study at the same time.

Weaknesses:

1. Quite many optional courses for the current number of enrolled students. It appears that courses are offered in cases where a very low number of students express interest to enrol.
2. Partial Compliance with the Occupational Standard "System Analyst"
3. No strong evidence of student involvement in research.
4. Not many companies are available to offer Internships to students or get involved in the study process of the StP.

Assessment of the requirement [5] (applicable only to master's or doctoral study programmes)

- 1 R5 - The study programme for obtaining a master's or doctoral degree is based on the achievements and findings of the respective field of science or field of artistic creation.

Assessment of compliance: Partially compliant

Although in theory Master Students are expected to demonstrate, in addition to the technical competencies, their ability to conduct theoretical research and apply the latest achievements and knowledge in the field through their Master Thesis (as claimed in [SAR, 3.2.2]), and this

would theoretically satisfy the requirement to award the degree based on research work there exists no evidence whether such works have ended up in some research findings or scientific publications or any other evidence of serious student involvement in any other research/scientific activities. The only thing that there is evidence [SAR, 3.2.2 and Meeting with the StF Director] for is the fact that at students demonstrate their research skills through the presentation of their work at a non-peer reviewed conference organized annually at ISMA, but fundamentally this on its own is not a demonstration of research skills but communication skills instead. The programme team should find ways to improve this and get the students more involved in research and artistic creation.

2.3. Resources and Provision of the Study Programme

Analysis

2.3.1. As there are two StPs in the StF that are directly related to IT, there is an overlap of provisions and resources, and is already described in this Joint opinion document section 1.3. This section contains only unique aspects for this exact StP.

ISMA provides descriptions of used provisions in SAR 3.3.1 - Computer Systems - specialized software, e.g. Keyestudio constructors, Raspberry-pi, Keyestudio designer kits, Arduinos are used in the study process. In several courses Vensim PLE, PostgreSQL PgAdmin are used, Computer Systems programme annex [Annex 4.2.5] provides more insights in used programming languages and frameworks, with modern ones such as Keras, PyTorch, Tensorflow in “Machine Learning Algorithms” and in “Image Analysis Using Deep Learning”, Python, R in “Programming for Data Science”, Apache Spark with additional libraries in “Big Data Architecture”, Azure Synapse Analytics and Google BigQuery in “Data Warehouses”, Ci/CD Jenkins, Dockers, Kubernetes and others in “Secure Development and DevSecOps”

Given that Information Systems is unique in the way most of the development and educational toolkits and software solutions used in the industry are available for free for educational purposes, ISMA provides aforementioned provisions that fully ensures study and learning outcomes for the StP. Even more, study courses use modern and up-to-date industry trend toolkits in the study process, such as Git, Dockers, Visual Studio Code, Python with scientific libraries and so on.

expert group would like to emphasize that in experts opinion, high quality scientific and research activities require access to peer-reviewed papers. This opinion was also supplemented in meetings with students, when inquired about research activities during thesis preparation, students mentioned that they have used library and database resources. Although some articles can be acquired via open-access, students expressed the wish to be able to use IEEEExplore and ACM Library subscription for article download. One student had the possibility to use his IEEEExplore account from the previous HEI, and would prefer if ISMA provided IEEEExplore access.[Meeting with students from both StPs]. [SAR 2.3.3]. This is especially relevant for the graduate StP. Expert group is aware that in Computer Science several fields recent year trend is that conferences are dominating the publishing field due to speed of industry, and several top conferences (e.g. NeurIPS - Conference on Neural Information Processing Systems, ICML - International Conference on Machine Learning, CVPR - Conference on Computer Vision and Pattern Recognition) require open access publications that are then available on <https://arxiv.org/>. Nevertheless, given the wide range of master thesis topics, not all fields in computer science follow this principle. This issue is also partially reflected in the master thesis to which experts were introduced. A quick skim through the thesis resulted in the opinion that the quality of the thesis could be better, and also that the list of references should contain more scientific sources.

Study course description quality is good, and compulsory reading and recommended reading items are modern and fresh [Annex 4.2.5 “4.2.5.Descriptions_study_courses_CS.docx”].

2.3.2. N/A

2.3.3. The self assessment report [SAR 3.3.3 - Computer Systems] provides insight on sources of funding and allocation of funding, as well as break-even point for number of students for the UG StP. Sources of funding primarily are tuition fees (75%), other scientific activities (11%), training courses (6%), contract research (5%), renting of premises, utilities, services (3%).

The SAR section provides breakdown of costs for four programme implementation scenarios:

1. Costs for a full-time student group (7 students) for the 90 ECTS StP
2. Costs for a full-time student group (7 students) for the 120 ECTS StP
3. Costs for a group of part-time distance learning students (3 students) for the 90 ECTS StP
4. Costs for a group of part-time distance learning students (3 students) for the 120 ECTS StP

The financials in tables reflect what the SAR states: "To ensure the profitability of the programme the minimum number of students in the StP, regardless of the language of studies, is 7 students in full-time studies and 3 students in distance learning studies..", for a tuition fee of 2500 EUR per year.

Experts find the financial data to be believable, as it also includes allocated finances for tests, defenses, supervision, review of students work.

Number of minimum students for the Riga branch does not pose a challenge, given that in the last 5 years the total number of students in the Computer Systems programme has been 132, 168, 144, 182, 225 with a positive growing trend.

Thus the financials appear to be stable and a good footing for future developments.

Conclusions on this set of criteria, by specifying strengths and weaknesses

Conclusions:

The Computer Systems graduate programme is well balanced content-wise and supported with a reasonable amount of provisions by the ISMA. Given that graduate programme students have to demonstrate novelty in their thesis, preferably including research aspects, the ISMA could provide more resources to support these activities.

Strengths:

1. Study process uses up-to-date software and frameworks that are currently used in the industry.
2. Study provisions and courses have a strong focus on modern machine learning aspects, data science, data warehousing, and others.
3. Steady and growing number of incoming students.

Weaknesses:

1. Lack of IEEEExplore / ACM Library subscription for scientific activities which are part of the graduate programme process.

Assessment of the requirement [6]

- 1 R6 - Compliance of the study provision, science provision (if applicable), informative provision (including library), material and technical provision and financial provision with the conditions for the implementation of the study programme and ensuring the achievement of learning outcomes

Assessment of compliance: Partially compliant

ISMA has ensured access to relevant provisions, but lacks in providing enough scientific paper sources. Given the number of enrolled students in the programme, more evidence of applied or scientific research is expected in future, thus ISMA should provide more provisions to facilitate it.

2.4. Teaching Staff

Analysis

2.4.1. In accordance with SAR 3.4.1 and Article 27 of the "Law on Higher Education Institutions," ISMA's academic structure comprises professors, associate professors, docents, senior researchers, lecturers, researchers, and assistants. The recruitment for these academic positions is governed by the legislation of the Republic of Latvia and follows the election procedures outlined in ISMA's "Regulations on election into academic positions." These regulations are designed to ensure that qualification and eligibility criteria are met in alignment with Articles 28, 30, 32, 36, 37, 38, and 40 of the law. Currently, the implementation of the Master's StP involves 14 lecturers, of whom 10 possess Ph.D. degrees and one holds a Master's degree. This setup underscores a strong foundation in academic qualifications necessary for the delivery of advanced study courses, especially since only Ph.D.-qualified lecturers are tasked with conducting professional study courses. Lecturers involved in language instruction hold Master's degrees and bring substantial expertise and industry experience, adding value to the learning experience. The inclusion of industry professionals such as V.Gopejenko, A.Bondarenko, and V.Riashchenko in the StP not only diversifies the learning landscape but also ensures that the curriculum is infused with contemporary practical insights, which is a strategic priority for ISMA.

There are notable discrepancies in the scientific and professional qualifications of some staff, especially among the ranks of professors and associate professors. The election criteria, as per the Cabinet regulations, emphasize a robust track record in scientific, pedagogical, or artistic creativity. An examination of professors and associate professors listed in the VIIS database (<https://www.viis.gov.lv/>), SAR 3.4.1, and Annex 2.3.2 indicates that most teaching staff have been re-elected. The Cabinet regulations on the "Procedure for Assessing the Scientific, Pedagogical, or Artistic Creativity Results of Candidates for Professor or Associate Professor Positions and Current Holders" dictate the election criteria for these roles in professional StPs, focusing on specific practical and academic experiences. However, the scientific and professional qualifications of some professors and associate professors at ISMA only partially meet these criteria, such as the number of scientific publications and H-index. For instance, Professor Djakons Romans has three indexed publications, Mrochko Aleksander has one, and Riashenko Viktorija has three publications that do not fulfill the regulatory requirements for professors. Similarly, Associate Professors like Djakona Valentina lack indexed publications. Ivars Linde has two indexed publications, and Zaiga Oborenko has one (SCOPUS database). All mentioned associate professors and professors do not correspond to the regulation.

Critical documentation related to these procedures, including detailed vacancy advertisements, comprehensive submission of candidate documents, voting protocols, council evaluations, and particularly annual performance reviews, has been partially submitted (additional documents in Moodle). The gaps in regulatory compliance and the qualifications of key academic staff significantly undermine the educational aims and learning outcomes of the Master's StP. The deficits in staff qualifications dilute the academic rigor and the quality of education provided, which in turn affect the programme's ability to produce graduates who meet industry standards and expectations. The absence of complete and transparent documentation regarding staff elections also impacts the institution's credibility and the trust placed in its credentials by prospective students and academic partners.

2.4.2. The detailed information provided in SAR 3.4.2 and Annex 3.2.4 indicates that ISMA has made substantial efforts to maintain and potentially enhance the quality of its StP through strategic staffing decisions. While there has been a slight reduction in the overall number of teaching staff, the composition of the staff has become more specialized with an increased number of professors holding doctoral degrees. This shift suggests a strong emphasis on integrating cutting-edge

developments into the curriculum, which is crucial in the rapidly evolving field of IT. The inclusion of industry professionals, as noted in SAR 3.4.2, addresses student and graduate demands for more practical skills and real-world applicability in their education. This adaptation is a strategic response to the needs of the labour market and enhances the programme's practical relevance and competitiveness. By involving professionals with PhD, ISMA ensures that even the non-elected teaching staff contribute significantly to the academic rigor of the programme.

However, these positive changes are shadowed by significant administrative and operational challenges that undermines the stability and quality of the teaching staff. The lack of a clear and unified recruitment policy for teaching staff as indicated by conflicting information regarding recruitment responsibilities suggests potential issues in maintaining consistent standards in staff selection. This disorganization leads to fluctuations in teaching quality and may affect the programme's ability to meet its educational goals. Moreover, the absence of hospice and open lectures, which are essential for the transparency and democratic nature of staff elections, points to a shortfall in meeting some mandatory academic requirements. Such gaps compromise the academic integrity of the programme and its adherence to higher educational standards. Further concerns arise from the delayed submission of essential documentation such as course descriptions, applications, student class lists, and staff workload, which were provided only after repeated requests. Information from meetings with the teaching staff indicates that staff workload greatly exceeds the number of contact hours per week (15 hours) accepted in international practice, with staff members engaging in at least double the generally accepted number of contact hours. This excessive workload diminishes the quality of education, restricts the introduction of innovative teaching methods, and limits the expansion of practical work experience and scientific activities. Such operational inefficiencies raise serious doubts about ISMA's ability to manage staff workloads effectively, especially with plans to expand the programme, such as the proposed opening of a StP in Fergana, Uzbekistan. Without reasonable planning of the teaching staff workload, the sustainable development and quality assurance of the StP are at risk.

2.4.3. N/A

2.4.4. Based on the provided information in Annex 2.3.2 and considering the academic staff's publication records and practical experience, it can be concluded that not all members of the academic staff at ISMA have fulfilled the requirements outlined by the Law on Higher Education Institutions.

Professor Jelena Caiko has a substantial number of publications (35 publications with an H-index of 7), all aligned with her affiliation to RTU, meeting the requirements. Professor Viktors Gopejenko has 26 publications and an H-index of 5, meeting the requirements. Other professors such as Romans Djakons (3 publications, H-index of 0) and Kopitovs Rostislavs (1 publication, H-index of 1) do not meet the standards based on their publication records (SCOPUS database). Associate Professors like Valentina Djakona with no publications.

CVs, which demonstrate extensive practical experience and expertise, contribute valuable insights into the professional requirements and practical applications of the subjects taught. For instance, industry professionals like Dmitrijs Skorodihins, who has extensive experience in IT security and education, highlight the importance of practical, hands-on experience in teaching vocational subjects. For instance, Aleksandrs Berežņojs, with extensive experience as an Assistant Professor at ISMA University College and a Security Manager at TietoEVRY, emphasizes the need for practical skills in Web Application Security and Computer Security Principles. Andrejs Bondarenko, a Senior Data Scientist at CTCO and Lecturer at ISMA University, highlights the integration of practical data science applications into the curriculum. Jelena Čaiko, Professor and Head of the study direction at ISMA University, with a rich background in telecommunications and information technology, underscores the importance of practical and research-based knowledge in digital education and

artificial intelligence. Jurijs Čižovs, a Data Scientist at SIA "C.T.Co" and a Researcher at Riga Technical University, focuses on the implementation of practical data science and software development skills in academic programmes. Romans Djakons, with over 40 years of experience in academic leadership and research, emphasizing the necessity of integrating practical experience in teaching roles, Aleksander Mrochko, with over 44 years of professional experience in natural sciences and computer technologies, highlighting the importance of extensive practical knowledge, Viktorija Riashenko, with over 17 years of experience in business administration and economic activity, showcasing the critical role of practical expertise in vocational education corresponds to at least 15 years professional experience (Law on Higher Education Institutions). However, this experience is only partially related to the IT field. Valentina Djakona, with over 20 years of experience in international business communications and translation, emphasizing the integration of practical skills in vocational education, Evija Liepa, with over 20 years of academic and administrative experience in business and technical education, highlighting the importance of practical expertise, Ivars Linde, with over 40 years of experience in higher education, marketing, and international banking, illustrating the necessity of extensive practical knowledge in teaching roles corresponds to at least 10 years experience, but this experience does not correspond to the subject to be taught (Law on Higher Education Institutions).

ISMA annually organizes a scientific conference where employees, students and teaching staff submit articles. Several articles were featured. The articles cover the latest scientific directions. For students, participation in this conference is desirable. However, this conference is not peer-reviewed, since an internationally recognized team of reviewers is not attracted, the journal is not indexed in any scientific database known in the field, and the articles are considered extended abstracts since they contain only 2 pages, and the number of references is limited (on average 2-6 references) (provided papers in the meetings in Riga and Fergana). Therefore, the inclusion of this conference between the scientific activities of the teaching staff and between scientifically internationally recognized publications cannot be considered correct.

2.4.5. The delineation into three blocks—development and updating of programmes, methodological work enhancement, and scientific research creativity—provides a clear structure that fosters targeted collaboration among staff. This structure ensures that the staff collective efforts are systematically aligned with the goals of the academic programmes. The implementation of council and departmental meetings, along with informal gatherings, promotes an ongoing dialogue among staff.. This regular interaction helps in the continuous harmonization of the curriculum, ensuring relevance and coherence in course content which prevents overlap and redundancy. The annual “Open Learning and Distance Education” conference and the Erasmus+ Staff Teaching and Training Week (SAR 3.4.5) are significant in promoting the ongoing professional development of the staff. These platforms not only facilitate the sharing of innovative teaching methods but also enable networking with international educators, which can introduce fresh perspectives and practices. These activities expand the educational experiences of both students and staff, enriching the academic environment and potentially introducing cutting-edge international standards and knowledge into the local context.

While ISMA has established a robust mechanism for curriculum development and pedagogical enhancement, there is a noticeable gap in aligning the staff research activities with the curriculum. This misalignment hinders the incorporation of the latest technological advancements into the curriculum, which is crucial for fields like IT and computer science. Beyond the highlighted conferences and international collaboration, there appears to be insufficient documentation and recognition of other professional development activities. This oversight led to underutilization of staff expertise and contributions, impacting the overall quality of education. The SAR 3.4.5. hints at administrative inconsistencies and a lack of comprehensive documentation concerning staff

recruitment, election processes, and annual assessments. This lack of transparency affects procedural adherence and accountability, potentially compromising the institutional governance and credibility. While the SAR provides a comprehensive overview of the collaborative mechanisms in place, it does note a gap in the documentation and recognition of various other professional development activities beyond the ERASMUS programme. While informal meetings among teaching staff are mentioned, there is a lack of detailed reporting on the outcomes of these interactions.

Conclusions on this set of criteria, by indicating strengths and weaknesses

Conclusions:

The teaching staff at ISMA largely possess the requisite academic qualifications, with a significant portion holding Ph.D. degrees, which is essential for the delivery of the StP at a Master's level. However, there are notable deficiencies in the scientific and professional qualifications among certain senior staff members, including a lack of sufficient indexed publications and discrepancies in meeting other specified criteria. The processes for recruitment and election of academic staff are formally aligned with national legislation, ensuring a structured approach to staffing. Despite this, inconsistencies in the application of these standards and gaps in the transparency and documentation of election processes have been identified. Strategic decisions to enhance the specialization of the teaching staff with increased doctoral qualifications indicate a positive direction towards improving the academic quality and relevance of the StP. Operational challenges such as unclear recruitment policies, excessive workload, and the absence of comprehensive performance evaluations are concerns that threaten the stability and effectiveness of the teaching staff. The engagement of some academic staff in research and their significant publication records are commendable. However, there is an overall underutilization of opportunities for professional development and a misalignment between staff research activities and the curriculum needs. Established mechanisms for collaborative curriculum development and methodological enhancements are in place, which facilitate the alignment of educational content with academic goals. Nonetheless, there is a noticeable lack of detailed documentation and recognition of various professional development activities.

Strengths

1. ISMA boasts a qualified teaching staff with a significant number of staff holding Ph.D. degrees, ensuring high-level academic instruction. Efforts to specialise the staff composition with more doctoral degree holders aim to incorporate cutting-edge developments into the curriculum, addressing the evolving demands of the IT field and labour market.
2. The engagement of industry professionals enriches the curriculum with practical insights and real-world applications, enhancing the relevance and competitiveness of the StP.
3. The establishment of structured collaboration through council and departmental meetings, as well as educational conferences, fosters systematic alignment of curriculum development and pedagogical enhancement.

Weaknesses:

1. Some professors and associate professors do not meet the scientific and professional qualifications as outlined by the regulatory standards, such as indexed publications and H-index scores.
2. There are significant gaps in the documentation related to staff elections, performance reviews, and the transparency of recruitment processes. Insufficient documentation and recognition of professional development activities beyond the highlighted conferences and international collaboration are noted.
3. The teaching staff is reported to have excessive workloads, potentially affecting the quality of

education and restricting the adoption of innovative teaching methods.

4. There is a noticeable gap between staff research activities and the integration of these findings into the curriculum, which is crucial for maintaining the relevancy of the educational offerings.

Assessment of the requirement [7]

- 1 R7 - Compliance of the qualification of the academic staff and visiting professors, visiting associate professors, visiting docents, visiting lecturers and visiting assistants with the conditions for the implementation of the study programme and the requirements set out in the respective regulatory enactments.

Assessment of compliance: Partially compliant

The core academic staff and some visiting professors possess the necessary qualifications, with a significant number holding Ph.D. degrees and engaging actively in their respective fields. There are notable discrepancies in the qualifications of some visiting professors and associate professors. For instance, certain individuals do not meet the necessary scientific publication requirements or the H-index criteria as stipulated by the regulatory enactments. This inconsistency undermines the overall academic integrity and compliance of the teaching staff. The process of documenting qualifications, professional achievements, and the transparency of the election or appointment of visiting staff appears to be lacking. This gap in documentation does not allow for a thorough verification of compliance with all regulatory requirements.

2.5. Assessment of the Compliance

Requirements

- 1 1 - The study programme complies with the State Academic Education Standard or the Professional Higher Education Standard

Assessment of compliance: Fully compliant

StP is compliant to Regulations No. 305 of the Cabinet of Ministers of June 13, 2023 "Regulations on the Standard of State professional higher education") based on the provided compliance table [Annex 4.2.1].

- 2 2 - The study programme complies with a valid professional standard or the requirements for the professional qualification (if there is no professional standard required for the relevant occupation) provided if the completion of the study programme leads to a professional qualification (if applicable)

Assessment of compliance: Partially compliant

SAR, Annex 4.2.2 demonstrates the partial compliance of the StP "Computer Systems" with the Occupational Standard "System analyst" in terms of system analysis planning and management, analysis of existing solutions and their context, exploration of the requirements of the interested parties, analysis of requirements and design, evaluation of a solution, requirements lifecycle management, consultation and cooperation as well as in terms of knowledge and skills relevant to laws and standards binding on the field, regulations, communication principles, labour-related issues, social and civic skills and professionalism in general. The expert group have noted that specific clauses of the occupational standard are not satisfied mostly because they are justified in SAR - Annex 4.2.2 with only optional (elective) courses that enrolled students might not choose study either because they chose something else or because they are on a specialization route that does not offer the courses that satisfy those occupational standard clauses. More specifically, it is likely that students on any specialization route will choose modules that do not satisfy clauses 4.4.2, 4.4.3, 5.7 and 5.8. Also clauses 4.2.2, 4.3.1., 4.6.1 and

4.7.1 of the occupational standard are satisfied only by students following the Data Engineering specialization route. Finally, clause 4.6.2 is likely not to be satisfied by students on the Information Security Management pathway. It is also worth noting that the submitted SAR - Annex 4.2.2 makes reference to courses that are not part of the course like: Programming for Data Science (9), Security and Privacy Compliance(9), System Approach to Computer System Design(6), Mathematics for System Analysts (6) and Mathematics for System Analysts(6).

- 3 3 - 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 561 , Paragraph two and Section 562 , Paragraph two of the Law on Higher Education Institutions.

Assessment of compliance: Fully compliant

Study course descriptions, provided in [Annex 4.2.5], comply with the requirements set forward in Section 561 , Paragraph two and Section 562 , Paragraph two of the Law on Higher Education Institutions, and are provided in two languages - Latvian and English.

Expert group was provided access via ISMA Moodle platform where English versions for two study courses are published and were provided screenshots of Latvian version study courses.

- 4 4 - The sample of the diploma to be issued for the acquisition of the study programme complies with the procedure according to which state recognised documents of higher education are issued.

Assessment of compliance: Fully compliant

Provided diploma template [Annex 4.1.1] complies with regulations set forward in (Cab.Reg.No 202, <https://likumi.lv/doc.php?id=256157>).

Note that there has been a recent update in legislation (26.03.2024) that should be taken into account when preparing next diplomas.

- 5 5 - 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 Higher Education Institutions.

Assessment of compliance: Not relevant

N/a

- 6 6 - 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 Higher Education Institutions.

Assessment of compliance: Not relevant

N/a

- 7 7 - 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 (if applicable).

Assessment of compliance: Not relevant

N/a

- 8 8 - 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

Compliance ensured by a provided document, signed by ISMA Rector, confirming the knowledge of the state language of the teaching staff to be C1 or higher. [Annex 2.3.3]

- 9 9 - 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 (if applicable).

Assessment of compliance: Fully compliant

Note that experts subjectively evaluate that in some cases, self-reported C1 and C2 levels are a bit inflated and experts would subjectively evaluate the actual level to be of B2. No complaints about language skills were given by students or graduates.

- 10 10 - The sample of the study agreement complies with the mandatory provisions to be included in the study agreement.

Assessment of compliance: Fully compliant

Provided study agreement templates [Annex 2.1.5] complies with requirements set forward in Cabinet regulations No 70 "Mandatory Provisions to be Included in the Study Agreement" (<https://likumi.lv/ta/id/152072-studiju-liguma-obligati-ietveramie-noteikumi>).

- 11 11 - The higher education institution / college has provided confirmation that students will be provided with opportunities to continue their education in another study programme or another higher education institution or college (agreement with another accredited higher education institution or college) if the implementation of the study programme is terminated.

Assessment of compliance: Fully compliant

ISMA has provided opportunities to continue studies in the given circumstances in Riga Technical University, Rezekne Academy of Technologies, Transport and Telecommunication Institute. [Annex 2.1.3]

- 12 12 - The higher education institution / college has provided confirmation that students are guaranteed compensation for losses if the study programme is not accredited or the study programme's license is revoked due to the actions (actions or omissions) of the higher education institution or college and the student does not wish to continue studies in another study programme.

Assessment of compliance: Fully compliant

Compliance validated through the provided document [Annex 2.1.4].

- 13 13 - The joint study programmes comply with the requirements prescribed in Section 55.(1), Paragraphs one, two, and seven of the Law on Higher Education Institutions (if applicable)

Assessment of compliance: Not relevant

N/a

- 14 14 - Compliance with the requirements specified in other regulatory enactments that apply to the study programme being assessed (if applicable)

Assessment of compliance: Not relevant

N/a

Assessment of the requirement [8]

- 1 R8 - Compliance of the study programme with the requirements set forth in the Law on Higher Education Institutions and other regulatory enactments.

Assessment of compliance: Partially compliant

The study programme comply with the requirements set forth in the Law on Higher Educations but is partially compliant with the Occupational Standard "System Analyst"

General conclusions about the study programme, indicating the most important strengths and weaknesses of the study programme

Conclusions:

The StP Computer Systems is well-balanced content-wise and supported with a reasonable amount of provisions by the ISMA and is fully compliant. There is a variety provided for the study duration. There are also changes adjusted according to the variants of the StP, worth mentioning that all the studies are implemented in English (only full- time intramural studies are also available in Latvian language). Overall, the StP is well-structured and its content is appropriate for meeting the labour market requirements in Latvia and is also compliant with the educational standard but partially compliant with the occupational standard ("System Analyst"). The expert group have noted that specific clauses of the occupational standard are not satisfied mostly because they are justified in SAR - Annex 4.2.2 with only optional (elective) courses that enrolled students might not choose study either because they chose something else or because they are on a specialisation route that does not offer the courses that satisfy those occupational standard clauses. More specifically, it is likely that students on any specialization route will choose modules that do not satisfy clauses 4.4.2, 4.4.3, 5.7 and 5.8. Also clauses 4.2.2, 4.3.1,, 4.6.1 and 4.7.1 of the occupational standard are satisfied only by students following the Data Engineering specialization route. Finally, clause 4.6.2 is likely not to be satisfied by students on the Information Security Management pathway. It is also worth noting that the submitted SAR - Annex 4.2.2 makes reference to courses that are not part of the course like: Programming for Data Science (9), Security and Privacy Compliance(9), System Approach to Computer System Design(6), Mathematics for System Analysts (6) and Mathematics for System Analysts(6). The StP defines two study options: a 90 ECTS and a 120 ECTS option. The expert group observed that only the 120 ECTS StP is offered to the students even though there are students in the programme who hold a professional bachelor on a related field (also from ISMA) who according to the university regulations such students should have registered to the 90 ECTS programme. There are some well documented descriptors for all the courses in the StP that comply with the aims and objectives of the StP. These define a variety of teaching approaches which is evaluated positively as well as a good balance between contact hours and independent study. The StP would definitely benefit from the appointment of an academic member of staff with Computer Networking Expertise. While there is very good a well documented document describing the Industrial Placement (Trainingship) there seems to be a limited number of companies that offer Internships to students or get involved in the study process of the StP in Riga. The expert group evaluates negatively the fact that there are quite many specialization pathways(Information Security Management, Data Engineering, Machine Learning Engineering) with each pathway having 4 optional courses which together with the 5 non-specialization course options sum up to quite many options for the current number of enrolled students. It appears that courses or pathways are offered in cases where a very low number of students express interest to enroll. On the negative side, the expert group also note the absence of strong evidence of students' involvement in research and the fact that not many companies are available to offer Internships to students or get involved in the

study process. Given that graduate programme students have to demonstrate novelty in their thesis, preferably including research aspects, the ISMA could provide more resources to support these activities.

It would be beneficial if the mechanism for receiving feedback from the alumni/graduates was enhanced. Similarly to the StP “Information Systems”, the teaching staff also partially complies with the requirements for the implementation of the regulatory enactments. While a significant proportion of the teaching staff hold PhDs and have industry experience, there are deficiencies in meeting regulatory requirements, such as insufficient scientific publications and H-index scores for some professors and associate professors. Cooperation between the staff appears sufficient however, there are administrative and operational challenges at ISMA that undermine the positive developments like, conflicting information about staff recruitment responsibilities indicates a lack of a unified system for attracting teaching staff, as well as the procedure for electing professors, appears insufficient. The teaching staff's workload at ISMA greatly exceeds international norms, which diminishes the quality of education, restricts the introduction of innovative teaching methods, and limits the expansion of practical work experience and scientific activities.

Strengths:

1. StP is aligned with the StF.
2. Balanced and up-to-date study courses which are well structured and comply with the aims and objectives of the StP “Information Systems” and the content is appropriate to meet the labour market requirements as well as the scientific needs.
3. Modern literature and sources are used in the study process.
4. A variety of teaching approaches and tools are used that constitute a balanced hybrid of traditional and modern (innovative) methods which maximize the likelihood of achieving the learning outcomes of the individual study courses (modules) as well as the ones of the StP in general. ISMA provides remote lectures and recordings, giving opportunities for students to be more accessible, and also ability to do both work and study at the same time.
5. Good balance between contact hours and independent study.
6. Many employers confirmed that there are many ISMA graduates working in their companies, indicating that interns are usually enrolled in various work activities in consulting companies
7. Study process uses up-to-date software and frameworks that are currently used in the industry.
8. Study provisions and courses have a strong focus on modern machine learning aspects, data science, data warehousing, and others.
9. Steady and growing number of incoming students.
10. ISMA boasts a qualified teaching staff with a significant number of staff holding Ph.D. degrees, ensuring high-level academic instruction. Efforts to specialize the staff composition with more doctoral degree holders aim to incorporate cutting-edge developments into the curriculum, addressing the evolving demands of the IT field and labour market.
11. The engagement of industry professionals enriches the curriculum with practical insights and real-world applications, enhancing the relevance and competitiveness of the StP.
12. The establishment of structured collaboration through council and departmental meetings, as well as educational conferences, fosters systematic alignment of curriculum development and pedagogical enhancement.

Weaknesses:

1. There is no clear feedback and methodic concerning the gathering data from the employers.
2. There are no clear examples of what was adjusted and how often in the StP content, aims, objectives and learning outcomes are updated.
3. Difficulty attracting motivated students for the StP results in overall average group and student work quality.

4. Students involvement in research activities is lacking and could be improved.
5. Quite many optional courses for the current number of enrolled students. It appears that courses are offered in cases where a very low number of students express interest to enroll.
6. No strong evidence of student involvement in research.
7. Not many local (and not major companies) are being involved in the managed improvement process of the StP according to Study Direction Council Meeting minutes (Padomes Sēde).
8. Partially compliant with the Occupational Standard "System Analyst"
9. Lack of IEEEExplore / ACM Library subscription for scientific activities which are part of the graduate programme process.
10. Some professors and associate professors do not meet the scientific and professional qualifications as outlined by the regulatory standards, such as indexed publications and H-index scores.
11. There are significant gaps in the documentation related to staff elections, performance reviews, and the transparency of recruitment processes. Insufficient documentation and recognition of professional development activities beyond the highlighted conferences and international collaboration are noted.
12. The teaching staff is reported to have excessive workloads, potentially affecting the quality of education and restricting the adoption of innovative teaching methods.
13. There is a noticeable gap between staff research activities and the integration of these findings into the curriculum, which is crucial for maintaining the relevancy of the educational offerings.

Evaluation of the study programme "Computer Systems"

Evaluation of the study programme:

Average

2.6. Recommendations for the Study Programme "Computer Systems"

Short-term recommendations

1. Appoint at least 2 more permanent academic staff (at least one with expertise in computer networking and cybersecurity) for the StP in Riga to ensure that the overall teaching load of academic members of staff does not exceed 12 contact hours per week.
2. Given that there are 3 specialization pathways in the programme and each one includes a different number of optional courses and that the number of enrolled students appear to be around 10, the StP Team needs to ensure a minimum number of students for specialization pathways or courses within a specialization route are offered only if a minimum number of students expresses interest for that route/course. The experts' group believes that this number of students should be at least 5.
3. Demonstrate stronger evidence of student involvement in research which is not limited to just presenting their work to the local conference organized annually in Riga. For instance, ISMA should be in a position to demonstrate that for each student completing a master thesis, that his or her work has resulted in at least one scientific output in a peer-reviewed conference or there is strong relevance and contributes to the ongoing work of the thesis supervisor which has the potential to result in scientific output.

4. Find more ways to engage more employers from Industries that are relevant to topics that students undertake for their thesis in their traineeship programmes. ISMA should be in a position to demonstrate that for every 3 students they have enrolled in the StP they have an agreement with 1 employer and these cover all the specializations they offer in their StP (Information Management, Data Engineering, Machine Learning Engineering). At least 3 Employers from each specialisation are required.
5. The StP should become fully compliant with the Occupational Standard “System Analyst”. The expert group have noted that specific clauses of the occupational standard are not satisfied mostly because they are justified in SAR - Annex 4.2.2 with only optional (elective) courses that enrolled students might not choose study either because they chose something else or because they are on a specialization route that does not offer the courses that satisfy those occupational standard clauses. More specifically, it is likely that students on any specialization route will choose modules that do not satisfy clauses 4.4.2, 4.4.3, 5.7 and 5.8. Also clauses 4.2.2, 4.3.1,, 4.6.1 and 4.7.1 of the occupational standard are satisfied only by students following the Data Engineering specialization route. Finally, clause 4.6.2 is likely not to be satisfied by students on the Information Security Management pathway. It is also worth noting that the submitted SAR - Annex 4.2.2 makes reference to courses that are not part of the course like: Programming for Data Science (9), Security and Privacy Compliance(9), System Approach to Computer System Design(6), Mathematics for System Analysts (6) and Mathematics for System Analysts(6).
6. Implement a more rigorous and transparent evaluation process for current and potential staff to ensure all members meet or exceed the required academic and professional standards. Consider establishing a peer review group to assess candidate qualifications before elections.
7. Regularly review and adjust staff workloads to ensure they align with international best practices, allowing adequate time for research and professional development.
8. Expand the documentation and recognition of all professional development activities. Establish a formal system for tracking and recognising the contributions of staff to professional forums, workshops, and seminars to ensure their expertise is fully utilised and acknowledged.
9. Ensure the clear feedback and methodic concerning the gathering data from the employers.
10. Ensure the clear examples of what was adjusted and how often in the StP content, aims, objectives and learning outcomes are updated.
11. Invite at least one local IT engineering company to Study Direction Council meetings.

Long-term recommendations

1. Develop and enforce a standardised documentation protocol for all staff-related procedures, including elections, assessments, and performance reviews.
2. Enhance the integration of staff research into the curriculum by establishing specific mechanisms that regularly update course content based on recent scientific developments and industry trends, extend students and teaching staff participation in scientific and research activities outside the ISMA.

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
R1 - Pursuant to Section 5, Paragraph 2.1 of the Law on Higher Education Institutions, the higher education institution/ college shall ensure continuous improvement, development, and efficient performance of the study field whilst implementing its internal quality assurance system:		Partially compliant	The internal quality system is in place. However, there is limited data and lack of systematic gathering of data from graduates and employers in place. There is no feedback on the received results of summaries (the loop is not closed) to these two groups. The feedback gathering mechanisms should be formalized in a written form. There is a lack of key performance indicators specified and there is no process to collect data/measure the achievement of the set goals. There are also some inconsistencies in information such as who is the responsible person of data collection and how data collection is being performed at ISMA. The information on the website is outdated such as the information on the StPs are from the time period of 2013 to 2017 and also the current quality policy document, which is stated to be currently under review.

Requirements	Requirement Evaluation		Comment
R2 - Compliance of scientific research and artistic creation with the level of development of scientific research and artistic creation (if applicable)		Partially compliant	<p>There exist well-defined research directions that are aligned with the StF and follow the International research trends however not many academic members of staff are involved with research related to the StF (only 3). In this context, scientific work/Research needs to be improved. Academic members of staff need to publish works at peer-reviewed conferences and journals. Currently, the publication record of academics is mostly in non-peer-reviewed conferences. Also, they should engage in International Research activities, not just locally funded research. There is a lack of institutional support to academic members of staff to do high-quality research mostly because they appear to be very loaded with teaching or there appears to be a lack of financial or other (e.g. sabbatical scheme, reduced teaching scheme, trainings etc) to support them. Student involvement in scientific research appears to be minimal in presenting their work at a non-peer-reviewed conference organized at ISMA.</p>

Requirements	Requirement Evaluation		Comment
R3 - The cooperation implemented within the study field with various Latvian and foreign organizations ensures the achievement of the aims of the study field.		Partially compliant	While ISMA has numerous collaborations, the specificity and direct impact of these partnerships on the IT StF could be enhanced. The existing agreements often encompass broad educational and research objectives without a targeted focus on the evolving needs and technological advancements specific to IT. There is insufficiently detailed, accessible information regarding the specifics and measurable outcomes of recent collaborations. SAR and additional documentation do not consistently highlight outcome-oriented evaluations of partnerships, such as specific advancements in IT research, changes in teaching methodologies, or direct impacts on student employability and skill enhancement within the IT sector. The strategic alignment of partnerships specifically with the IT StF's objectives needs regular review and realignment to ensure that all collaborations directly support the intended educational outcomes and keep pace with technological advancements. The scientific collaboration especially with research projects with local and international institutions have to be improved.
R4 - Elimination of deficiencies and shortcomings identified in the previous assessment of the study field, if any, or implementation of the recommendations provided.	Fully compliant		All recommendations from previous evaluation are implemented, with clear vision forward.

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	Information systems (42483)	Not relevant	Fully compliant	Partially compliant	Fully compliant	Good
2	Computer Systems (47483)	Partially compliant	Partially compliant	Partially compliant	Partially compliant	Average

The Dissenting Opinions of the Experts

N/A