ASIIN Seal & EURO-Inf® Label

Accreditation Report

Bachelor's Degree Programmes

Information Systems

Big Data Analytics

Master´s Degree Programme

IT Project Management

Doctoral Degree Programmes

Information Systems

Clever Systems

Provided by

International Information Technology University, Almaty

Version: 25 September 2026

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A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
B606105 Ақпараттық жүйелер	B606105 Information Systems	ASIIN, Euro-Inf® Label	ASIIN, 03.05.2019 – 09.30.2023	07
6B06103 Үлкен деректерді талдау	6B06103 Big data analytics	ASIIN, Euro-Inf® Label	ASIIN, 03.05.2019 – 09.30.2023	07
7M06104 АТ жобаларын басқару	7M06104 IT Project Management	ASIIN, Euro-Inf® Label	ASIIN, 03.05.2019 – 09.30.2023	07
8D06101 Интеллектуалдық жүйелер	8D06103 Information Systems	ASIIN, Euro-Inf® Label	ASIIN, 03.05.2019 – 09.30.2023	07
8D06103 Ақпараттық жүйелер	8D06101 Clever Systems	ASIIN, Euro-Inf® Label	ASIIN, 03.05.2019 – 09.30.2023	07
Date of the contract: 03.06.2024 **Submission of the final version of the self-assessment report:** 19.12.2024 **Date of the onsite visit:** 08.-10.04.2025 **at: IITU Almaty**				
Expert panel: Prof. Dr. Vera Meister, Brandenburg University of Applied Sciences Prof. Dr. Peer Kueppers, Karlsruhe University of Applied Sciences Prof. Dr. Dennis Riehle, University of Koblenz				

[1] ASIIN Seal for degree programmes; Euro-Inf®: Label European Label for Informatics

[2] TC: Technical Committee for the following subject areas: TC 07 - Business Informatics/Information Systems

Igor Palkin, LLC ISP Consulting Zhaniya Medeuova, student at SDU University	
Representative of the ASIIN headquarter: Johann Jakob Winter, M.Sc.	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of March 28, 2023 Subject-Specific Criteria of Technical Committee 07 – Business Informatics/Information Systems as of December 8, 2017 ASIIN Additional Criteria for Structured Doctoral Programmes as of March 15, 2021	

B Accreditation Status

Result Overview

The most recent decision for the ASIIN Seal and the Euro-Inf Label was made by the ASIIN Accreditation Commission on 25.09.2026.

Degree Programmes	ASIIN Seal	Validity	Euro-Inf Label	Validity
Ba Information Systems	Accredited with requirements	07.12.2018 - 17.04.2027	Accredited with requirements	07.12.2018 - 17.04.2027
Ba Big Data Analytics	Accredited with requirements	07.12.2018 - 17.04.2027	Accredited with requirements	07.12.2018 - 17.04.2027
Ma IT Project Management	Accredited	07.12.2018 - 30.09.2031	Accredited	07.12.2018 - 30.09.2031
PhD Information Systems	Accredited	07.12.2018 - 30.09.2031	--	--
PhD Clever Systems	Accredited	07.12.2018 - 30.09.2031	--	--

Fulfilment of the Accreditation Criteria

ASIIN General Criteria / Subject-Specific Criteria	Ba Information Systems	Ba Big Data Analytics	Ma IT Project Management	PhD Information Systems	PhD Clever Systems
1 Degree programme: Concept, Content & Implementation					
1.1 Objectives and learning outcomes (intended qualification profile)	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
1.2 Title of the degree programme	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
1.3 Curriculum	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
1.4 Admission requirements	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
1.5 Workload and credits	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
1.6 Didactics and teaching methodology	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled

2 Exams: System, Concept and Organisation					
2 Exams: System, Concept and Organisation	**Not fulfilled** Requirement A4	**Not fulfilled** Requirement A4	Fulfilled	Fulfilled	Fulfilled
3 Resources					
3.1 Staff and staff development	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
3.2 Student support and student services	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
3.2 Funds and equipment	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
4 Transparency and Documentation					
4.1 Module descriptions	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
4.2 Diploma and Diploma Supplement	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
4.3 Relevant rules	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled

5 Quality Management: Quality Assessment and Development					
5 Quality Management: Quality Assessment and Development	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
Additional Criteria for Structured Doctoral Programmes					
D 1 Research	Not applicable	Not applicable	Not applicable	Fulfilled	Fulfilled
D 2 Duration and Credits	Not applicable	Not applicable	Not applicable	Fulfilled	Fulfilled
D 3 Soft Skills and Mobility	Not applicable	Not applicable	Not applicable	Fulfilled	Fulfilled
D 4 Supervision and Assessment	Not applicable	Not applicable	Not applicable	Fulfilled	Fulfilled
D 5 Infrastructure	Not applicable	Not applicable	Not applicable	Fulfilled	Fulfilled
D 6 Funding	Not applicable	Not applicable	Not applicable	Fulfilled	Fulfilled
D 7 Quality Assurance	Not applicable	Not applicable	Not applicable	Fulfilled	Fulfilled

Requirements

For the Bachelor´s programmes

A 4. (ASIIN 2) The Bachelor thesis must be an integral part of a Bachelor´s curriculum and cannot be substituted.

Accreditation History

Ba Information Systems

ASIIN Seal	Validity	Euro-Inf Label	Validity
First accreditation	07.12.2018 - 30.09.2025	First accreditation	07.12.2018 - 30.09.2025

Ba Big Data Analysis

ASIIN Seal	Validity	Euro-Inf Label	Validity
First accreditation	07.12.2018 - 30.09.2025	First accreditation	07.12.2018 - 30.09.2025

Ma IT Project Management

ASIIN Seal	Validity	Euro-Inf Label	Validity
First accreditation	07.12.2018 - 30.09.2025	First accreditation	07.12.2018 - 30.09.2025

PhD Information Systems

ASIIN Seal	Validity	Euro-Inf Label	Validity
First accreditation	07.12.2018 - 30.09.2025	--	--

PhD Clever Systems

This programme has not been previously accredited by ASIIN.

C Characteristics of the Degree Programmes

Name	Final degree (original/English translation)	Areas of Specialisation	Corresponding level of the EQF[3]	Mode of Study	Double/Joint Degree	Duration	Credit points/unit	First time of offer
B606105 Information Systems	Ақпараттық және коммуникациялық технологиялар бакалавры / Bachelor of Information Communication Technologies	Information Systems, Web application development, Mobile application development	Level 6	Full time	-	8 semesters	240 ECTS	September 2019
6B06103 Big Data Analytics	Ақпараттық және коммуникациялық технологиялар бакалавры/ Bachelor of Information Communication Technologies	Big Data, Data Science, Machine learning, Neural networks and Deep learning	Level 6	Full time	-	8 semesters/ 6 semesters	240 ECTS	September 2019
7M06104 IT Project Management	Техника ғылымдарының магистрі / Master of Technical Sciences	Project Management, Project research	Level 7	Full time	-	4 semesters	120 ECTS	September 2021

[3] EQF = The European Qualifications Framework for lifelong learning

Name	Final degree (original/English translation)	Areas of Specialisation	Corresponding level of the EQF[3]	Mode of Study	Double/Joint Degree	Duration	Credit points/unit	First time of offer
8D06103 Information Systems	Doctor of Philosophy (PhD)	Information Systems, Big data and Data science	Level 8	Full time	-	6 semesters	180 ECTS	September 2020
8D06101 Clever Systems	Doctor of Philosophy (PhD)	Clever Systems, Data science, Machine learning, Deep Learning	Level 8	Full time	-	6 semesters	180 ECTS	September 2019

The International Information Technology University Almaty (IITU) is a Kazakh public university for specialized IT-related education founded in 2009. The university is based on an international profile stemming from close collaborations with IT-specialized universities among others in the US, Korea, China, Russia, England, Switzerland, Germany and Lithuania, as well as cooperations with global info-communication companies, including Microsoft and Cisco. It offers 27 undergraduate degree programmes, 11 Master´s degree programmes, and 5 Doctoral degree programmes, hosting a total of about 5,000 active students. The portfolio of study programmes focuses on the following general competences and qualifications of graduates:

- Developing innovative digital solutions
- Operating and deploying advanced IT systems
- Applying digital technologies across diverse industries
- Managing digital transformation projects effectively

Consistent with the international education approach, the instruction language in all programmes under review is English. IITU is considered one of the top 3 universities of Kazakhstan and ranks among the top 50 universities in Central Asia according to the 2025 Asian University Rankings. All programmes under review are offered by the Faculty of business, media and management.

For the Bachelor's degree programme Information Systems (B-IS), the institution has presented the following profile in the Self-Assessment Report:

The programme "provides a comprehensive overview of current Information and Communication Technology (ICT) technologies. It offers a strong theoretical foundation, complemented by practical applications, with specialisations available through elective courses. This flexibility allows students to tailor their education to align with their career aspirations."

For the Bachelor's degree programme Big Data Analytics (B-BDA) the institution has presented the following profile in the on its website:

The programme "focuses on the systematic collection, management, analysis, and interpretation of large datasets. The program aims to develop professionals capable of using advanced analytical tools and techniques to uncover patterns, trends, and insights, facilitating informed decision-making in business, technology, and research. By combining theoretical understanding with practical application, the program bridges the gap between data science and business intelligence.

The goal of the study program is to prepare a universal specialist who has knowledge in mathematics, statistics, ICT, computer science, business and economics."

For the Master´s degree programme IT Project Management (M-ITPM) the institution has presented the following profile in the Self-Assessment Report:

The programme "is designed to develop highly qualified professionals who can lead complex IT projects. By integrating technical expertise with strategic management and leadership skills, the program prepares graduates to effectively manage digital transformation initiatives within organizations.

The purpose of the EP is to provide research training for masters in the field of IT project management."

For the Doctoral degree programme Information Systems (PhD-IS) the institution has presented the following profile on its website:

"Information ecosystems automate work tasks and create information environments; they force machines to communicate with each other - for example, in the field of mobile payments, healthcare, traffic, security or surveillance, etc. In this educational program, students will learn how to map needs, as well as develop and implement solutions for consumer technologies such as beacons, mobile phones, smart cities and homes. They will study an introduction to machinery technology, digital systems, automation and control, programming, networking, the Internet of Things and sensor networks. To achieve this qualification, knowledge of design processes, sensors, tools and technologies is required. Information systems provide the necessary tools and knowledge, including a detailed introduction to sensors, networks, design and implementation. In addition, the ability to plan, develop and implement projects of intelligent information systems and the Internet of Things.

The purpose of the programme is training competent research and teaching staff to meet the needs of science, education and production in the field of modern information systems."

For the Doctoral degree programme Clever Systems (PhD-CS) the institution has presented the following profile on its website:

"Intelligent ecosystems automate work tasks and create intelligent environments; they force machines to communicate with each other - for example, in mobile payments, healthcare, traffic, security or surveillance, etc. In this educational program, students will learn how to map needs and design and implement solutions for consumer technologies such like beacons, mobile phones, smart cities and homes. Will explore an introduction to

machine technology, digital systems, automation and control, programming, networking, the Internet of Things and sensor networks. Achieving this qualification requires knowledge of design processes, sensors, tools, and technology. Intelligent systems provide the necessary tools and knowledge, including a detailed introduction to sensors, networks, design and implementation. In addition, the ability to plan, develop and implement projects of intelligent information systems and the Internet of Things.

The purpose of the programme is the training of competent research and teaching personnel to meet the needs of science, education and production in the field of modern intelligent ecosystems."

D Expert Report for the ASIIN Seal[4]

1. The Degree Programme: Concept, Content & Implementation

Criterion 1.1 Objectives and Learning Outcomes of a Degree Programme (Intended Qualifications Profile)

Evidence:

- Self-Assessment Report
- „Passports“ of all study programmes
- Objective-module matrices of all study programmes
- Module syllabi of all study programmes
- Compilation of employer feedback
- Minutes of the curriculum approval meetings
- Websites of the study programmes:
    - B-IS: https://iitu.edu.kz/en/articles/6b06105-informazionnye-sistemy-en/
    - B-BDA: https://iitu.edu.kz/en/articles/6b06103-analitika-bol_sih-dannyh-en/
    - M-ITPM: https://iitu.edu.kz/en/articles/kafedry-en/informazionnye-sistemy-en/ 7м06104-управление-it-проектами-en/
    - PhD-IS: https://iitu.edu.kz/en/articles/obrazovanie-en/educational-programs-ru-en/phd-doctorate-en/ 8d06103-информационные-системы-en/
    - PhD-CS: https://iitu.edu.kz/en/articles/8d06101-intellektual_nye-sistemy-en/
- Discussions during the audit

[4] This part of the report applies also for the assessment for the European subject-specific labels. After the conclusion of the procedure, the stated requirements and/or recommendations and the deadlines are equally valid for the ASIIN seal as well as for the sought subject-specific label.

Preliminary assessment and analysis of the experts:
The experts base their assessment of the learning outcomes on the information provided on the websites, in the Self-Assessment Report, and all related documents of the programmes under review.

For all programmes, IITU has described and published an intended qualification profile which includes the programmes´ purposes and general objectives on the respective websites. In more detail, Programme Learning Outcomes (PLO) are defined as outlined in the programmes´ "passports" and the Diploma Supplements, which specify the students´ specific work skills and competencies to be attained through the education. As described in the Self-Assessment Report, the formulated PLO are oriented on the general education goals of the university described above, as well as the subject-specific competencies for programmes in the fields of informatics and computer sciences, namely:

- Proficiency in relevant mathematics
- Ability to program in multiple programming languages
- Understanding and managing computer systems and IT infrastructure
- Application of business methods and tools for business-oriented programmes
- Effective academic communication in English

The competencies to be acquired by the students are outlined in the PLO which are displayed in the appendix for all programmes. The PLO of all study programmes are aligned with the individual modules via objective-module matrices, and, at this level, further specified into learning outcomes for each module.

The B-IS programme is designed to train professionals capable of developing, implementing, and managing information systems in various organisational settings. The programme provides a strong theoretical foundation combined with practical skills, preparing students to address complex technological and economic challenges.

The B-BDA programme focuses on the systematic collection, management, analysis, and interpretation of large datasets. It aims to develop professionals who can leverage advanced analytical tools to extract meaningful insights, supporting data-driven decision-making in various industries, feedback from employers about graduates.

The M-ITPM programme is tailored to develop highly skilled professionals who can lead complex IT projects. It integrates technical knowledge with management principles, preparing graduates to oversee digital transformation initiatives and drive organisational success.

The PhD-IS programme is dedicated to developing high-level researchers and professionals who will advance the field of IS. The programme focuses on original research, the integration of technology and business processes, and the development of efficient and innovative information system solutions.

The PhD-CS programme is designed to cultivate researchers and scholars who will contribute significantly to advancements in ML, and intelligent systems. The programme emphasises original research, academic excellence, and the development of innovative solutions to complex problems in the field of clever systems

The employment rates and job search time for the graduates of all programmes, based on the results of a tracer study, are presented in the following table taken from the Self-Assessment Report:

Program	Employment level	Duration of job search (in months)
6B06105 Information Systems	92%	2.20
6B06103 Big Data Analytics	88	2.50
7M06104 IT Project Management	94%	2.10
8D06101 Clever Systems	100 %	1
8D06103 Information Systems	100 %	1

The experts acknowledge that the competence profiles of all programmes under review are in high demand in the labour market both nationally and internationally, as representatives of the industry confirm. The PLO are thus well-aligned with the needs of the industry. The experts also agree that the formulated programme objectives and PLO are generally suitable for the respective programmes and adequately reflect the corresponding academic levels of EQF level 6 for Bachelor´s programmes, EQF level 7 for the Master´s programme, and EQF level 8 for the PhD programmes. Moreover, they also comply with the subject-specific criteria of the Technical Committee 07 as well as the EQANIE framework standards for the Euro-Inf® Label.

However, the experts notice multiple content-wise inconsistencies which they discuss with the programme coordinators:

1. For the B-IS programme, the experts wonder why the third programme objective limits the scope of the data-driven analyses to “strategic decisions”. Although this is a reasonable objective, it should not be limited to strategic decisions but also include operational decisions as an important application field for data-driven analyses. Especially in a Bachelor´s programme, the operational level should be a first reference. Moreover, the PLO specify the competency to use modern technologies like “3D modelling, IoT, VR/AR technologies and others as tools”. However, as the

programme coordinators confirm, these skills are not contained in any of the compulsory modules, but only in some elective options. Thus, this PLO cannot be achieved by all students based on the compulsory curriculum. Likewise, also business/ finance modules are missing to undermine the PLO to "use information and communication technologies in the field of e-commerce, financial accounting and business processes" (see also section 1.3). In this regard, the PLO and curriculum need to be aligned.

2. With respect to the B-BDA programme, the experts are missing a PLO that addresses cloud computing. Given that this topic is prominently dealt with in the curriculum which is also underlined as an important component by the programme coordinators, competency in cloud computing should be formalized as a PLO in terms of the alignment of PLO and curriculum.
3. The experts positively note that the M-ITPM programme specifically outlines leadership skills. However, also here, these skills are not contained in any of the compulsory modules, but only in some elective options and are thus not taken by all students. The experts stress the need to align the PLO and curriculum. Moreover, the experts discuss whether also skills in product management should be part of this programme. Some of the industry representatives explain that they would welcome product management skills for their potential employees, and also the programme coordinators describe that some aspects of product management have been included in certain modules since the last accreditation. The experts welcome this and recommend strengthening this component by, among others, formulating it as a PLO.
4. Looking at the PLO of the PhD-CS programme, the experts notice the objective of "development of universal AI". As they deem this to be a rather unrealistic objective to be attained by any student, this formulation needs to be abandoned.

In general, the experts also wonder about the differentiation of the two PhD programmes which are very similar in their structure and contents although the PLO differ. The programme coordinators explain in this regard that the characterizing differentiation of the programmes is the research project of the doctoral students which covers about 75% of the curriculum. While the research work in PhD-IS emphasises Big Data, the focus of PhD-CS is on Artificial Intelligence. The experts are satisfied with this distinction.

According to the Self-Assessment Report, the intended competence profiles of all programmes are developed through the following multi-stage process:

- Alignment of the PLO with the Kazakh national qualification framework and industry-specific standards and analysis of labour market needs.

- Monitoring the student-centred educational strategy supporting the university's strategic goals.
- (Re-)Drafting of the comprehensive programme documents including objectives, PLO and the respective modules.
- Implementation of annual reviews involving stakeholders including staff, industry experts, and students to ensure continuous improvement.

Through the design and application of various instruments, IITU seeks to gather feedback from alumni and employers on the extent to which they think graduates are adapted to the demands of a labour market. These instruments include:

1. Active involvement of employers and alumni in committees of the programme development and review process.
2. Tracer study: The graduates are surveyed at specified interval after their graduation (six months, one year and three years) to track their success in entering the labour market and their opinion of the relevance of the programmes.
3. Employers' surveys solicit: Gathering of information from employers to assess the extent to which employers are satisfied with the graduates´ skillset compared to labour market needs.
4. Field (professional) internships to establish a link between the programmes and the labour market already during the studies, and actively involve external stakeholders in the teaching processes of the programmes.

During the on-site visit, the experts get the impression that the programme profiles are kept well up-to-date, and the above-mentioned instruments of stakeholder involvement are confirmed by the respective parties. However, it appears that the involvement of industrial stakeholders is very selective and untransparent as there is no official process but only informal feedback channels. This needs to be addressed (see also section 5).

In summary, the experts confirm that the objectives and learning outcomes of the degree programmes are described briefly and that they are transparently published on the programmes´ websites and in the official study regulations. Thus, they are available to students, lecturers and interested third parties. The formulations adequately reflect the targeted academic qualification goals and ensure a professional qualification on the respectively targeted qualification level. They furthermore comply with the applicable subject-specific criteria of the Technical Committee 07 and the standards for the Euro-Inf label. The objectives and learning out-comes are feasible to produce graduates with good job perspectives, as close stakeholder relations and review processes ensure their relevance for both the labour market. Nevertheless, the experts notice multiple micro-level content-wise discrepancies between the different PLO and the respective curricula or in the formulation

of the PLO. Therefore, they require IITU to review the PLO in this regard and ensure the alignment with the curricula.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report
- Ministerial order „On approval of the Classifier of training programs for personnel with higher and post-graduate education"
- Discussions during the audit

Preliminary assessment and analysis of the experts:
As explained in the Self-Assessment Report, the names of all programmes under review were chosen in accordance with the "RK Classifier of Higher and Postgraduate Education" as mandated by the Kazakh Ministry of Science and Higher Education and Science. Besides the designated programme names, an alphanumerical code is part of the official programme title which uniquely identifies the programmes and matches them with a national classification of subjects and study fields. Although all programmes are taught fully in English according to the university, the programmes still have original Kazakh names which is also due to the national regulations. This does not seem intuitive to the experts but is not considered problematic.

For the two undergraduate programmes IITU awards the degree title of "Bachelor of Information and Communication Technology", the degree title of the M-ITPM is "Master of Technical Sciences" and graduates of the two doctoral programmes are awarded the degree of "Doctor in Information and Communication Technologies".

The experts are generally satisfied with the titles of the programmes with the exception of the PhD-CS programme. During the on-site visit, the experts discuss that the term "clever" is very informal and has no clear definition in the academic context. Instead, they would deem a title like "intelligent systems" more appropriate. The programme coordinators explain that they are aware of this but that efforts to change this name have not been successful in the past years due to administrative problems. The experts are aware of the complications of changing a programme title and acknowledge also that the name does not generally misrepresents its objectives and contents, but nevertheless recommend adapting the programme name accordingly.

In summary, the experts confirm that both the Kazakh as well as the English programme names and degree titles correspond with their intended objectives and learning outcomes.

They are used consistently across all official documents as well as the university´s websites. However, in terms of the formal representation of the PhD-CS programme, the title is recommended to be changed into “intelligent systems”.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- „Passports“ of all study programmes
- Objective-module matrices of all study programmes
- Module syllabi of all study programmes
- Academic policy
- Tabular overview of recent student mobility activities
- Student mobility application website: https://mobility.iitu.edu.kz/#universities
- Standard Operating procedure for the organization of internships
- Websites of all study programmes
- Examples of student and industry surveys
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Structure and content

The experts base their assessment of the curricula on the curricular structures, as displayed in the appendix, the programme passports and module syllabi which are the regulative documents for the contents and delivery of the modules. The curricula of all programmes are schematically outlined in the appendix.

The two Bachelor´s programmes are designed as a four-year courses of study with a total workload of 240 ECTS credits. The curricula are structured in a modular way and include theoretical studies, practical components, physical training, educational practices, industrial internships, and a final undergraduate thesis contained in the module “Final attestation”. Although the module organization and order differ slightly, the first two study years of both programmes have a similar structure. During the first two years, the focus of the curricula is on national and university compulsory modules that include general subjects like Psychology, Sociology, Philosophy, History of Kazakhstan, and multiple modules of Physical education. Furthermore, the first two semesters include each a module in Kazakh

respectively Russian language as well as English language in both programmes. Besides these general modules, the subject-specific modules in the first study years are foundational courses in mathematics, physics, and informatics. The third and fourth year of study include the advanced and specialized subjects, elective options for individual specialization, and research projects. Multiple internships are spread over the curricula of both programmes (see also section 1.6).

Specifically for the B-IS programme, the Self-Assessment Report outlines the following curricular structure in more detail:

- First Year: Focus on language preparation (English and Kazakh or Russian), introductory courses in programming, ICT, sociology, political science, and physics. Physical Culture course and internship are also included in the 1st year.
- Second Year: Language training, introduction to statistics, discrete mathematics, history of Kazakhstan, and operating systems, programming and web development courses are included.
- Third Year: Advanced subjects, such as data protection, information systems architecture, human-computer interaction, computer systems architecture, and networks. Elective courses and an internship are also included.
- Fourth Year: Specialization in topics like IT infrastructure, IT product management, green technology, and legal aspects of ICT. The program concludes with final certification and practical training.

A total of 45 ECTS credits has to be obtained from elective modules. The broad offer of elective choices allows the students to deepen their specific knowledge in certain conceptual areas of Information Systems, like the Internet of Things and Artificial Intelligence, specialize in certain programmes or applications like SAP, or choose focus points outside the classical field of information systems like economics, finance, management, leadership, or marketing.

While the experts are generally satisfied with the curricular structure of the B-IS programme, they point out that the business component comes too short in the core curriculum. Fundamentals in business administration, finance, micro- and macroeconomics are crucial to enable the integration between technology and business which is at the core of a programme in information systems (see also section 1.1). In this regard, modules like “Business process management” are essential, but are only elective in the current version of IITU´s curriculum. Therefore, the experts deem it necessary to strengthen the business component of the curriculum by mandatorily including business/ finance modules and genuine information systems modules in the compulsory curriculum to enable the students to achieve the PLO.

Furthermore, the experts inquire about the multiple internships which are distributed across the curriculum. The programme coordinators clarify that there are different types of internships: The second semester contains two weeks educational respectively teaching practice, during which students are introduced to the basics of teaching to gain competencies for own tutoring activities. In contrast, the industrial practice is designed for students to work at different companies to gain subject-specific insights into real work environments. The fourth and sixth semester each contain a slot of four weeks for this kind of internship. The experts deem this internship system very beneficial for the education of the students. However, they wonder about the administrative workload for the organization of multiple internships per students and question, how deep students can get to know the practical work during an internship time of only four weeks. It is explained that the management of the internships works well through memorandums of understanding which the university has with multiple companies which then have a routine of hosting students as interns. Despite the short internship periods, also the industry representatives confirm that they welcome this programme as they use these internships as means to getting to know and recruiting students. As the students confirm, more than half of them already works at least part-time besides studying. Furthermore, the experts are pleased to hear that students are already involved in real industry projects during the internships which they deem very useful. All in all, the experts are satisfied with the internship system but criticise that there are no module descriptions and syllabi for the internships. IITU needs to make sure that all modules are regulated and documented in module descriptions respectively syllabi (see also section 4.1). The same system of internships is used also in the B-BDA programme.

For the B-BDA programme, the curriculum is summarised as follows:

- First Year: Core language courses (English, Kazakh, or Russian), foundational subjects in ICT, algebra, geometry, and introductory programming. Includes political science, sociology, and physical education.
- Second Year: Focus on advanced mathematics (probability, statistics, discrete mathematics), web development, object-oriented programming, and an introduction to Python for data analysis. Includes courses in the history of Kazakhstan, philosophy, and STEM English.
- Third Year: Emphasis on technical subjects like operating systems, computer networks, cloud fundamentals, big data ingestion and storage, and introductory courses on solving ACM problems. Includes courses on data protection and data management.

- Fourth Year: Specialisation in IT infrastructure, enterprise architecture, AI, and advanced data modelling and processing. Covers topics like green technology, ICT legal aspects, and IT product management, culminating in final certification and undergraduate practice.

The experts are satisfied with the curriculum of this programme. However, they are curious about the fast-track option for this programme which was briefly mentioned in the Self-Assessment Report. The programme coordinators explain that the option to complete the programme in three instead of four years was introduced in the current academic year. This measure was introduced to make the programme more attractive for students by means of a shorter programme duration to address the problem of low student numbers (see section 1.4). Students still need to complete the total number of 240 credits which yields in a workload of 40 credits per semester. The experts deem this to be very high but since this fast-track option was only introduced in this academic year, yet there is no data or experience to assess the success of this measure and whether it is possible for students to cope with this workload.

Related to both undergraduate programmes, the experts also are happy to see that the curricula contain foreign language modules. However, the experts wonder about the name of the module which is called “Foreign language” respectively “Professional-oriented foreign language” for the advanced module. Therefore, they enquire which foreign language is actually taught in these modules or whether multiple foreign languages are supposed to be learnt by the students. The programme coordinators clarify that all these language modules are English language modules. The experts welcome the English language education which may also support the subject-specific language competency of the students for the more advanced modules. However, they again point towards the problem of the untransparent module names, which need to briefly describe the module also to third parties as concisely as possible (compare section 4.1). Therefore, these modules should be called “English language…” respectively.

The curriculum of the M-ITPM programme comprises 120 ECTS credits spread over a designated programme duration of 4 semesters. The structure is outlined as follows:

- First Year: Focus on foundational management skills, including psychology of management, scientific research methods, project communication, and decision-making. Courses include innovation management, mathematical programming, and effective communication in project management. The second semester emphasizes project team management, project stakeholders, and intelligent methods for project management, along with teaching practice.

- Second Year: Advanced studies in economics, marketing, financial management, and business process management. Specialized courses in database management, business analytics, and information systems design are included. The final semester is dedicated to the preparation and defence of the Master's thesis, along with extensive research work and internship opportunities.

As explained in the Self-Assessment Report, the first study year contains 24 credits worth of modules from the national mandatory catalogue of transversal and scientific skills modules. These include:

- 4 credits in the first semester are focused on intensified professional English language training
- 16 credits focus on scientific skills and higher education didactics and teaching skills
- 4 credits focus on managerial competence

Besides that, the programme´s core modules include IT project planning, budgeting, scheduling, and resource management form. Profiling modules allow the students to choose specialized topics according to their interest, such as agile methodologies, DevOps, IT governance, and enterprise architecture. While some modules are compulsory, there is a range of slots for which two options are offered. In this regard, the experts wonder about these "elective" options since many of these modules have similar names, like "Start-ups and innovation management" and "Innovation management". The programme coordinators explain that this choice is not elective in the sense of different specialisations. Instead, different modules are offered to accommodate the students´ their different prior knowledge, which the experts deem adequate. The national regulations for student admission state that the admission to Master´s programmes is not limited to Bachelor graduates of certain related disciplines. However, there is an entry exam to assess the subject-specific knowledge of the applicants (see section 1.4).

A total of 44 ECTS credits is designated for research-related modules, including research methods in the first semester and a research practice in the third semester. Furthermore, each semester contains a designated number of working hours for the Master´s thesis which needs to be prepared and defended as final component of the curriculum in the fourth semester.

As noted in section 1.1, the experts find that the leadership aspect, which is anchored in the PLO, comes too short in the curriculum as this is a crucial aspect of project management competency. The programme coordinators explain that, although there are no specific modules for leadership, the competencies are included in the teaching of other modules.

However, the experts could not find evidence of that in the module syllabi. Thus, they require IITU to include respective modules to train the leadership skills of the students or introduce leadership components in suitable existing modules and document it accordingly. Part of the leadership is also the enhancement of soft skills, which is mentioned as shortcoming of some of the graduates by the industry representatives. Furthermore, as a result of the mentioned discussion about the relevance of product management, they recommend introducing students also to product management by offering respective modules at least as elective choices.

The curricula of the two PhD programmes are designed to deliver theoretical knowledge and practical research skills. Both programs span 3 years with a total of 180 ECTS credits. Similar to the structure of the M-ITPM programme, there are core modules which are common in both programmes, and profiling modules which highlight the special individual focuses. The common structure of both programmes consists modules in academic writing, research methods, in the first term, as well as teaching practice and research practice in the second term.

The profiling modules of the PhD-IS programme are Big Data Processing, Data Analysis Tools, and Advanced Software Architecture, and additional focus on DevOps Engineering, Multi-Agent Programming Technology, and Intelligent Data Analysis of IS, as well as advanced topics in IS catering to data-centric and software architecture aspects. On the other hand, the PhD-CS programme emphasizes modules in Theoretical Computer Engineering, Analysis Methods and Big Data Processing, Intelligent Data Analysis, Deep Learning, and Modern Management Theory, and addresses recent problems in forecasting and Systems Engineering concepts.

Besides the structured modules which are contained in the first two semesters of the programmes, 123 ECTS credits across all semesters (about 2/3 of the programme) are designated for the independent doctoral research work including internships and dissertation writing. The final component of both programmes is the defence of the dissertation. The experts are satisfied with the curricular structure and contents of the programmes. For more details, see section D.

In summary, the experts confirm that the curricula of all programmes under review adequately correspond to the EQF level 6 for Bachelor´s degree programmes, EQF level 7 for the M-ITPM, and EQF level 8 for the PhD programmes. They further conclude that the curricula of all programmes are aligned with the subject-specific criteria of the Technical Committee 07. The experts gain the impression that each module, respectively, course represents a well-matched unit of teaching and learning. However, to enable students to attain

all defined learning outcomes, the experts require IITU to strengthen the business component in the compulsory curriculum of the B-IS programme by increasing the number of business/ finance modules and genuine information systems module and strengthen leadership competencies in the curriculum of the M-ITPM programme. For this programme, it is additionally recommended to offer modules on product management as an alternative approach to project management.

Internationalisation and student mobility

To enable international mobility of the students, IITU has built up a network of by now 106 partner universities, among others in Germany, Poland, Turkey, South Korea, Russia, and Malaysia, as the representatives of the Rector´s office explain. According to the Self-Assessment Report and the mobility application website, students can go abroad for one semester or an entire year, and earned credits can be recognised and transferred to Kazakh credits if the modules align with those offered by IITU. Additionally, the option for a Dual Degree with Hof University of Applied Sciences is offered for students of certain Bachelor´s programmes, among which is also the B-IS programme.

Records of the student mobility activities of the past five years show the overall increase in participants which the experts positively acknowledge. Most of the participants come from the Ba-IS programme, which does not surprise given the overall student numbers (see section 1.4). In the academic year 2023/24, in total 20 students of this programme went abroad for exchange semesters, e.g. at Schmalkalden University of Applied Sciences (Germany), Tenaga National University (Malaysia), University of Zilina (Slovakia), Altinbas University (Turkey), the Technical University of Ostrava (Czech Republic), and Kyung Dong University (South Korea). In the fall term 2024/25, 22 students went abroad.

During the on-site visit, the students explain that they are generally satisfied with the student mobility offers of the university. Multiple students who have already been abroad report a smooth application system and good support for the preparation and realisation of the exchange semester. Also, the credit recognition went well, which the experts positively comment. Nevertheless, more students would be interested in taking part in mobility activities but are restricted due to limited places and funding opportunities. While the tuition fees abroad are usually covered, students must fund their expenses for flights, accommodation, visa, medical insurance, and personal costs on their own. The students explain that there is a government funding programme which, however, is open to applications of all students in the country therefore highly competitive. Therefore, the experts would deem it useful to increase the financial support for students to go abroad (see section 3.3).

While the experts find IITU´s outbound mobility offer to be well-developed, they, however do not see incoming students, which is also confirmed by the students. The student statistics show that 5 international students from Russia, China, Kyrgyzstan, Mongolia and Uzbekistan (6% of all students) are enrolled in the B-IS programme for the complete course of study, there are now records of inbound exchange students. The experts wonder about this, as the instruction language is English in almost all modules which would make it easy for international students to study at the university. As this plays an important role for internationalisation and student mobility, the experts recommend fostering inbound student mobility.

In summary, the experts confirm that IITU promotes (international) student mobility through an appropriate framework. However, it is recommended to provide additional funding programmes for outbound students, and include also inbound student mobility into the efforts for internationalisation.

Periodic review

According to the Self-Assessment Report, the curricula of all programmes under review are annually evaluated with regard to the implementation of the programme objectives. Instruments for this evaluation are different surveys and questionnaires to relevant stakeholders of the programme, as examples of the questionnaires show. The feedback is discussed in the academic council and eventually proposed to be implemented into the programmes. The experts are satisfied to hear that they are actively incorporated into this review process by means of review meetings. The industrial representatives present during the on-site visitation also confirm their involvement, although only through private contacts to university staff and other informal channels. An official participation in, e.g., an industry council is not known to them; however, it would be highly welcome as the industry representatives are eager to contribute to the development of the programmes for the education of their future employees. In that regard, the experts recommend IITU to formalise the stakeholder involvement in the curriculum development process.

In summary, the experts confirm that the curricula are periodically reviewed with regard to the implementation of the programme objectives in a process that involves all relevant stakeholders, including the students. However, the involvement of industrial stakeholders happens apparently only on an informal basis and the experts therefore recommend to formalise this process.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report
- Rules for admission to Bachelor programmes
- Rules for admission to Master´s and PhD programmes
- Regulation on the recognition of non-academic achievements of students
- IITU admission websites: https://iitu.edu.kz/ru/articles/ent-2020/
- Discussions during the audit

Preliminary assessment and analysis of the experts:

IITU has published transparent regulation for the admission of students to all programme levels which outline the admission procedure and criteria as well as special provisions for the admission of foreign students. The relevant information including also deadlines, schedules, and data on tuition fees and scholarship options are also available on IITU´s admission websites.

Eligible to study undergraduate programmes at IITU are people with secondary, technical and vocational, post-secondary or even higher education. Depending on the type of prior education, slightly different documentation is required for the admission process. Students can enter the programmes once a year in September. The admission is based on the so-called Unified National Test (UNT), a standardized entry examination developed and conducted by the National Testing Center of the Ministry of Science and Higher Education of the Republic of Kazakhstan. The UNT includes general as well as programme-specific examination tasks to assess whether applicants dispose of the required foundational knowledge relevant to their chosen field. The results of these tests are also the criteria for the eligibility of candidates for certain educational grants and scholarships. Moreover, IITU requires a proven level of English language of at least B1 as evidenced by recognized certificates like IELTS, TOEFLS, or the university´s own language test. The university offers designated English language courses for potential applicants, an offer which is well-used by many potential students, as described in the Self-Assessment Report. The experts appreciate this policy and the support courses as part of IITU´s international approach.

The admission prerequisite for the M-ITPM programme is the prior completion of a Bachelor´s degree. According to the admission regulations, there is no limit to Bachelor´s degrees in certain related fields. While the experts welcome this approach for the benefit of academic mobility, they critically question how the entry qualification for this specific Master´s programme is ensured. They are satisfied to learn that applicants need to successfully complete a subject-specific comprehensive test to assess their aptitude for the programme. Still

existing differences in the subject-specific knowledge in certain areas are outbalanced by means of the above-described electives. Furthermore, also for this programme an English language certificate on the B1 level is required. The admission to this programme is open every semester.

For the doctoral programmes, the Self-Assessment Report explains that strict, transparent, and binding admission requirements are in place to ensure an adequate selection of students with the ability to complete the programmes. Students can apply every semester. Applicants must hold a relevant Master's degree, have at least 9 months of work experience, and demonstrate "strong research potential". The entrance exam for doctoral studies consists of the following blocks:

1. Video interview with the applicant, conducted by IITU´s examination committee;
2. writing an essay;
3. exam questions on the profile of the programme.

In cases where minor knowledge and/ or skills gaps are noted during the entrance exam, the university may still admit the applicant but offer appropriate courses or research assignments to bridge these gaps.

As outlines by the admission regulations, applicants with proven disabilities or special needs are given additional time to complete the entry exams. Various committees ensure the independency, transparency and fairness of the admission processes. Admission decisions can be appealed in front of the university´s appeal committee.

For all examinations, students can get bonus credits for socially oriented community service activities in the interests of individuals and/ or legal entities of certain kinds as outlined in the regulation on the recognition of non-academic achievements. Likewise, also subject-specific formal and informal extra-university education like online courses, academic mobility programmes or the participation in international science competitions, can be recognized if a respective committee recognizes the equivalence of the learning outcomes.

For international applicants to all programme levels, special regulations are in place which require additional documentation as well as a mandatory interview with the admission committee for programmes at all levels. The admission of international students happens exclusively on a fee-basis.

In terms of admission numbers, IITU specifies the following capacities for the programmes under review:

- B-IS: 300 places per cohort

- B-BDA: 37 places per cohort
- M-ITPM: 30 places per cohort
- D-IS: 7 places overall
- D-CS: 5 places overall

The actual student numbers are presented in the following table taken from the Self-Assessment Report:

EP	EP 2023-2024 academic year		EP 2024-2025 academic year	
	Total	foreign students	Total	foreign students
6B06105 Information Systems	360	1	399	5
6B06103 Big Data Analytics	13		8	
7M06104 IT Project Management	27		12	
8D06103 Information Systems	2		2	

During the on-site visit, the experts discuss the varying student numbers across the programmes. They learn that the admission capacities are generally based on the forecasted demand of the industry as reported to the ministry. Based on these demands, it was also decided to offer the B-BDA programme as independent study programme, instead of only deepening the Big Data content within the B-IS programme in form of a specialisation, which used to be the case some years ago. However, while the designated number of students is exceeded for the B-IS programme, all other programmes operate notably below capacity. Among the Bachelor´s programmes, most students are said to choose the more general B-IS programme instead of the already more narrowly focused B-BDA programme. To counter this trend and recruit students for B-BDA, the before-mentioned fast-track option was introduced to make it more attractive. The effect of this measure remains to be seen. However, given that the two programmes and also other Bachelor´s programmes offered by IITU are closely-related in terms of content and often share modules at least in the first years of study, the experts recommend to offer more flexibility for students to switch their major during the first two years of the Bachelor´s programmes. This would serve as an additional measure to facilitate and encourage students to switch into a more specialised programme according to their interest, as they can make better informed choices after already having studied the basics of the field.

Regarding the plummeting student numbers in the M-ITPM programme, the programme coordinators explain that Master´s programmes have very low numbers of applicants as they are currently generally unattractive because graduates can already get well paid and recognised jobs only with the Bachelor´s degree. Usually, only students interested in an academic career or work abroad chose to enrol in Master´s programmes. As a measure to

recruit more students for Master´s programmes, the schedule of IITU was re-designed in a way that the lectures of Master´s programmes are offered in the evening to enable also employed people to take these classes. The experts acknowledge this challenge and suggest to actively promote the benefits of Master´s degrees among the Bachelor´s students and graduates.

In term of the PhD programmes, the experts wonder about the requirement of work experience for applicants and learn from the programme coordinators that this is a government-imposed entry requirement. The experts point out that, as IT professionals are highly demanded by the industry, graduates who once start working will be less likely to return to the university for a PhD programme. In this regard, it is explained that also teaching activities, which Master´s students usually carry out during their studies, can be recognised as work experience in order to avoid this drain of students. Still, the numbers of PhD students are low. However, given that the load of structured modules to be covered by the staff is not too high, the experts deem it not problematic to nevertheless operate the programmes despite the unused capacities.

Overall, the experts highly recommend IITU to thoroughly analyse and monitor the reasons for the varying student numbers, especially for B-BDA, and implement appropriate measures to use the full capacities of the programmes. Still, they are satisfied to hear that the programmes are still fully operational as funds are not allocated solely based on the criterion of student numbers.

IITU regularly evaluates the admission policy based on key measures including the student performance in the first semesters, the share of students that take part in the additional summer semester to re-take exams (see section 2), and the share of students that are expelled due to poor academic performance. The data shows that the admission process and criteria are suitable for ensuring sufficient (subject-related) prior knowledge of the students.

In summary, the experts confirm that the admission requirements and procedures are binding, transparent, and ensure the recognition of credits obtained at different higher education institutions. The admission requirements ensure the necessary prior qualification of students for the respective programmes. Moreover, they are satisfied that non-academic achievements and social engagement are taken into account for the selection of students.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report
- Regulation on the system of re-credits type ECTS
- „Passports“ of all study programmes
- Module syllabi of all study programmes
- Discussions during the audit

Preliminary assessment and analysis of the experts:
According to the Self-Assessment Report, the IITU relies on the European Standards and Guidelines for curriculum design, workload calculation, and credit assignment, and therefore employs the ECTS credit system.

As outlined in the credit regulation, the designated workload of a full academic year “corresponds to not less than 60 academic credits and not less than 1800 academic hours. In this case, during one semester the student masters at least 30 academic credits.” Both undergraduate programmes require a total of 240 ECTS credits (regular duration 8 semesters), the credit load of M-ITPM is 120 ECTS credits (regular duration 4 semesters), and the allocated credit load of the 3-year doctoral programmes is 180 ECTS credits (regular duration 6 semesters). The experts confirm the correspondence of these credit loads with the ESG and ASIIN criteria.

Each programme’s credit load reflects the working time and effort required from students, which includes contact hours as well as self-study time, group work, assignments, and preparation for exams. At IITU, one credit corresponds to 30 hours of total workload, covering all aspects of the student’s academic engagement, including teacher-student contact, assignments, and exams. Each semester consists of 15 teaching weeks and 2 exam weeks. Standard courses or modules typically award 5 credits, which are achieved by delivering 45 hours of teaching over 15 weeks (3 hours per week). This teaching time constitutes 30% of the total 150 hours required for earning 5 credits. The remaining 70% consists of self-study and other academic activities like laboratory work, projects, and internships. All curriculum components, including mandatory and elective modules, are assigned credits based on their workload.

As the experts note, the overall credit loads are suitable. However, especially in B-IS, there are strong fluctuations in the allocated workload per semester in the first two study years. As an example, the designated third semester includes 24 ECTS, while 36 ECST credits are supposed to be completed in the fourth semester. Therefore, the experts inquire among

the students whether they deem the designated workload to be realistic and achievable, and no queries are voiced. The students moreover confirm that their workload is periodically evaluated as part of the module surveys. Students have to mandatorily fill in these online surveys as they cannot access their grades in the academic information system otherwise. Also, apparently almost all students manage to complete the programmes within the designated programme duration. Nevertheless, the experts suggest distributing the credit load more evenly over the semesters.

Programmes at IITU have a maximum period of study which is 7 years for undergraduate degrees, 4 years for Master´s degrees, and 5 years for doctoral degree. Students who do not complete all required modules and credits within this maximum period are graduated with a certificate of study at the university which lists all the completed modules, but without awarding an academic title, which the experts deem to be a reasonable policy.

In summary, the experts confirm that a workload-based credit system is implemented, which considers both contact hours and self-study time. The total credit numbers meet the ECTS users guide´s minimum requirements for Bachelor´s and Master´s degrees, and the credit load is, in most of the cases, evenly distributed over the study period. For the programmes respectively semesters that deviate from the even distribution, the experts suggest to adapt the designated curriculum accordingly. The estimated workload appears well-founded, so that the study programme can be completed in the standard period of study. Moreover, the appropriateness of the student workload is regularly assessed and monitored.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report
- Module syllabi of all modules of all programmes
- Documented procedure for organizing internships for students
- Survey results “Teachers Through the Eyes of Students 2024”
- Example of teacher peer assessment sheet
- Discussions during the audit

Preliminary assessment and analysis of the experts:
According to the Self-Assessment Report, all study programmes employ a diverse range of teaching methods and didactic tools to ensure students achieve the desired PLO. The programmes foster a student-centred approach to education, including cooperative learning elements as well as problem-based, project-based, and skill-based learning. Also, mixed integrated teaching methods like blended learning, expert workshops, peer teaching, and practical projects are used. Moreover, digital teaching methods such as e-learning modules, video lectures, quizzes, and other interactive activities organized via the Moodle and Microsoft365 platforms are integrated to complement and face-to-face learning environments. Guided learning activities during contact hours and independent self-study learning activities are mixed in an adequate balance to ensure a sufficient supervision but also promote independent student learning abilities. As mentioned above, the distribution of contact hours and independent learning is approximately 30:70, as outlined individually for each module in the module handbooks. The experts deem this distribution feasible for the adequate delivery of the education.

Likewise, also the applied teaching formats and methods are specified in the module handbooks. The most-used teaching formats in all programmes of all degree levels are explained as follows:

- Lectures: Focus on key scientific issues, promoting creative thinking and often involving interactive Q&A sessions.
- Practical Classes: Apply theoretical knowledge through hands-on activities.
- Seminars: Engage students in debates, case studies, and situational analysis.
- Laboratory Classes: Develop practical and experimental skills essential for fields like IS and BDA.
- Independent Work and Guided Independent Work: Allow students to deepen their understanding of topics and complete tasks like essays, tests, and reports, al monitored by instructors.
- Consultation Sessions: Provide educational guidance in both group and individual formats.

Besides that, all programmes include multiple internships as core component of the practical learning experience of students in all programmes. Respective programmes are developed by the Heads of Departments and lecturers in collaboration with suitable companies. Further procedural regulations in that regard are outlined in the “documented procedure for organizing internships for students”. The internships are in many cases also the basis for topics of the students´ final research projects.

The M-ITPM and both PhD programmes also include a teaching practice module in which the students have learn to apply teaching methods themselves by teaching undergraduate classes. Their activities and progress need to be reported in diaries and practice reports. IITU considers practical teaching experience as a key competency for doctoral students pursuing academic careers.

IITU provides an extensive syllabus for every module which is distributed to the students in the first class. The syllabus transparently outlines the teaching formats, methods, and contents of every semester week of a module.

During the discussions on site, the experts discuss various aspects of the applied teaching methodology with the teaching staff of the programmes and get a positive impression of the daily teaching which involves modern teaching methods like flipped classroom, case study, brainstorming. The experts stress that they see active engagement of the students as the key to a successful learning experience and welcome that group works, project works, presentations, and debates are regularly used in class. This is especially highlighted by the fact that, despite the multiple learning methods in this regard and the positive impression of the experts, still some of the industry representatives mention soft skills as a graduate competency with room for improvement. These are recommended to be further fostered as part of the teaching methodology. f They also positively acknowledge the explanation that students are actively encouraged and facilitated to participate in external events and conferences, and that guest lectures are invited to give insights into the practice. During the on-site visit the experts also gain an insight into class activities and see that students are actively engaged in practical learning in the multiple computer laboratories (see section 3.3).

Part of the practical teaching are also the multiple internships (see section 1.3) which, however, were not clearly outlined in the university´s documentation. The experts therefore discuss their organisation and learn that, in the Bachelor´s programmes, there are different types of internships: two weeks of educational practice in the second semester, industrial practice in the fourth and sixth semester, and the pre-diploma practice in eighth semester. While the educational practice is designed for students to get an insight into teaching practice which should enable them to take over roles as tutors for freshman students, the industrial practice provides them with the first hands-on work experience in companies related to the field. For these internships, IITU provides a pool of partner institutions from which the students can choose their preferred internship place. The university staff develops the internship programmes together with the companies. As part of the on-site visit, the experts visit two partner companies where students do their internships and get a very positive impression of the collaboration between IITU and these companies for the planning and implementation of the programmes. However, according to the staff, the number

of companies is sufficient but more high quality and subject-specific partnerships should be made, which goes also hand in hand with the described need for a closer and more formal involvement of the industry into the further development of the curricula and not only the delivery of its current form.

The pre-diploma practice in the final semester is designed as research internship for students to study literature and conduct practical experimental analyses in related industrial companies or research centres. In the M-ITPM programme and the PhD programmes, internships in the sense of practical periods in companies and relevant research institutes are coupled with the respective thesis modules. The experts deem this internship structure well-integrated into the curricula and are satisfied with the practical exposure of the students.

Besides practical teaching, the experts are also interested in the incorporation of digital teaching methods, as the documentation mentions Coursera courses as part of the university education. They learn that Coursera is widely employed at IITU both for the students´ coursework as well as further training for the academic staff. The Coursera offer is actively managed by the global education department with the purpose to implement life-long learning features. According to the university representatives, every student and lecturer is provided with an account. While the experts find the Coursera offer generally beneficial, they stress that it cannot entirely substitute teaching activities or exams at the university. Therefore, they are satisfied to learn that Coursera courses are only part of the teaching concept and make a share of maximum 10% of the coursework. Usually, the offers are also part of the compulsory independent student workload, so they do not substitute for contact hours with a lecturer. The implementation of Coursera needs to be approved in a faculty meeting as a measure of quality control. Nevertheless, Coursera is not the only digital teaching instrument, but the academic staff also develops their own digital media offers and the students positively highlight the gamification elements in the staffs´ own teaching media.

In terms of an introduction to scientific research, the experts note that specifically designed research-oriented modules like “Scientific research methods” and “Academic writing” are only contained in the M-ITPM programme, as well as, in an advanced form, in the PhD programmes. In the two Bachelor´s programmes however, this component is missing. Nevertheless, research is explained to be introduced to the students as part of the regular modules as well as during the pre-diploma practice, and the provided examples of Bachelor´s theses which the experts examined during the on-site visitation prove that also the Bachelor´s students are capable and adequately trained to prepare theses on an appropriate level representing EQF 6.

The teaching methodology is evaluated every semester via the course surveys. Moreover, there is the annual survey "Teachers Through the Eyes of Students" through which students can give feedback on the teachers as well as their teaching methods. Moreover, there are also peer assessments among the teaching staff.

Moreover, the experts are also interested in the delivery of the lectures as, in terms of IITU´s international approach, all classes except the language modules are taught in English. However, while all students present at the audit have a professional level of English language competency, it appears that not all teaching staff members speak the language at the required level, which is also confirmed by the students. As explained, minor shortcomings are always outbalanced by switching to Kazakh or Russian language which is not a problem for the students. While the experts are satisfied that the delivery of the lectures is not limited by the language barrier, they still point out that all lecturers have to be sufficiently trained for delivering the lectures in the designated module language. Therefore, they recommend further training in that regard (see section 3.1).

In summary, the experts confirm that a variety of teaching methods and didactic means are used to promote achieving the learning outcomes and support student-centred learning and teaching. Digital teaching is implemented to a reasonable extent which benefits the attainment of the learning outcomes. The degree programmes contain an adequate balance of contact hours and self-study time. In terms of research, it is notable that the Master´s and Doctoral programmes focus on research competencies while the Bachelor´s programmes do not specifically introduce research methods as independent part of the curriculum but only as part of the teaching approach of subject-specific modules and the pre-diploma internship. Nevertheless, Bachelor´s students are still sufficiently introduced to independent scientific work to prepare Bachelor´s theses on an adequate level. As a general recommendation, the attainment of soft skills should be further fostered as part of the teaching methodology. The experts further confirm that the teaching methodology is regularly evaluated.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 1:

Criterion 1.1

In its statement, IITU affirms the experts´ observations for all programmes and explains that the PLO and the corresponding curricula will be adapted accordingly as part of the next curriculum review. This includes an adaptation of the PLO as well as some changes in cur-

ricular structures and the change or introduction of certain modules. The experts appreciate the IITU´s responsiveness to the comments but sustain their respective requirements and recommendations to follow up the implementation of the announced measures.

Criterion 1.2

As IITU is aware of the unprecise name of the PhD-CS programme, the formal process for a change of the name has already been initiated which is positively regarded by the experts. To support the approval of this change, they still sustain the respective recommendation.

Criterion 1.3

In its statement, IITU explains for the Ba-IS programme that "although business-related modules such as "Business Process Management," "Finance," and "Economics" are formally classified as elective, they are part of a recommended study track that is mandatory for the majority of students within the B-IS programme. As a result, a significant portion of students do acquire essential business knowledge as part of their core academic pathway". The experts still point out that the core curricula need to be aligned with the PLO and vice versa for all students. In case there are track-specific PLO, these must be accordingly distinguished. However, as these business modules are core components of the study of information systems, the experts deem it not feasible to have them only as an elective academic track of the curriculum, even though taking this track may be encouraged by academic advising and most of the students do so. Therefore, they again stress the requirement to make these modules compulsory for all B-IS students.

In terms of the leadership component in the M-ITPM programme, IITU explains that new modules will be developed (see above). The experts appreciate that but sustain their requirement until respective action has been taken.

Regarding the lack of inbound student mobility, IITU explains recent challenges as well as new measures to improve the situation and foster inbound student mobility. The experts positively acknowledge these plans and see the initial recommendation fulfilled. However, besides that, also outbound international mobility should be fostered, among others, with the acquisition of additional financial resources to enable students to go abroad.

Criterion 1.4

The experts acknowledge that IITU has recognised the challenge of varying student numbers in the programmes and seeks to implement measures to accommodate this, including also promotional programmes for Master studies. Therefore, they see no need to sustain the initial formal recommendation. They also positively note that the university has initiated to establish more flexibility to switch between the Bachelor´s programmes. As the

implementation of these measures should be of particular attention in a consecutive reaccreditation procedure, the experts decide to nevertheless formalise this recommendation.

Criterion 1.5

As noted by both IITU and the experts, the partly uneven distribution of the credit load does apparently not affect the ability of students to manage their workload and complete the programmes and is therefore not considered problematic. The experts nevertheless appreciate that IITU commits to continuously monitoring and smoothing the existing workload imbalances.

Criterion 1.6

Although being already addressed through group works and presentations in various modules, soft skills were still mentioned as a field with room for improvement during the audit. The experts consider these particularly important for the business context and therefore appreciate IITU´s commitment to enhance these skills. The success of these measures should be checked in a reaccreditation and the experts therefore sustain the formal recommendation.

Final assessment

The experts are satisfied to see IITU´s commitment to addressing the identified critical issues. Most importantly, the requirements regarding the harmonisation of PLO and curricula, as well as the curricular business component of B-IS and the leadership focus of M-ITPM need to be addressed. Further recommendations are given to stress their importance and support the university in adopting respective measures.

In summary, the experts consider this criterion to be **partly fulfilled**.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Self-Assessment Report
- Examination regulations (“Rules for current control of academic progress, interim and final attestation of students”)
- Academic policy
- Academic calendars for all degree levels

- Module handbooks of all study programmes
- Module syllabi of all programmes
- Anti-plagiarism system regulations
- Student guidebook
- Discussions during the audit

Preliminary assessment and analysis of the experts:
As explained in the Self-Assessment Report with reference to the examination regulations, there are two jointly applied forms of assessments: formative and summative assessment.

The summative assessment refers to the final exam of each module as outlined in the module handbook and syllabi. On the other hand, the formative assessment component includes different minor examinations and current assessments of the students´ learning progress during the semester. Relevant forms of this formative assessment component are, among others, the students´ performance in oral and written assignments including mandatory Coursera courses, lab work, oral responses, participation in discussion sessions, short tests and quizzes, and other activities as specified in the syllabi. The formative component constitutes 60% of the overall module grade and is equally divided into two blocks, the first (mid-term) attestation which sums up the continuous assessment of the first half of each module, and the second attestation for the second half of each module. The remaining 40% of the final grade are accounted for by the final exam. As outlined in the academic calendars, the final exams take place in a three-week exam period directly after the end of the lecturing period. The dates of all examinations are transparently published in the academic calendar which is published on the university´s website. In most of the modules, a minimum of 80% attendance in classes is required to be admitted taking the final exam.

This system is exemplarily displayed in the following fable which is taken out of the syllabus of the module “introduction to programming” of the B-IS programme:

Period	Assignments	Maximum score	Weighting coefficient	Total
1st attestation	Assignments of laboratory classes	100	0,3	**100**
	Assignments of practical classes	100	0,2	
	SIS	100	0,1	
	MidTerm	100	0,2	
	Tests	100	0,2	
2nd attestation	Assignments of laboratory classes	100	0,3	**100**
	Assignments of practical classes	100	0,2	
	SIS	100	0,1	
	EndTerm	100	0,2	
	Tests	100	0,2	
Exam				**100**
Total	**0,3*1stAtt+0,3*2ndAtt+0,4*Ex**			**100**

The forms of exams vary and are determined by the respective lecturers to reflect the grade of attainment of the learning outcomes. The Self-Assessment Report specifies the following examination forms:

- Written exams: These assess students' theoretical knowledge by requiring detailed answers to questions or problem-solving.
- Oral exams: They are used to evaluate students' ability to express their thoughts and respond to questions verbally, providing insight into their depth of understanding.
- Practical exams: These are designed to assess the application of theoretical knowledge in practical settings, such as lab work or computer-based tasks.
- Project-based assessments: Students complete research or practical projects, which allow of evaluating their ability to integrate knowledge and solve complex problems.
- Comprehensive exams (tests + written work + oral defence): This format combines multiple methods of assessment, including tests, written analysis, and oral presentations, providing a well-rounded evaluation of student knowledge.
- Alternative exam formats: The students enrolled in integrated online courses, can be offered alternative assessments, such as credit transfer for online course certificates (e.g., Coursera).

During the on-site visit, the experts discuss the examination forms in multiple discussion rounds and are satisfied with the variety of exams applied across the considerable number of assessments for each module. They acknowledge that small group exams are conducted

for teamwork activities and positively highlight the students´ explanation that many assessments include in-class presentations which trains their public speaking skills. Internships are always assessed by two supervisors, one from the university and one from the partner company, and the assessment is based on the student´s internship diary and final report which the experts consider to be reasonable. During the on-site visit, the experts also examine exemplary tests and examinations and confirm their adequacy for the checking the attainment of the learning outcomes of the respective modules.

The corresponding grading scheme is displayed in the following table which is included in the academic policy:

Letter Grade	Numerical equivalent	Points (%)	Traditional system assessment	General description of grading criteria
A	4,0	95-100	Excellent	The student has knowledge of the subject in the full scope of the curriculum, understands the discipline deeply enough; shows a high level of knowledge that exceeds the volume provided by the syllabus, gives an exhaustive answer
A-	3,67	90-94		The student has knowledge of the subject in the full scope of the curriculum, understands the discipline deeply enough; gives an exhaustive answer
B+	3,33	85-89	Good	The student shows a complete, well-founded knowledge of the subject, but the answers did not always highlight the main idea, rational methods of calculation were not always used; the answers were mostly brief and sometimes unclear.
B	3,0	80-84		
B-	2,67	75-79		
C+	2,33	70-74		
C	2,0	65-69	Satisfactory	The student demonstrates sufficient knowledge of the subject, but without proper depth and justification, the answers are unclear and without proper logical sequence.
C-	1,67	60-64		
D+	1,33	55-59		
D	1,0	50-54		
FX	0,5	25-49	Unsatisfactory	The student demonstrates insufficient knowledge of the subject, positive answers were not given to individual questions.
F	0	0-24		The student demonstrates a very low level of knowledge of the subject.

In this grade distribution, “D” is the lowest possible passing grade; lower grades constitute a failure of the exam. In addition, there are some elective modules which are assessed only with pass or fail. These modules which can be chosen in an extent of up to 10 ECTS credits are not accounted for in the overall grade (GPA) of the students.

The university regulations allow students who missed exams for valid reasons (illness or family circumstances) to retake them. Moreover, students who get an “FX” grade need are obliged to retake the exam and have two chances to pass the exam, while students who get an “F” grade even have to re-take the entire module. In case of obtaining an unsatisfactory grade for the third time, the student is expelled from the university and loses the opportunity to enrol in this discipline again. Students who fail to meet the attendance prerequisite have to retake the entire modules at a later point in time. Moreover, students have the opportunity to improve their exam grades on a voluntary basis by taken an additional “summer semester” at an extra fee which is organized in the break between the two regular semesters. Students have the chance to appeal against their examination results within one day from the announcement of the results in the university´s “Platonus” information system. In this case, an appeal committee is formed by lecturers of the respective subjects who are responsible for processing and reviewing the appeal. All processes regarding the examinations are also briefly and informatively outlined in the students guidebook.

In regard of the remedial exam system, the teaching staff explains about the difference of retake exams students who needed to postpone the exams or could not attend for valid reasons and the retake exams for students who failed. While students who could not attend have a scheduled re-take exam period directly after the conclusion of the official exam period, the re-take exams for students who failed an exam are scheduled with more time in the next semester, which satisfies the experts as they deem it important for students to have enough preparation time before re-taking the exams. If students had to take exams again directly after the official end of the exam period and the publication of the results, this condition would have not been fulfilled. Given that also the students report that they do not encounter problems with re-taking exams or with the exam system itself, the experts are satisfied, although they consider the assessment load to be remarkably heavy given the multitude of assessments per module. Still, the students explain that they generally have enough time to prepare for the exams and apparently all students manage to complete the programmes within the designated time periods.

The final component of all programmes at all levels are written final research projects respectively theses as outlined by the examination regulations. Students are assigned at least one supervisor according to their chosen topic. For the undergraduate programmes, this component is called final attestation, which can be done in the form of a diploma thesis or diploma project. During the on-site visits, the experts inquire about the difference between both examination forms and learn that a diploma thesis is considered to be a more theoretical research work while the diploma project consists in a practically oriented project and a respective report. In the eyes of the experts, both forms fulfil the requirement of a

Bachelor´s thesis and the examples presented during the audit show the appropriate level of these works in terms of content and methodology.

However, an exception with regard to the thesis is made for the following categories of persons who instead need to take two state examinations:

- "Those undergoing long-term hospitalization for health reasons;
- Persons with special educational needs, including disabled-children, persons disabled since childhood, and persons with group 1 disability;
- Pregnant or bringing up children under 2 years of age;
- Distance learning students on undergraduate study."

While the experts generally acknowledge IITU´s openness to measures for inclusivity and the compensation of disadvantages, they stress that the Bachelor´s thesis as independent research work is an integral part of any undergraduate study programme to comprehensively demonstrate the subject-specific and research-oriented competencies acquired during the course of study. Therefore, it cannot be permitted to substitute the Bachelor´s thesis with another form of examination and the experts require to abandon this regulation. Still, they would welcome introducing other compensating measures like the prolongation of processing times to relieve students in these extraordinary circumstances.

Formal requirements as well as the procedure for checking and ensuring the integrity of the submitted work are outlined in the anti-plagiarism system regulations. As final part, the theses need to be defended after the initial assessment of the supervisor. Detailed regulations on the procedures for thesis assessment and defence are contained in the examination regulations.

As measures of inclusivity, students with disabilities may be given extended time during exams or other accommodations, such as specialized equipment and tools for assignments, which the experts positively acknowledge.

In summary, the experts confirm that there are module-specific exams which assess the extent to which the defined learning objectives have been achieved. The types of exams are specified for each module and students are informed about the conditions for completing the individual modules. Students have sufficient time for their preparation and structural overloads are avoided. The exams are graded transparently and fairly, and students have the opportunity to review their examinations respectively consult lecturers in regarding the results. The experts acknowledge the detailed examination regulations. Moreover, they positively comment on the methodological quality the examples of final theses at all programme levels presented to them during the on-site visit. However, the experts point out that the preparation of a Bachelor´s thesis needs to be mandatorily included in the

curriculum for all students and cannot be substituted by other kinds of exams. The experts further confirm that it is regularly reviewed whether the exams can adequately determine the achievement of the learning objectives and whether the requirements are appropriate to the levels of the degree programmes.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 2:

The experts acknowledge IITU´s statement that the examination regulations will be revised to make the Bachelor´s thesis a compulsory component of the programmes for all Bachelor´s students without exceptions. However, as this regulation has not been implemented yet, they sustain their initial requirement.

Final assessment

Overall, the experts are very satisfied with the examination system applied in the programmes under review, which includes a diverse and sensible range of examination components. A critical topic remains the regulation of the Bachelor´s thesis which currently still allows for exceptions and therefore does not ensure the proof of the students´ independent research skills. This regulation is required to be changed.

In summary, the experts consider this criterion to be **almost fulfilled**.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report
- Staff handbooks of all study programmes
- Job descriptions of all academic ranks
- Internal labour rules and regulations
- Personnel policy
- List of completed staff development courses
- Examples of teaching evaluation sheets
- Staff self-evaluation sheets
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Staff composition

According to the Self-Assessment Report, teaching staff at IITU is grouped by 6 academic ranks depending on their qualification, publication record, and teaching/ work experience: 1. Full professor, 2. Research professor, 3. Associate professor, 4. Assistant professor, 5. Senior-lecturer, 6. Assistant. Their teaching load as well as administrative and research duties depend on the academic rank, as described in the different job descriptions for the academic ranks. During the on-site visit, the programme coordinators explain that the main workload share is designated for teaching: For junior lecturers about 80% of the workload are reserved for teaching, for full professors the share is only 50%. Research professors have an independent workload distribution as their main task is research and the supervision of students in their research projects. The exact distribution of workload hours is determined newly every semester in an individual workload plan for each academic staff member which is the basis for the monitoring the staff performance and achievements. The teaching activities of the programmes under review involve teaching staff from different departments of the Faculty of Business, Media and Management, among others the Department of Languages, the Department of Mathematics and Computer Science, the Department of Media and Communication, the Department of Economics and Business, and the Department of Information Systems as core institution for the programmes.

The overall numbers of teaching staff involved are displayed in the following table taken from the Self-Assessment Report:

DP Position type	IS(Bachelor degree)	ITPM(Master degree)	CS (Doctoraldegree)	IS(Doctoraldegree)	BDA(Bachelor degree)
Invited foreign professor					
Professor	7	4	3	3	
Associate Professor	18	5	3	3	7
Assistant Professor	28	1			6
Senior Lecturer	51	1			12
Assistant G1	14				5
Assistant G2					
Total	118	11	6	6	30

In relation to the numbers of active students, the following table shows the staff-student ratio per programme:

DP	Number of students	Number of teachers	Student-teacher ratio
IS (Bachelor degree)	1280	118	9,8
ITM (Master degree)	33	11	3
Cl.S (Doctoral degree)	6	6	1
IS (Doctoral degree)	5	6	0,83
BDA (Bachelor degree)	37	30	1,2
Total	1361	171	15.83

As explained in the Self-Assessment Report, the staff recruitment system is currently a weakness of the university. Due to the complex subject-specific requirements of new staff members, the realisation of recruiting is mainly up to the Heads of the Departments who, as outlined in the personnel policy, may make use of a headhunting company to find and attract the best candidates. The contracts are based on the personnel policy, the job descriptions and the internal labour rules and regulations.

The minimum requirement for people to enter lecturing positions at IITU is a Master´s degree but IITU actively aims at increasing the share of PhD holders mong the academic staff. Among the 47 core staff members of the Department of Information Systems, 40% have at least a PhD degree. As a means of internationalisation, IITU also employs foreign teachers. Currently, the Department of Information Systems has five foreign teaching staff members from Latvia, Russia, Egypt, and Great Britain.

Staff development

According to the job descriptions, continuous education is one of the tasks of academic staff members at IITU. Therefore, the university offers various staff development options on a regular basis:

- Short-term training (less than 72 hours) – offsite and online trainings, seminars with invitation of foreign professors and experienced professionals.
- Medium-term training (from 72 to 100 hours) – courses and training seminars also held annually at the University, on the basis of other national and international universities and training centres.
- Long-term training (more than 100 hours) - local and international internships (master's, doctoral sabbaticals, etc.).

According to the Self-Assessment Report, more than 100 courses have been completed over the past 5 years by the staff of the Department of Information Systems. Examples of courses, seminars and events in the past academic year include the following:

- Winter School

- Master classes with university graduates - META employee Arman Zharmagambetov
- Summer School on Artificial Intelligence organized jointly with the University Alliance of Science and Technology with the support of the NNEF Public Foundation NNEF
- Series of Webinars on Artificial Intelligence and cyberspace security
- Methodological seminar “Improvisation for problem solving and design thinking", conducted by visiting Professor Dr. Russell Edward McMahon, University of Cincinnati

During the on-site visit, representatives of the teaching staff confirm that continuous education is part of their contracts and respective courses are taken on a regular basis as thus is checked as part of the key performance indicators of the staff. The main part of the mandatory staff development courses is organised digitally via Coursera, but there are also face-to-face masterclasses and summer schools like, e.g., an AI summer school and a project management seminar. Furthermore, the staff is supported to take part in international projects and academic staff mobility by visiting partner universities.

While the experts deem this system for the encouragement of continuous learning and the assurance of the current standard in teaching content and methodology generally suitable, they consider feedback of the students who state that, for specialised subjects, the teaching staff is not always adequately qualified. However, the experts are assured that this concerns only very few modules and does not pose a general problem. Therefore, the experts deem it sufficient to issue a recommendation to support teaching staff in charge of specialised courses to keep up with the developments in that field. Nevertheless, this goes hand in hand with the needed for more teaching staff members with higher academic qualification on the PhD degree level a least, which the experts consider crucial for the delivery of qualitive education. They therefore recommend IITU to further support their academic staff in that regard.

Also, the experts recall the students´ feedback regarding English language teaching and recommend to further foster English language training for all staff members, both academic and non-academic, to assure the quality of teaching and also prove the ambition as international university in all other administrative and operative areas of the university.

Moreover, active research is a core part of the academic staffs´ work. The research projects also involve students and results and materials incorporated into the educational process in the form of coursework and theses, dissertations, projects, seminars, and conferences. The quantitative research output of the past 5 years is documented in the following table taken from the Self-Assessment Report:

	2020	2021	2022	2023	2024
Articles in Scopus and Clarivate Analytics databases	14	17	15	21	10
Articles in journals recommended by CCSON	7	5	8	10	6
Other publications (conferences)	20	21	34	27	13
Monograph, textbook, study guide	1	3	5	5	1
Patent, authorship certificate		2	2	3	4
MOOC				1	1

IITU actively supports the staff members to present their research work on international scientific conferences, among which are e.g. the 12th IEEE International Conference on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications in Dortmund (Germany) in 2024, the 7thInternational Conference on Emerging Data and Industry in Hasselt (Belgium) in 2024, and the IEEE International Conference on Smart Information, Systems and Technologies held in Astana (Kazakhstan) in 2024. As the teaching staff confirms during the on-site interview, they are actively supported by the university to conduct research. However, the time available for research activities is often limited as the main duty is teaching and the support of students. Nevertheless, they are still satisfied with the support system which provides funding, publication grants to cover respective fees, and additional incentive payments. However, the staff queries that the university´s performance indicator system of publications relies almost exclusively on the Scopus index which they deem to be unfair in terms of also other and more holistic existing indicators for the quality of research. The experts agree and suggest IITU to take also other criteria for the assessment of the staffs´ research into account.

The teaching staff is evaluated on a regular basis through the student course surveys conducted at the end of each semester, as well as through mutual peer assessments by other faculty members, as evidenced by assessment sheets and documented results. Furthermore, all faculty members have to draw an individual teacher plan outlining their performance goals in terms of teaching and research in the beginning of each academic year. In the end of each academic year, the staff members then compile a self-evaluation which counts into the staff performance reviews. In case of low performances or problems, corrective actions are recommended by the respective university bodies such as the Scientific and Methodological Council. As described previously, additionally there are also peer assessments among the lecturers themselves.

In summary, the experts confirm that the composition, professional orientation, and qualifications of the teaching staff are suitable for successfully delivering most parts of the degree programmes. However, the support for teaching staff in charge of specialised courses should be increased to keep up with the developments in that field and deliver the educa-

tion in these fields on a higher level. The teaching staffs´ research and development contribute to the desired level of education. Lecturers have different opportunities to further develop their professional and didactic skills and are supported in using corresponding offers. In this regard, it is recommended to further foster English language training, not only for academic staff but also all other staff members of IITU as an international university. Moreover, the experts confirm that it is regularly reviewed that the subject-specific and didactic qualifications of the lecturers adequately contribute to the delivery of the degree programmes.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report
- Student handbook
- Discussions during the audit

Preliminary assessment and analysis of the experts:
According to the Self-Assessment Report, IITU´s student support system is clustered into three stages: support upon admission, support during the studies, and support upon respectively shortly after graduation.

The assistance upon admission includes the following:

- Development and provision of a student guidebook, which contains basic information about the structure and the internal regulations of the university, an explanation of basic processes like the examination regulations, and information on student services
- Conduct of an orientation week for the freshmen students to get acquainted with the faculty, department, degree programmes, as well as student organizations and advisors.
- Guided compilation of the individual education plan for students to learn how to chose and register for modules.
- Video tutorial session of the university facilities
- During the study period, the student support encompasses the following services:
- The mentoring programme of senior students for junior students providing both academic and non-academic tutoring and guidance. This is mainly organized by the department´s student association “Organization of Students of Information Technology”.

- The faculty advisor programme of staff members to support students with academic and administrative issues.
- The Health and Wellness Center as well as the Center for Psychological Assistance, which provide information on healthy living, nutrition, counselling and resources to support students' physical and mental well-being. Psychological support for students is provided by the opportunity to contact hotlines, psychological assistance and support centres, and a confidential e-mail address.
- The financial support programme which provides information on scholarships, grants, and financial opportunities for students, including advice on financial planning. The main recipients of financial support are students from low-income and large families, students with disabilities, invalids, and orphans.
- The academic support programme which helps students to improve their academic performance and study skills, through additional research training and business projects, theses, master's and doctoral dissertations, and the help to find and access to library resources.
- The extracurricular activities programme, aimed to organize student events, workshops and meetings that promote students' communication, socialization, and leadership development. This includes, among others, seminars, debates, discussions, round tables, alumni meetings and competitions.

The main service institution for graduates is the Career Center, which offers information about possible career paths, job preparation workshops, and receive advice on internship and employment. The Career Center also organizes job fairs, application trainings and industry visits.

During the on-site visit, the experts discuss the matter of student services with the students and are happy to hear that the students are overall satisfied with both academic and non-academic student support offers as described above. Especially highlighted services are psychological advice, academic counselling, and the career day which helps to connect students and potential employers. The experts visit a start-up centre of the university which supports students in turning their ideas and research results into marketable business projects. Moreover, they also gain the impression of a well-organised campus life with multiple active student associations, among others, in the fields of sports, music, dance, and media (e.g., campus TV, student newspaper), which the experts got to know as part of the festivities for the Navruz festivities that took place during the days of the audit.

In summary, the experts confirm that IITU provides sufficient human resources and organisational structures for individual supervision and support of students, as well as administrative and technical tasks. The allocated advice and guidance on offer assist the students

in achieving the learning outcomes and in completing the course within the designated time frame.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report
- List of classroom equipment
- Information security regulation
- IITU website
- Discussions during the audit

Preliminary assessment and analysis of the experts:
As a public university, IITU mainly relies on state funding as well as the income from tuition fees. Minor income sources are research grants or contracted research for companies. Extensive financial reports checked by the respective ministry are published on the university´s website.

In terms of facilities, all programmes under review are based at the Department of Information Systems which is located in the "Baizak" building of IITU. Currently, the building provides 24 lecture halls, 46 computer laboratories, and 65 practical classrooms, as well as general facilities like conference rooms, and sports rooms, and a canteen. Out of these facilities, 7 lecture halls in main campus and Baizak building, 9 computer laboratories, 5 practical classrooms are mainly used by the programmes under review. As displayed on the list of classroom equipment, all facilities are equipped with modern technology including a total number of 927 PCs, projectors, printers, and screens.

During the on-site visit the experts visit multiple labs in the building and acknowledge that the multiple partnerships of IITU with well-known tech companies have helped the university to set up well-equipped computer laboratories which are also regularly used by the students. However, especially for the PhD students and the research opportunities of the staff, the experts would deem it highly useful to have access to high-computing-power devices and therefore recommend to establish cooperations with relevant institutes to give the students and staff access to this advanced computing power.

In terms of software, a broad variety of applications related to the creation of information systems, web applications, web services, mobile applications, and data analysis is available. Supporting software includes, among others, Kaspersky, Microsoft 365, and Visual Studio.

As explained in the Self-Assessment Report, the server and network infrastructure at the University consists of 20 physical servers, 5 data storage systems, 39 managed L2 and L3 switches, 62 WiFi access points. The servers have hypervisors installed to work with the virtual environment – Citrix XenServer and Vmware. IP telephony service FreePBX covers 40 external lines and 120 internal numbers. The network infrastructure is updated annually, switches and access points are replaced to comply with the security system and due to the planned replacement of old equipment. Internet capacity is 1 Gbps. The maintenance and support is controlled according to information security regulation. Despite this number of access points, the experts note that the internet connection does not work well in all parts of the building which is also confirmed by the teaching staff and students. Especially for the delivery of digital classes with multiple used devices, the connection is not always stable. Therefore, the experts highly recommended to improve the internet connection on campus.

The library provides study spaces and access to both physical and digital learning and research resources. There are subscriptions to the following databases, which is confirmed by the students during the on-site interview: WebOfScience, Scopus, ScienceDirect, Wiley, and Nauka.kz. Furthermore, the library aims at broadening its access for students and staff through membership in various library associations that provide the opportunity to use a common base of resources, such as the Association of Libraries of RK HE Institutions, IFLA (International Federation of Library Associations and Institutions), and the KABIS Electronic Catalogue. The budget for the library´s print literature purchases is T 25 million (approximately EUR 45,000). During the audit, the experts visit the library and get a positive impression of the physical resources of the library. However, based on the explanation of the library staff and the students, the experts still see great potential for the improvement of the digital resources, including general subscriptions like IEEE ACM, and Springer, as well as subject-specific information systems journals and conference proceedings, e.g., as referred to by the *Association for Information Systems*. They therefore recommend to keep enhancing the electronic resources in the library.

Also, the experts note that neither the library nor other parts of the building provide study and co-working spaces for the students, which is criticised by numerous students in the feedback surveys. As the university representatives explain, a new building was acquired by IITU in 2024 and is still in the process of refurbishment. This building is planned to provide space for 24 additional classrooms, a medical centre and rooms for extra-curriculum activities as well as study spaces for the students. After its conclusion, some of the facilities of the Baizak building are planned to move to the new building and the newly acquired space can then be used to provide co-working spaces also in this building. The experts welcome these plans but notice that the renovation of the new building will still take time.

Thus, it is recommended to install co-working spaces for students and also find short term solutions for the time until the opening of the new building.

To facilitate the organization of learning activities, IITU employs the “Platonus” platform as main academic information system for administration, learning management, the provision of materials, access to digital library facilities, as well as the implementation of digital learning methods. The students confirm that the system is employed and fulfils its purpose.

In summary, the experts confirm that the financial resources, the facilities, and the available equipment of IITU constitute a sustainable basis for delivering the degree programmes. This includes secure funding and reliable financial planning and the provision of sufficient infrastructure and teaching equipment in terms of both quantity and quality in all programmes. The experts positively highlight the modern laboratories but find that, for research purposes like the theses of PhD students, access to high-computing-power devices should be provided. Moreover, the internet connection on campus is recommended to be improved and the digital library resources should be enhanced. Lastly, the issue of missing study and co-working spaces is recommended to be considered not only in the medium run but also in the short run until the opening of the new university building.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 3:

Criterion 3.1

IITU explains in the statement, that the English language proficiency of the teaching staff has been improved through various measures, including professional development workshops focused on English for academic teaching, the support to participate in international teaching and exchange programmes, and an expansion of the continuous staff English training programme. The experts consider these measures well-founded and sensible to address the respective challenge and see no need to formalise the initial recommendation.

In terms of the staff performance measurement, IITU clarifies that the focus on Scopus ad Web of Science is a Kazakh national policy by the government´s Committee of Science, which applies to all universities in the country. However, at the university level, also the assessment basis is broader and more diverse, as evidenced by the Regulation on Grading Positions of the Academic Teaching Staff, which is positively acknowledged by the experts. However, the recommendations regarding further staff developments are sustained as little explanation and documentation in provided how this will be further improved.

Criterion 3.3

In terms of the high-computing power devices, IITU explains that students and researchers can already request access to Microsoft Azure and VK Cloud platforms through institutional licenses and partnerships for HPC including GPU-based computations. Moreover, the university has signed agreements with three companies in the field of telecommunication and computer monitoring which grants joint access to certified laboratory facilities. The experts consider this sufficient in terms of their initial recommendation.

In terms of the internet connection, IITU explains that the university transited to a new internet service provider in June 2025, "increasing bandwidth from 1 Gbps to 1.5 Gbps while ensuring improved stability. Fiber-optic lines between campuses have replaced previous VPN channels, enhancing the reliability and security of internal connectivity." Under the assumption that the situation has also improved in practice, the experts consider their initial recommendation to be already fulfilled.

Regarding the electronic library resources, IITU has reworked its internal electronic library management system (IRBIS) the improve its functionality and accessibility. At the same time, also the access to international databases and literature is in the process of updating, and access, among others, IEEE, Elsevier, EBSCO, Wiley, and Springer will be provided, which satisfies the experts.

In response to the concern regarding the shortage of study and co-working spaces for students on campus, IITU explains different short-term measures to address this issue, including include temporary co-working zones equipped with high-speed internet and printing in underutilized areas as well as extended hours and redesigned spaces in the main library for collaborative work. Given the spatial constraint, the experts consider these measures sensible to improve the situation until the new building will be opened.

Final assessment

Overall, the experts consider both the personal as well as material resources adequate for the successful delivery of the study programmes. Nevertheless, it is recommended to focus on the further education and subject-specific development of the academic staff to ensure qualitative teaching.

In summary, the experts consider this criterion to be **fulfilled**.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions

Evidence:

- Self Assessment Report
- „Passports“ of all study programmes
- Module syllabi of all study programmes
- Module descriptions of all study programmes
- Websites of all study programmes

Preliminary assessment and analysis of the experts:

During the on-site visit, the experts learn that the documentation used for the outline of the modules and its contents are the module syllabi while the module descriptions, which were initially delivered to the experts, were specifically created for the accreditation procedure but are not used in practice. Therefore, it is not surprising that the experts find multiple deficiencies and content-wise inconsistencies in the module descriptions, and the experts base their assessment therefore on the module syllabi. As the experts note, these syllabi are extensive documents which, besides all the relevant organisational and content-related information required for the module descriptions, contain also further comprehensive information, among others about the schedule, the learning activities and assignment of each class, as well as the independent study tasks. Despite the flood of information, the experts find that the syllabi fulfil the purpose of the module descriptions and confirm that they contain all the relevant information including module name, code, the students' total workload, awarded credit points, grading scale, intended learning outcomes, content, recommended literature, possible prerequisites, name of teacher/teachers in charge, exam methods and assessment criteria. However, the experts note that there are no syllabi for the thesis projects for all programmes at all levels, as well as for the internships. As the completeness is crucial for the documentation of the programmes, these shortcomings are required to be addressed, and syllabi need to be issued for all modules respectively parts of the curricula.

As the students and lecturers confirm, the module syllabi are available in the Platonus system for each programme. In terms of further transparency to external stakeholders and interested third parties, the experts positively acknowledge that the programme passports, which are published for all programmes on their respective websites, contain basic information about all modules of the programmes which they deem sufficient.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Samples of Diploma Certificates and Diploma Supplements

Preliminary assessment and analysis of the experts:
The experts confirm that the students of the five study programmes are awarded a Diploma/Certificate and a Diploma Supplement upon completion of their studies. As explained in the Self-Assessment Report, students can choose English, Kazakh or Russian as their preferred language for their documents. The Diploma Supplement is designed according to the template of "Europass" and contains all the relevant information categories. Instead of a separate Transcript of Records, the Diploma Supplement contains a list of all modules, credits achieved, grades and the cumulative GPA achieved by the student. While the experts are satisfied with the structure and information content of the documents, they notice that, except for the B-IS programme, the PLO are not properly displayed in the Diploma Supplements. Moreover, for all programmes, statistical data is missing to enable the readers to assess the individual relative student performance/ grades in comparison to a cohort/ group. These shortcomings are required to be addressed.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report
- Academic policy
- Student handbook
- All relevant regulations as published on the university's website
- Websites of all study programmes

Preliminary assessment and analysis of the experts:
According to the Self-Assessment Report, the foundation of all regulations at IITU is the academic policy. Administrative processes are clearly documented in standard operating procedures. The auditors confirm that the rights and duties of both the university and the students are clearly defined and binding. All rules and regulations are published on the university's website and are thus available to all relevant stakeholders. Module-specific regulations are contained in the respective syllabi and the students receive the course materials at the beginning of each semester, which is confirmed by the involved parties.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 4:

Criterion 4.1

Regarding the missing module descriptions/ syllabi for practical modules, IITU explains that these are regulated by respective guidelines which are currently under review. The experts acknowledge that these guidelines are in place but point out that also these modules need to be officially integrated in the module catalogue and therefore have a respective syllabus which transparently regulates the module organisation and teaching contents for all relevant stakeholders. As multiple kinds of documentation are employed for this purpose, all information, including e.g. module titles and credit points, need to be harmonised.

Regarding the English language modules, IITU explains that the module name "Foreign language" is regulated by national authorities. While the experts recognise this as a problem, they point out that a way needs to be found to display the language in the title to make it appear on the Transcript of Records, as the language a student has learnt is otherwise not recognisable to any external interested parties.

Criterion 4.2

As IITU does not comment on this criterion, the experts sustain their initial requirement that the Diploma Supplements of all programmes need to correctly display the programme learning outcomes and statistical data has to be provided to allow for an assessment of the relative student performance.

Final assessment

Overall, the experts point out that correct and concise documentation is crucial for the external (international) recognition of study achievements and degrees. Therefore, the completeness, conciseness and harmonisation of the employed documentation of the modules needs to be ensured. Part of this are also the Diploma Supplements, which need to be up-to-date and contain statistical data to allow for the relative individual assessment of the student performance.

In summary, the experts consider this criterion to be **partly fulfilled**.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Documented procedure internal audit
- Stylized results of the programme satisfaction survey
- Websites of all study programmes

Preliminary assessment and analysis of the experts:
According to the Self-Assessment Report, IITU´s quality management procedures aligned with ESG and ISO 9001-2015 standards to ensure continuous improvement of the study programmes. The quality assurance system operates on principles of professionalism, objectivity, transparency, accountability, and alignment with both national and international benchmarks. Furthermore, the focus is on the adherence to ethical standards. The quality assurance system operates on all levels of the university, including the aggregate university level, the faculty level and the department level. It includes both internal as well as external instruments of quality assurance. Various elements and examples of quality assurance measures have already been mentioned in previous parts of this report.

The Self-Assessment Report outlines the following instruments of internal quality assurance:

- Module evaluation by students: regular evaluation of the modules and learning experience at the end of each semester based on quantitative and qualitative indictors
- Programme evaluation by academic staff, students, alumni, and employers: assessment of the adequacy of learning objectives and whether the pedagogical system and the available resources of the program enable students to reach the objectives
- Program monitoring based on statistical indicators like student success rates, staff/student ratios
- Students' workload assessment: survey to ensure that the designated number of credits of each module corresponds to the respective pre-assessed workload
- Student satisfaction survey: assessment of the broader student experience at IITU, including the satisfaction with support services and extracurricular activities

- Evaluation of student support structures, including the academic advice or career advice, counselling on admission and registration, information and communication technology facilities, library and documentary resources, and teaching laboratories

The stylized results of the satisfaction surveys show the overall satisfaction with the programmes, although there is room for improvement in certain areas as described in various sections of this report. The experts positively notice that the students confirm that the results of the evaluation surveys are presented to them via the Platonus system, and that they can also get in direct contact with the relevant quality assurance office.

However, in terms of the involvement of the industrial stakeholders and potential employers of the programmes´ graduates, the experts get a mixed picture of the situation. While the representatives of the Rector´s office explain that an industry council was recently established to support the development of the programmes and ensure the alignment of the contents with industry needs, the industry representatives present during the audit appear to be neither involved nor informed about this council. Nevertheless, the industrial representatives confirm to be involved in the programme development, but, as noted in previous, this process is very untransparent and relies mostly on informal channels. Therefore, the experts recommend to formalise the stakeholder involvement into the curriculum development process and consequently implement the established committees and channels.

Besides these internal quality assurance procedures, external quality assurance is conducted by means of different rating agencies externally assessing the university´s quality in relation to other higher education institutions. The most important rankings are the rating of the National Chamber of Entrepreneurs of the Republic of Kazakhstan "Atameken", the Independent Accreditation Agency (IAAR) and the Independent Agency for Quality Assurance in Education (IQAA). The results of the ratings for the programmes under review are displayed in the following table taken from the Self-Assessment Report:

Program	Atameken	IQAA	IAAR
Information Systems	6		
Big Data Analytics	5		
IT Project Management (MA)	not carried out	4	7

In addition, IITU is increasingly pursuing the accreditation of its study programmes by international accreditation agencies for the purpose of international recognition, enhancement of quality standards, and increase of reputation. The programmes under review are subject to international programme accreditation by ASIIN for the second time in form of a re-accreditation.

In summary, the experts confirm that the study programmes are subject to periodical internal as well as external quality assurance in a process that includes all relevant stakeholders. Students are involved in the system and the feedback loop is closed. However, the involvement of the industrial stakeholders should be formalised and consequently implemented. The experts encourage IITU to continue its path of international benchmarking for enhancing the programmes´ quality.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion 5:

Contrasting the experts´ assessment, IITU states that there already are formal, institutional procedures for the involvement of external stakeholders in the curriculum development processes. As evidenced by the order "on approval of the composition of the Academic Committee in fields of personnel training", there is an academic committee which involves multiple representatives of employers. Therefore, the experts consider their initial recommendation to be fulfilled but suggest that the existence of this committee should be more prominently announced to all stakeholders to motivate them to participate respectively submit their feedback and proposals to the respective representatives.

Final assessment

Overall, the experts are satisfied with IITU´s both internal and external quality assurance system. Multiple committees work for the quality of the education and both students as well as external stakeholders participate in the development processes.

In summary, the experts consider this criterion to be **fulfilled**.

E Additional Criteria for Structured Doctoral Programmes

Criterion D 1 Research

Evidence:

- Self-Assessment Report
- Documented procedure for the training of Doctors of Philosophy (PhD)
- Regulations on PhD doctoral students research scientific training
- "Passports" of both study programmes
- Module syllabi of both programmes
- Discussions during the audit

Preliminary assessment and analysis of the experts:
As described in section 1.3, the main component of both doctoral programmes (123 out of 180 ECTS credits) encompasses the independent research work of the doctoral students. The research needs to be published as a dissertation and defended publicly to demonstrate the originality of the research and its significant contribution to the academic field. The objectives of the research work are transparently anchored in the regulations on PhD doctoral students scientific training. The Self-Assessment Report additionally outlines that, under the supervision of the doctoral supervisors, the progress of the research work is evaluated every 6 months and should be presented at scientific conferences, scientific seminars, and trainings. The experts are satisfied with the structure of the PhD programmes, and the presented examples of doctoral theses show that graduates acquire advanced, cutting-edge knowledge and can demonstrate a deep and comprehensive understanding of their research field.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 1

IITU does not comment on this criterion.

Final assessment

The experts consider this criterion to be **fulfilled**.

Criterion D 2 Duration and Credits

Evidence:

- Self-Assessment Report
- "Passports" of both study programmes
- Module handbooks
- Regulation on the system of re-credits type ECTS
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Both doctoral programmes are designed for a regular duration of 3 years (6 semesters). As described in section 1.5, the regulations allow a maximum of 5 years for the completion of the programmes, which the experts deem to be appropriate. As also course work is part of the curricula of both programmes, they follow a structured approach for which the regular credit point system of the university is used. The required number of credit points for the graduation is 180 ECTS (see also section 1.5).

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 2:

IITU does not comment on this criterion.

Final assessment

The experts consider this criterion to be **fulfilled**.

Criterion D 3 Soft Skills and Mobility

Evidence:

- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Both doctoral programmes provide the students with different offers for their personal and professional development. This includes training for professional occupation in academia like research methodology seminars, academic writing courses, as well as own teaching experience. Besides that, the research practice and various internships also provide opportunities to get insights and experience in industrial settings. Both formal and informal courses and seminars additionally address the development of the candidates´ soft skills.

The students receive structured mentorship for career development, research, and professional growth.

Besides these services, the doctoral students can rely on the extensive student support system of IITU as addressed in section 3.2. This includes also the opportunity to take part in international mobility activities, including student exchanges and support for the participation in international conferences. While the experts acknowledge this system, they notice that it is apparently not used by the doctoral systems and therefore suggest to motivate students to make use of these offers.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 3:

As part of the statement, IITU clarifies that PhD students are obliged to complete an overseas research placement of at least 30 days in a partner institution. The internship location must correspond to the scientific focus of the educational programme, the topic of the doctoral dissertation, and the area of expertise of the international scientific advisor. These placements are financially supported through different university or state funds. However, as this is part of the "regular" PhD programmes, the placements were not included in the table documenting international student mobility. The experts positively acknowledge this system for the promotion of international mobility of the PhD students.

Final assessment

The experts confirm that IITU provides a good system to foster soft skills development and encourage mobility for its doctoral students. They consider this criterion to be **fulfilled**.

Criterion D 4 Supervision and Assessment

Evidence:

- Self-Assessment Report
- Regulations on PhD doctoral students research scientific training
- Regulation on scientific consultants of PhD doctoral students
- Documented procedure for the training of Doctors of Philosophy (PhD)
- Dissertation council regulations

Preliminary assessment and analysis of the experts:
The experts confirm that the referenced regulations form a transparent framework for the training of PhD students, including their rights and responsibilities in relation with IITU. This

includes the assignment of a "scientific consultant" as the main supervisor of the doctoral student for their dissertation. Besides the general provisions for the assessment of modules as outlined in section 1.5, the dissertation council regulations contain the provisions for the assessment of the dissertation which is concluded with a public oral thesis defence. The dissertation council consists of at least six members, at least 50% of which must be representatives from other universities or institutions than IITU. The experts confirm that the assessment rules are reasonable, clearly defined, and binding.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 4:

IITU does not comment on this criterion.

Final assessment

The experts consider this criterion to be **fulfilled**.

Criterion D 5 Infrastructure

Evidence:

- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:

IITU´s doctoral candidates operate with the infrastructure that is used for the delivery of all programmes at the university, as described in section 3.3. The experts confirm that the available infrastructure and resources provide and adequate environment for the PhD research work. However, as mentioned before, the experts recommend to create opportunities for the students to access high-computing-power devices, e.g., by establishing cooperations with relevant institutes that can provide advanced computing power.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 5:

Referring to the explanation and assessment given under criterion 3.3, the experts deem the resources and infrastructure access adequate for the research work of doctoral students.

Final assessment

The experts consider this criterion to be **fulfilled**.

Criterion D 6 Funding

Evidence:

- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Based on the Self-Assessment Report and the explanations of the representatives of the Rector´s office, the experts confirm that IITU as a reliable financial basis for the delivery of the programmes.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 6:

IITU does not comment on this criterion.

Final assessment

The experts consider this criterion to be **fulfilled**.

Criterion D 7 Quality Assurance

Evidence:

- Self-Assessment Report
- Websites of both study programmes
- Dissertation council regulations
- Stylized results of the programme satisfaction survey
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The university provides and extensive regulatory framework for both structured Doctoral degree programmes under review (compare section D 4). These ensure that good scientific practice is followed, which the experts confirm based on the dissertation council regulations and the presented examples of PhD theses. Both programmes are integrated into the regular monitoring and quality assurance mechanisms of the university as described in section 5, and are accordingly evaluated and developed.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 7:

IITU does not comment on this criterion.

Final assessment

The experts consider this criterion to be **fulfilled**.

F Additional Documents

Before preparing their final assessment, the panel ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

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G Comment of the Higher Education Institution (21.07.2025)

The institution provided the following detailed statement on the initial findings of the experts:

"1. The Degree Programme: Concept, Content & Implementation

Criterion 1.1 Objectives and Learning Outcomes of a Degree Programme (Intended Qualifications Profile)

In this section we would like to comment on the following issues:

p.12 – "For the B-IS programme, the experts wonder why the third programme objective limits the scope of the data-driven analyses to "strategic decisions". Although this is a reasonable objective, it should not be limited to strategic decisions but also include operational decisions as an important application field for data-driven analyses. Especially in a Bachelor´s programme, the operational level should be a first reference. Moreover, the PLO specify the competency to use modern technologies like "3D modelling, IoT, VR/AR technologies and others as tools". However, as the programme coordinators confirm, these skills are not contained in any of the compulsory modules, but only in some elective options. Thus, this PLO cannot be achieved by all students based on the compulsory curriculum. Likewise, also busi- ness/ finance modules are missing to undermine the PLO to "use information and communication technologies in the field of e-commerce, financial accounting and business processes" (see also section 1.3). In this regard, the PLO and curriculum need to be aligned.

Comments:

With respect to the B-IS programme, the experts raised several observations regarding the alignment between Programme Learning Outcomes (PLOs) and the curriculum. To address these concerns, the University provides the following response:

The University acknowledges the experts' observations and agrees that the third programme objective should not limit data-driven analysis to "strategic decisions" alone. In response, the objective will be revised to explicitly include both strategic and operational decision-making contexts, thereby enhancing its relevance, especially for undergraduate students who are more likely to encounter operational scenarios in early career stages.

Furthermore, we recognise that certain competencies such as proficiency in 3D modelling, IoT, VR/AR technologies are currently available only through elective modules. To ensure that all students can achieve the PLOs as stated, we plan to incorporate foundational elements of these technologies into the compulsory curriculum. This will involve redesigning existing modules or introducing new core modules as part of the upcoming curriculum review cycle for academic year 2026–2027, in line with national procedures via the EPVO system.

In addition, the University agrees that the business component of the B-IS curriculum needs to be strengthened. To align with the PLO related to "using ICT in the field of e- commerce, financial accounting and business processes," we will make modules such as "Business Process Management" and "Fundamentals of Finance" compulsory rather than elective. This will ensure that all students receive adequate exposure to the intersection of business and technology, which is central to the IS discipline.

These revisions will ensure improved coherence between programme objectives, PLOs, and the actual curriculum, providing a more integrated and robust educational experience for our students.

p.13 - "With respect to the B-BDA programme, the experts are missing a PLO that addresses cloud computing. Given that this topic is prominently dealt with in the curriculum which is also underlined as an important component by the programme coordinators, competency in cloud computing should be formalized as a PLO in terms of the alignment of PLO and curriculum".

Comments: The University agrees with the experts' opinion on the need to include a LO that addresses cloud computing. Given that cloud computing is extensively covered in the BDA curriculum and emphasized by the programme coordinators as a vital area of study, the University recognizes the importance of formalizing this competency within the framework of the PLO. To ensure proper alignment between the curriculum and the intended outcomes, a new learning outcome will be introduced that reflects students' ability to apply cloud computing technologies, platforms, and services in solving practical big data problems. This addition will further strengthen the relevance and completeness of the educational program and ensure that graduates are fully equipped to meet current and emerging demands in the ICT and data analytics sectors. However, according to national regulations, any changes to the curriculum must be submitted through the UREP (Unified Register of Educational Programmes) system, which only opens for updates in March each year. The current working curriculum for the 2025– 2026 academic year has already been approved and uploaded into the UREP system, and therefore cannot be modified at this stage. For this reason, the new courses will be formally integrated into the programme starting from

the 2026–2027 academic year. This timeline ensures compliance with national procedures while allowing sufficient time for the development and quality assurance of the new courses, thereby maintaining the high standards of the BDA educational programme.

*p.13 – "The experts positively note that the M-ITPM programme specifically outlines leadership skills. However, also here, these skills are not contained in any of the compulsory modules, but only in some elective options and are thus not taken by all students. The ex*perts stress the need to align the PLO and curriculum. Moreover, the experts discuss whether also skills in product management should be part of this programme. Some of the industry representatives explain that they would welcome product management skills for their potential employees, and also the programme coordinators describe that some aspects of product management have been included in certain modules since the last accreditation. The experts welcome this and recommend strengthening this component by, among others, formulating it as a PLO".

Comments: The University agrees with the experts' opinion regarding the need to strengthen the programme by introducing a course on product management and enhancing the leadership component. In response, we are developing two new compulsory courses titled "Product Management" and "Leadership and Team Management in Digital Environments." These courses are intended to ensure that all students acquire the relevant competencies in line with the PLOs.

However, according to national regulations, any changes to the curriculum must be submitted through the EPVO (Unified Register of Educational Programmes) system, which only opens for updates in March each year. The current working curriculum for the 2025–2026 academic year has already been approved and uploaded into the EPVO system, and therefore cannot be modified at this stage. For this reason, the new courses will be formally integrated into the programme starting from the 2026–2027 academic year.

This timeline ensures compliance with national procedures while allowing sufficient time for the development and quality assurance of the new courses.

p. 13 – "Looking at the PLO of the PhD-CS programme, the experts notice the objective of "development of universal AI". As they deem this to be a rather unrealistic objective to be attained by any student, this formulation needs to be abandoned."

Comments: The University agrees with the experts' remark that the phrase "development of universal AI" sets an unrealistic expectation for a single doctoral graduate. Accordingly, we will revise the PLOs for the PhD-CS programme to better reflect attainable research competencies.

The Academic Council and Programme Committee have decided to replace this wording with: “Conducting original, publishable research that advances methods and theory in selected areas of artificial intelligence while adhering to responsible-AI principles.”

The revised PLO will be circulated for internal consultation in September 2025, endorsed by the Academic Council in December 2025, and submitted for ministerial approval via the EPVO system in March 2026. Once approved, it will apply to all cohorts starting in the 2026–2027 academic year, ensuring full alignment between stated objectives and realistic graduate capabilities.

p.14- During the on-site visit, the experts get the impression that the programme profiles are kept well up-to-date, and the above-mentioned instruments of stakeholder involvement are confirmed by the respective parties. However, it appears that the involvement of industrial stakeholders is very selective and untransparent as there is no official process but only informal feedback channels. This needs to be addressed (see also section 5).

Comments:

In response to the experts’ observation regarding the selective and informal nature of industrial stakeholder involvement: The University acknowledges the experts’ observation and would like to clarify that IITU does have formal mechanisms in place for involving all relevant stakeholders, including industry representatives, in the review and approval of curriculum changes.

Furthermore, all degree programmes at IITU are developed and regularly reviewed by Academic Programme Committees. These committees are responsible for defining programme objectives, formulating (PLOs), and ensuring alignment with national standards and labour market requirements. Specifically, curricular modifications are discussed and endorsed at official Academic and Methodological Council meetings, which include faculty members, employer representatives, alumni, and other stakeholders.

In addition to these formal structures, IITU also maintains a network of informal interactions with industry partners and alumni, including regular networking events and graduate feedback sessions. These interactions help validate programme relevance and provide input on required competencies in the ICT sector.

p.14 – “In summary, the experts confirm that the objectives and learning outcomes of the degree programmes are described briefly and that they are transparently published on the programmes´ websites and in the official study regulations. Thus, they are available to students, lecturers and interested third parties. The formulations adequately reflect the tageted academic qualification goals and ensure a professional qualification on the respec-

tively targeted qualification level. They furthermore comply with the applicable subject-specific criteria of the Technical Committee 07 and the standards for the Euro-Inf label. The objectives and learning outcomes are feasible to produce graduates with good job perspectives, as close stakeholder relations and review processes ensure their relevance for both the labour market. Nevertheless, the experts notice multiple micro-level content wise discrepancies between the different PLO and the respective curricula or in the formulation of the PLO. Therefore, they require IITU to review the PLO in this regard and ensure the alignment with the curricula".

Comments:

The University agrees with the experts' remark and acknowledges the identified micro-level discrepancies between the PLOs and the curriculum. While the full and officially approved PLOs are published on the EPVO platform and in the programme passport, the shortened version in the self-assessment report may have led to confusion.

To address this, we are harmonizing the wording of the PLOs across all official documents and reviewing their alignment with the curriculum content. Additionally, two new compulsory courses - "Product Management" and "Leadership and Team Management in Digital Environments" - will be introduced from the 2026–2027 academic year, following national procedures for curriculum updates.

Criterion 1.2 Name of the Degree Programme

In this section we would like to comment on the following issues:

p.15- "The experts are generally satisfied with the titles of the programmes with the exception of the PhD-CS programme. During the on-site visit, the experts discuss that the term "clever" is very informal and has no clear definition in the academic context. Instead, they would deem a title like "intelligent systems" more appropriate. The programme coordinators explain that they are aware of this but that efforts to change this name have not been successful in the past years due to administrative problems. The experts are aware of the complications of changing a programme title and acknowledge also that the name does not generally misrepresents its objectives and contents, but nevertheless recommend adapting the programme name accordingly.

In summary, the experts confirm that both the Kazakh as well as the English programme names and degree titles correspond with their intended objectives and learning outcomes. They are used consistently across all official documents as well as the university´s websites.

However, in terms of the formal representation of the PhD-CS programme, the title is recommended to be changed into "intelligent systems"."

Comments:

The University thanks the panel for its observation and agrees that the current English title, "Clever Systems," lacks academic precision. We have therefore begun the internal approval process—coordinated with the Ministry of Science and Higher Education (MSHE)— to retitle the programme "Intelligent Systems." The necessary documentation was submitted in June 2025, and, pending ministerial endorsement, the new title will appear in all promotional and regulatory materials for the 2026 admission cycle. Until the formal change takes effect, we will use the explanatory subtitle "(Intelligent Systems)" alongside the existing name in brochures and on the website to ensure clarity for applicants and stakeholders.

In accordance with the experts' recommendation, the University has initiated the process of amending the title of the respective educational programme. Specifically, the University has already contacted the National Center for Higher Education Development and prepared an official letter requesting the correction of the programme title in English in the Registry of Educational Programmes of the MSHEof the Republic of Kazakhstan. The update of the data in the registry will be completed within the established timeframe, in accordance with all procedural requirements.

Criterion 1.3 Curriculum

In this section we would like to comment on the following issues:

p.17- "While the experts are generally satisfied with the curricular structure of the B-IS programme, they point out that the business component comes too short in the core curriculum. Fundamentals in business administration, finance, micro- and macroeconomics are crucial to enable the integration between technology and business which is at the core of a programme in information systems (see also section 1.1). In this regard, modules like "Business process management" are essential, but are only elective in the current version of IITU´s curriculum. Therefore, the experts deem it necessary to strengthen the business component of the curriculum by mandatorily including business/ finance modules and gen- uine information systems modules in the compulsory curriculum to enable the students to achieve the PLO.

p.17 All in all, the experts are satisfied with the internship system but criticise that there are no module descriptions and syllabi for the internships. IITU needs to make sure that all modules are regulated and documented in module descriptions respectively syllabi (see also section 4.1). "

Comments:

The University appreciates the experts' observations and would like to clarify that, although business-related modules such as "Business Process Management," "Finance," and "Economics" are formally classified as elective, they are part of a recommended study track that is mandatory for the majority of students within the B-IS programme. As a result, a significant portion of students do acquire essential business knowledge as part of their core academic pathway.

Nevertheless, to further ensure full alignment between the PLOs and the curriculum, the University will consider restructuring the track system or reclassifying key business modules as compulsory, making them accessible to all students regardless of their elective path. This restructuring will be part of the curriculum revision scheduled for the 2026–2027 academic year, in compliance with EPVO regulations.

Regarding the internship component, the University acknowledges the experts' remarks. The current structure—comprising educational practice in the 2nd semester, industrial practice in the 4th and 6th semesters, and pre-diploma practice in the 8th semester—is designed to provide progressive industry exposure. The administrative workload is effectively managed through memorandums of understanding with partner companies that regularly host students and provide structured projects. Students are actively engaged in real-world tasks, which is further complemented by their part-time employment, helping deepen their professional competencies.

p.19 - "The experts are satisfied with the curriculum of this programme. However, they are curious about the fast-track option for this programme which was briefly mentioned in the SelfAssessment Report. The programme coordinators explain that the option to complete the programme in three instead of four years was introduced in the current academic year. This measure was introduced to make the programme more attractive for students by means of a shorter programme duration to address the problem of low student numbers (see section 1.4). Students still need to complete the total number of 240 credits which yields in a workload of 40 credits per semester. The experts deem this to be very high but since this fast-track option was only introduced in this academic year, yet there is no data or experience to assess the success of this measure and whether it is possible for students to cope with this workload".

Comments: The University agrees with the experts' opinion on the need to closely monitor and assess the fast-track option introduced for the B-BDA programme. While this initiative aims to enhance the programme's attractiveness and address the challenge of low student enrolment by offering a shorter duration, the University acknowledges that the current academic year is the first of its implementation, and sufficient data on student performance and well-being is not yet available. The University commits to collecting and analysing relevant data over the coming semesters to evaluate the academic feasibility and sustainability of this accelerated format, ensuring that student learning outcomes and quality of education are not compromised despite the increased workload. Starting from the 2025–2026 academic year, the University will implement this educational programme in the standard four-year format.

p.19 - "Related to both undergraduate programmes, the experts also are happy to see that the curricula contain foreign language modules. However, the experts wonder about the name of the module which is called "Foreign language" respectively "Professional-oriented foreign language" for the advanced module. Therefore, they enquire which foreign language is actually taught in these modules or whether multiple foreign languages are supposed to be learnt by the students. The programme coordinators clarify that all these language modules are English language modules. The experts welcome the English language education which may also support the subject-specific language competency of the students for the more advanced modules. However, they again point towards the problem of the untransparent module names, which need to briefly describe the module also to third parties as concisely as possible (compare section 4.1). Therefore, these modules should be called "English language…" respectively".

Comments: The University would like to clarify that the module titled "Foreign Language" is mandated by the State Compulsory Education Standard (SCES) of the Republic of Kazakhstan and therefore cannot be renamed in the official documentation.

However, the second module currently titled "Professional-Oriented Foreign Language" is an internal designation used for the advanced English language course. In response to the experts' recommendation, the University will revise the title of this module to "Professional English Language" to ensure clearer alignment with the course content and greater transparency for external stakeholders. This adjustment will support better understanding of the curriculum while maintaining compliance with national regulations.

p.20 – "As noted in section 1.1, the experts find that the leadership aspect, which is anchored in the PLO, comes too short in the curriculum as this is a crucial aspect of project management competency. The programme coordinators explain that, although there are no specific modules for leadership, the competencies are included in the teaching of other

modules. However, the experts could not find evidence of that in the module syllabi. Thus, they require IITU to include respective modules to train the leadership skills of the students or introduce leadership components in suitable existing modules and document it accordingly. Part of the leadership is also the enhancement of soft skills, which is mentioned as shortcoming of some of the graduates by the industry representatives. Furthermore, as a result of the mentioned discussion about the relevance of product management, they recommend introducing students also to product management by offering respective modules at least as elective choices."

Comments: The University agrees with the experts' observation regarding the insufficient visibility of leadership components and soft skills development in the current curriculum. While these aspects are partially embedded in existing modules, we acknowledge the need to strengthen and explicitly document them. In response, we are developing new compulsory courses — "Leadership and Team Management in Digital Environments" and "Product Management" — to address the identified gaps. These courses will be introduced starting from the 2026–2027 academic year in accordance with national procedures for curriculum revisions.

p.21- "However, to enable students to attain all defined learning outcomes, the experts require IITU to strengthen the business component in the compulsory curriculum of the B-IS programme by increasing the number of business/ finance modules and genuine information systems module and strengthen leadership competencies in the curriculum of the M-ITPM programme. For this programme, it is additionally recommended to offer modules on product management as an alternative approach to project management."

Comments:

The University acknowledges the experts' recommendation and would like to clarify that, within the B-IS programme, students are required to select one of the mandatory academic tracks, each of which contains a predefined set of modules. Business-related subjects such as "Business Process Management," "Finance," and "Economics" are embedded within one of these mandatory tracks. Therefore, although these modules are formally classified as electives in the curriculum structure, their completion becomes compulsory for all students who select the respective track—a process that is structured and guided by academic advising.

Given that the majority of students follow the track containing business modules, the acquisition of business-related competencies is already systematically ensured. Nevertheless, the University recognises the importance of clarity and transparency and will consider reclassifying these modules or restructuring the track presentation to explicitly reflect their

mandatory nature in the context of PLOs. This clarification will be addressed in the upcoming curriculum review planned for the 2026–2027 academic year.

Internationalisation and student mobility

p.22- "While the experts find IITU´s outbound mobility offer to be well-developed, they, however do not see incoming students, which is also confirmed by the students. The student statis- tics show that 5 international students from Russia, China, Kyrgyzstan, Mongolia and Uz- bekistan (6% of all students) are enrolled in the B-IS programme for the complete course of study, there are now records of inbound exchange students. The experts wonder about this, as the instruction language is English in almost all modules which would make it easy for international students to study at the university. As this plays an important role for internationalisation and student mobility, the experts recommend fostering inbound student mobility.

In summary, the experts confirm that IITU promotes (international) student mobility through an appropriate framework. However, it is recommended to provide additional funding programmes for outbound students, and include also inbound student mobility into the efforts for internationalisation."

Comments:

The University acknowledges the experts' observations and agrees that fostering inbound student mobility is an important aspect of internationalisation. Currently, IITU hosts a small number of full-time international students in the B-IS programme.

Despite the fact that almost all programmes at IITU are delivered in English, which provides a favourable environment for incoming students, several challenges have limited active inbound mobility, including:

Limited bilateral agreements that support short-term exchange; Lack of promotional campaigns targeting inbound students; Administrative complexity for international short-term enrolment

To improve this, IITU has started working on the following steps:

- Expanding existing international agreements to include short-term mobility options;
- Developing a promotional package that presents IITU's English-language courses and student life opportunities, which will be shared with partner institutions;
- Improving internal procedures to support incoming students administratively, including visa support, accommodation assistance, and orientation;

- Exploring opportunities to participate in Erasmus+ mobility projects, which facilitate structured exchange with European institutions.

The situation with incoming mobility often depends on the political situation in the world, but the university in any case tries to develop and monitor progress through institutional internationalisation indicators. Additionally, we agree with the recommendation to seek additional funding sources to support outbound mobility and will continue exploring internal and external mechanisms to offer financial assistance to students participating in exchange programmes.

p.23- "In summary, the experts confirm that the curricula are periodically reviewed with regard to the implementation of the programme objectives in a process that involves all relevant stakeholders, including the students. However, the involvement of industrial stakeholders happens apparently only on an informal basis and the experts therefore recommend to formalise this process."

Comments:

The University would like to clarify that industrial stakeholder involvement at IITU already occurs through formal university-wide mechanisms.

Furthermore, all degree programmes at IITU are developed and regularly reviewed by Academic Programme Committees. These committees are responsible for defining programme objectives, formulating PLOs, and ensuring alignment with national standards and labour market requirements. Curriculum updates and major academic changes are discussed and approved during official Academic Councils and Methodological Councils. These councils ensure that proposed programme modifications are reviewed from multiple perspectives, including labour market relevance and technological trends. Records of these meetings are documented and maintained institutionally.

At the same time, IITU acknowledges the value of establishing dedicated Programme Advisory Boards (PABs) at the programme or cluster level to provide more frequent and targeted industry input.

This dual approach through formal university governance and the future advisory boards will ensure both institutional oversight and programme-specific responsiveness to industry developments.

Criterion 1.4 Admission Requirements

In this section we would like to comment on the following issues:

p.26 - "During the on-site visit, the experts discuss the varying student numbers across the programmes. They learn that the admission capacities are generally based on the forecasted demand of the industry as reported to the ministry. Based on these demands, it was also decided to offer the B-BDA programme as independent study programme, instead of only deepening the Big Data content within the B-IS programme in form of a specialisation, which used to be the case some years ago. However, while the designated number of students is exceeded for the B-IS programme, all other programmes operate notably below capacity. Among the Bachelor´s programmes, most students are said to choose the more general B-IS programme instead of the already more narrowly focused B-BDA programme.

To counter this trend and recruit students for B-BDA, the before-mentioned fast-track option was introduced to make it more attractive. The effect of this measure remains to be seen. However, given that the two programmes and also other Bachelor´s programmes offered by IITU are closely-related in terms of content and often share modules at least in the first years of study, the experts recommend to offer more flexibility for students to switch their major during the first two years of the Bachelor´s programmes. This would serve as an additional measure to facilitate and encourage students to switch into a more specialised programme according to their interest, as they can make better informed choices after already having studied the basics of the field.

Overall, the experts highly recommend IITU to thoroughly analyse and monitor the reasons for the varying student numbers, especially for B-BDA, and implement appropriate measures to use the full capacities of the programmes. Still, they are satisfied to hear that the programmes are still fully operational as funds are not allocated solely based on the criterion of student numbers".

Comments: The University agrees with the experts' opinion on the need to analyse the varying student numbers across programmes, particularly in relation to the B-BDA programme. The University acknowledges that, while the B-IS programme attracts more students due to its broader focus, the more specialised nature of the B-BDA programme may require additional efforts to increase its visibility and appeal. The introduction of the fast-track option is one such measure aimed at making the B-BDA programme more attractive; however, as noted, the effectiveness of this approach will need to be assessed over time through continuous monitoring and student feedback.

The University also supports the experts' recommendation to enhance flexibility for students to switch their major during the first two years of study. Given the shared foundational modules across ICT-related Bachelor's programmes, the University sees clear potential to implement more fluid pathways that allow students to make informed decisions about their academic focus after gaining exposure to the field. Work is already underway

to revise academic advising mechanisms and formalise the process for intra-programme transfers within the early years of study, thereby supporting better alignment between students' interests and programme selection.

Furthermore, the University acknowledges the importance of conducting a detailed and ongoing analysis of student enrolment patterns and programme selection behaviours. These insights will be used to inform marketing strategies, programme development, and resource allocation. The University appreciates the experts' recognition that funding is not solely tied to student numbers, allowing for continued operation and quality assurance of all programmes.

p.26 – "As a measure to recruit more students for Master´s programmes, the schedule of IITU was redesigned in a way that the lectures of Master´s programmes are offered in the evening to enable also employed people to take these classes. The experts acknowledge this challenge and suggest to actively promote the benefits of Master´s degrees among the Bachelor´s students and graduates.

Comments: The University agrees with the experts' observation regarding the need to actively promote Master's programmes among Bachelor's students and graduates. We confirm that the schedule of Master's programmes, including the IT Project Management programme, has been specifically adapted to meet the needs of working professionals, offering evening classes and flexible (including blended) formats. To raise awareness and increase interest among Bachelor's students, the University organizes open days (the pictures from Open Day 2025 are below), career events featuring current Master's students and alumni (https://iitu.edu.kz/en/articles/career-day-en/), as well as master classes from employers (https://iitu.edu.kz/en/articles/kar_era-en). These measures contribute to building a strong internal recruitment pipeline and enhancing the attractiveness of Master's-level education.

Criterion 1.5 Workload and Credits

p.28 – "As the experts note, the overall credit loads are suitable. However, especially in B-IS, there are strong fluctuations in the allocated workload per semester in the first two study years. As an example, the designated third semester includes 24 ECTS, while 36 ECST credits are supposed to be completed in the fourth semester. Therefore, the experts inquire among the students whether they deem the designated workload to be realistic and achievable, and no queries are voiced. The students moreover confirm that their workload is periodically evaluated as part of the module surveys. Students have to mandatorily fill in these online surveys as they cannot access their grades in the academic information system oth-

erwise. Also, apparently almost all students manage to complete the programmes within the designated programme duration. Nevertheless, the experts suggest distributing the credit load more evenly over the semesters."

Comments: The University appreciates the experts' observation regarding the overall suitability of the credit load and acknowledge the concern about the uneven distribution of ECTS credits across semesters, particularly within the first two academic years of the Bachelor in Information Systems (B-IS) program.

As noted, the variation—for example, 24 ECTS in the third semester and 36 ECTS in the fourth semester—has not led to formal complaints from students. This suggests that the current workload remains manageable. Moreover, the integration of mandatory online module surveys ensures continuous monitoring of student workload and satisfaction, contributing to effective internal quality assurance. The fact that most students complete the program within the designated time frame further supports the adequacy of the existing structure.

Nevertheless, we recognize the value of the experts' recommendation to achieve a more balanced distribution of workload. In response, the program management will initiate a review of the curriculum structure with the aim of redistributing ECTS credits more evenly across semesters. Any proposed adjustments will be aligned with the intended learning outcomes, course prerequisites, and pedagogical coherence of the program.

We aim to implement any necessary changes during the next curriculum revision cycle, while ensuring a smooth transition for current and incoming cohorts.

Criterion 1.6 Didactic and Teaching Methodology

In this section we would like to comment on the following issues:

p.31 - "Part of the practical teaching are also the multiple internships (see section 1.3) which, however, were not clearly outlined in the university´s documentation. The experts therefore discuss their organisation and learn that, in the Bachelor´s programmes, there are different types of internships: two weeks of educational practice in the second semester, industrial practice in the fourth and sixth semester, and the pre-diploma practice in eighth semester. While the educational practice is designed for students to get an insight into teaching practice which should enable them to take over roles as tutors for freshman students, the industrial practice provides them with the first hands-on work experience in companies related to the field. For these internships, IITU provides a pool of partner institutions from which the students can choose their preferred internship place. The university staff

develops the internship programmes together with the companies. As part of the on-site visit, the experts visit two partner companies where students do their internships and get a very positive impression of the collaboration between IITU and these companies for the planning and implementation of the programmes. However, according to the staff, the number of companies is sufficient but more high quality and subject-specific partnerships should be made, which goes also hand in hand with the described need for a closer and more formal involvement of the industry into the further development of the curricula and not only the delivery of its current form".

Comments: The University agrees with the experts' opinion on the importance of clearly outlining the structure and objectives of the various types of internships offered within the Bachelor's programmes. While educational, industrial, and pre-diploma internships are systematically integrated into the curriculum to ensure practical orientation and professional readiness, the University acknowledges that this structure was not sufficiently detailed in the provided documentation. In response, the University will update its internal and public-facing materials to ensure that the scope, timeline, and learning outcomes of each internship type are clearly described, enhancing transparency for all stakeholders.

The University also concurs with the experts' recommendation to expand the pool of high-quality and subject-specific partner companies. While the current partnerships are valuable and were positively assessed during the on-site visit, the University recognises the need to deepen collaboration with industry, not only for internship placements but also for joint curriculum development. To this end, steps will be taken to formalise partnerships with companies in emerging and specialised fields such as cloud computing, AI, and big data analytics. These partnerships will contribute both to the relevance of the curriculum and to the practical skillset of graduates.

Regarding the development of soft skills, the University agrees with the experts that further integration of communication, teamwork, and critical thinking training into the teaching methodology is essential. Although soft skills are currently addressed through group projects, presentations, and class discussions, the University will enhance this component by incorporating targeted modules and activities focused on leadership, conflict resolution, and workplace ethics. This will support students' holistic development and better prepare them for both academic and professional environments.

The University also appreciates the experts' confirmation that the teaching methodology is regularly evaluated. This practice will be further strengthened through continuous pedagogical training for faculty, feedback collection from students and employers, and the inclusion of practical and interactive learning methods aligned with industry needs.

p.32- "However, while all students present at the audit have a professional level of English lan- guage competency, it appears that not all teaching staff members speak the language at the required level, which is also confirmed by the students. As explained, minor shortcomings are always outbalanced by switching to Kazakh or Russian language which is not a problem for the students. While the experts are satisfied that the delivery of the lectures is not limited by the language barrier, they still point out that all lecturers have to be sufficiently trained for delivering the lectures in the designated module language. Therefore, they recommend further training in that regard (see section 3.1)."

Comments:

The University acknowledges the experts' observation and agrees that ensuring consistent English language proficiency among all teaching staff is essential for maintaining the quality and integrity of English-taught programmes.

While the majority of faculty members involved in the reviewed programmes possess the required level of English proficiency, the University recognises that some instructors may occasionally face challenges in fluency during lectures. In such cases, occasional code-switching into Kazakh or Russian is used to clarify complex concepts—an approach that students have confirmed to be helpful and non-problematic.

Nevertheless, IITU is committed to strengthening English-medium instruction and has already taken the following steps:

- Mandatory English language proficiency testing for newly recruited faculty members; Ongoing professional development workshops focused on English for academic teaching, offered by the Department of Continuing Education;
- Encouraging participation in international teaching and exchange programmes to enhance practical language use.

To further address the experts' recommendation, IITU plans to expand the scope of English-language training for faculty in 2025–2026, with a particular focus on technical and pedagogical vocabulary, classroom interaction in English, and delivery of content in line with CLIL (Content and Language Integrated Learning) methodology.

These measures aim to ensure that all lecturers are fully equipped to deliver their modules in English, thereby strengthening the overall quality and international profile of IITU programmes.

By order of the Chair of the Board–Rector, specific English language courses on the Coursera platform have been designated for faculty and staff to complete during the summer period.

2. Exams: System, Concept and Organisation

In this section we would like to comment on the following issues:

p.34 - "The summative assessment refers to the final exam of each module as outlined in the module handbook and syllabi. On the other hand, the formative assessment component includes different minor examinations and current assessments of the students´ learning progress during the semester. Relevant forms of this formative assessment component are, among others, the students´ performance in oral and written assignments including mandatory Coursera courses, lab work, oral responses, participation in discussion sessions, short tests and quizzes, and other activities as specified in the syllabi. The formative component constitutes 60% of the overall module grade and is equally divided into two blocks, the first (mid-term) attestation which sums up the continuous assessment of the first half of each module, and the second attestation for the second half of each module. The remaining 40% of the final grade are accounted for by the final exam. As outlined in the academic calendars, the final exams take place in a three-week exam period directly after the end of the lecturing period. The dates of all examinations are transparently published in the academic calendar which is published on the university´s website. In most of the modules, a minimum of 80% attendance in classes is required to be admitted taking the final exam".

Comments:

The University appreciates the experts' positive assessment of the examination system, including the balance between formative and summative assessments, the diversity of examination formats, and the transparent grading processes. The University is committed to maintaining this robust and varied assessment structure, which effectively measures the attainment of learning outcomes while supporting the development of essential skills such as public speaking, teamwork, and practical problem-solving. Continuous reviews will be conducted to ensure that the workload remains manageable and that assessments remain well- aligned with the learning objectives of each module.

p.37 - "The final component of all programmes at all levels are written final research projects respectively theses as outlined by the examination regulations. Students are assigned at least one supervisor according to their chosen topic. For the undergraduate programmes, this component is called final attestation, which can be done in the form of a diploma thesis or diploma project. During the on-site visits, the experts inquire about the difference between both examination forms and learn that a diploma thesis is considered to be a more theoretical research work while the diploma project consists in a practically oriented project and a respective report. In the eyes of the experts, both forms fulfil the requirement of a Bachelor´s thesis and the examples presented during the audit show the appropriate level of these works in terms of content and methodology".

Comments:

The University agrees with the experts' opinion on the need to ensure that the preparation of a Bachelor's thesis or diploma project remains a mandatory component for all students in undergraduate programmes. The University acknowledges that the Bachelor's thesis is an essential academic element to demonstrate the acquisition of subject-specific, research, and analytical competencies developed throughout the programme. In light of the experts' remarks, the University will revise the current examination regulations to remove the provision allowing certain categories of students to replace the thesis with state examinations. Instead, the University will implement alternative compensatory measures, such as extending deadlines, providing flexible submission schedules, or offering additional support to students in exceptional circumstances, thereby upholding academic standards while maintaining inclusivity and fairness.

p.38 - "While the experts generally acknowledge IITU´s openness to measures for inclusivity and the compensation of disadvantages, they stress that the Bachelor´s thesis as independent research work is an integral part of any undergraduate study programme to comprehen-sively demonstrate the subject-specific and research-oriented competencies acquired dur-ing the course of study. Therefore, it cannot be permitted to substitute the Bachelor´s the-sis with another form of examination and the experts require to abandon this regulation. Still, they would welcome introducing other compensating measures like the prolongation of processing times to relieve students in these extraordinary circumstances.".

Comments:

The University agrees with the experts' opinion on the need to ensure that the preparation of a Bachelor's thesis or diploma project remains a mandatory component for all students in undergraduate programmes. The University acknowledges that the Bachelor's thesis is an essential academic element to demonstrate the acquisition of subject-specific, research, and analytical competencies developed throughout the programme. In light of the experts' remarks, the University will revise the current examination regulations to remove the provision allowing certain categories of students to replace the thesis with state examinations. Instead, the University will implement alternative compensatory measures, such as extending deadlines, providing flexible submission schedules, or offering additional support to students in exceptional circumstances, thereby upholding academic standards while maintaining inclusivity and fairness.

3. Resources

Criterion 3.1 Staff and Development

p.47- "IITU actively supports the staff members to present their research work on international scientific conferences, among which are e.g. the 12th IEEE International Conference on In- telligent Data Acquisition and Advanced Computing Systems: Technology and Applications in Dortmund (Germany) in 2024, the 7thInternational Conference on Emerging Data and Industry in Hasselt (Belgium) in 2024, and the IEEE International Conference on Smart In-formation, Systems and Technologies held in Astana (Kazakhstan) in 2024. As the teaching staff confirms during the on-site interview, they are actively supported by the university to conduct research. However, the time available for research activities is often limited as the main duty is teaching and the support of students. Nevertheless, they are still satisfied with the support system which provides funding, publication grants to cover respective fees, and additional incentive payments. However, the staff queries that the university´s performance indicator system of publications relies almost exclusively on the Scopus index which they deem to be unfair in terms of also other and more holistic existing indicators for the quality of research. The experts agree and suggest IITU to take also other criteria for the assessment of the staffs´ research into account."

Comments: The current emphasis on publications indexed in Scopus and Web of Science (WoS) is determined not only by institutional preferences but also by the requirements established by the MSHEof the Republic of Kazakhstan. Following official guidelines and the grant competition documentation approved by the Committee of Science of the Republic of Kazakhstan, eligibility for participation in national grant funding competitions is contingent upon the presence of a specified number of publications in Scopus- or WoS-indexed journals. This requirement is uniformly applied to all universities and researchers applying for state- funded research support.

At the institutional level, a comprehensive approach is implemented for assessing academic performance through internal regulatory documents. In particular, the adopted grading system considers a broad spectrum of research activities, including participation in international and national scientific conferences, authorship of monographs and book chapters, publications in journals recognized by the Kazakh Committee for Quality Assurance in the Field of Science and Higher Education (KKCOH), and involvement in both initiative-driven and grant-funded research projects (REGULATION ON GRADING POSITIONS OF THE ACADEMIC TEACHING STAFF OF "IITU" JSC (PROCEDURE FOR ASSIGNING GRADES))

Regulation on Grading Positions of the Academic Teaching Staff.pdf

This comprehensive approach facilitates a more holistic recognition of various forms of academic contribution while maintaining alignment with national requirements for external research funding. Continuous refinement of internal policies remains a priority to ensure a balanced and motivating research environment.

In addition, publications in these databases are a key criterion for participation in major national and international university rankings, which further necessitates their prioritization at the institutional level.

Criterion 3.3 Funds and equipment

In this section we would like to comment on the following issues:

p.47- "The experts positively highlight the modern laboratories but find that, for research purposes like the theses of PhD students, access to high-computing-power devices should be provided. Moreover, the internet connection on campus is recommended to be improved and the digital library resources should be enhanced. Lastly, the issue of missing study and co- working spaces is recommended to be considered not only in the medium run but also in the short run until the opening of the new university building."

Comments:

The University appreciates the expert panel's constructive remarks. The university fully recognizes the importance of strengthening its infrastructure to support advanced research and student learning, and has already undertaken specific actions in response. We acknowledge the critical role of high-performance computing in supporting PhD-level research. Students and researchers can already request access to Microsoft Azure and VK Cloud platforms through institutional licenses and partnerships for HPC including GPU-based computations, ensuring essential high-performance resources at no extra capital cost. Moreover, the university has recently signed a cooperation agreements with 1) KazEkoAnaliz, an accredited laboratory specializing in environmental monitoring and analysis; 2) Ghalam LLP (Astana), an accredited center for space systems testing, electronics development, and intelligent control systems; 2) AUES (Almaty University of Power Engineering and Telecommunications) for joint access to certified laboratory facilities.

In June 2025, the university launched a transition to a new internet service provider, increasing bandwidth from 1 Gbps to 1.5 Gbps while ensuring improved stability. Fiber-optic lines between campuses have replaced previous VPN channels, enhancing the reliability and security of internal connectivity.

We are currently expanding access to global digital academic databases (IEEE, Elsevier, EBSCO, Wiley, Springer etc.) and integrating them into our research ecosystem. Simultaneously, the university's internal IRBIS library management system is being enhanced, with cataloging and acquisition modules now fully implemented and available from anywhere.

We acknowledge the current limitations and are implementing short-term measures ahead of the opening of the new university building. These include temporary co-working zones equipped with high-speed internet and printing in underutilized areas (IITU INO Center, Main hall); extended hours and redesigned spaces in the main library for collaborative work; expanded co-working zones for student clubs at the Baizak campus, including meeting rooms and flexible seating areas.

4. Transparency and Documentation

p.48 – "However, the experts note that there are no syllabi for the thesis projects for all programmes at all levels, as well as for the internships. As the completeness is crucial for the documentation of the programmes, these shortcomings are required to be addressed, and syllabi need to be issued for all modules respectively parts of the curricula. As the students and lecturers confirm, the module syllabi are available in the Platonus system for each programme. In terms of further transparency to external stakeholders and interested third parties, the experts positively acknowledge that the programme passports, which are published for all programmes on their respective websites, contain basic information about all modules of the programmes which they deem sufficient."

Comments: The University agrees with the experts' comment, with the following clarification. For Bachelor's programmes, methodological guidelines for the preparation of thesis projects are available in Russian and were developed in 2020 (https://iitu.edu.kz/ru/internal normative documents/MM04). The document is scheduled to be updated and reapproved in September 2025.

For Master's and Doctoral programmes, the guidelines for thesis and internship components are currently under revision. Updated documents will be published on the University's official website and made accessible to all stakeholders. This work is planned as part of the preparations for the 2025–2026 academic year to ensure full transparency and completeness of programme documentation across all levels of study.

5. Quality management: quality assessment and development Criterion 5 Quality management: quality assessment and development

p.51-"However, in terms of the involvement of the industrial stakeholders and potential employers of the programmes´ graduates, the experts get a mixed picture of the situation. While the representatives of the Rector´s office explain that an industry council was recently established to support the development of the programmes and ensure the alignment of

the contents with industry needs, the industry representatives present during the audit appear to be neither involved nor informed about this council. Nevertheless, the industrial repre-sentatives confirm to be involved in the programme development, but, as noted in previous, this process is very untransparent and relies mostly on informal channels. Therefore, the experts recommend to formalise the stakeholder involvement into the curriculum development process and consequently implement the established committees and channels."

Comments:

Various industry representatives and potential employers are members of academic committees involved in the development and revision of educational programmes. Thus, their input and expertise are already integrated into the curriculum design process. Appendix II.1.2

- Order on approval of the academic committee members.pdf

An Industry Council was indeed established in 2024 with the aim of strengthening systematic collaboration with the industry and increasing transparency in decision-making. The composition of the council is being formed gradually, with all key partners being invited to join in stages. At this point, some representatives have already been involved, and others will be invited as the council continues to develop.

The establishment of the council and its phased implementation are intended to formalise and institutionalise stakeholder involvement in line with the experts' recommendations.

D Additional Criteria for Structured Doctoral Programmes

Criterion D 3 Soft Skills and Mobility

p.54-"Both doctoral programmes provide the students with different offers for their personal and professional development. This includes training for professional occupation in academia like research methodology seminars, academic writing courses, as well as own teaching experience. Besides that, the research practice and various internships also provide opportunities to get insights and experience in industrial settings. Both formal and informal courses and seminars additionally address the development of the candidates´ soft skills. The students receive structured mentorship for career development, research, and professional growth.

Besides these services, the doctoral students can rely on the extensive student support system of IITU as addressed in section 3.2. This includes also the opportunity to take part in

international mobility activities, including student exchanges and support for the participation in international conferences. While the experts acknowledge this system, they notice that it is apparently not used by the doctoral systems and therefore suggest to motivate students to make use of these offers.

Comments:

The University respectfully disagrees with the observation that doctoral candidates make insufficient use of international mobility opportunities. Under institutional regulations each PhD student must complete an overseas research placement, during which they work in a partner laboratory, collect data for the dissertation, and build international networks.

Because taught courses are confined almost entirely to the first year, longer credit- bearing exchanges would disrupt research timelines and are therefore neither practical nor academically necessary.

We will, however, continue to encourage students to participate in short research visits and international conferences to complement the mandatory internship and further broaden their professional experience.

As part of the research activities, the individual work plan of a doctoral student includes a mandatory internship in research organizations and/or institutions in relevant industries or fields of activity, including abroad, aimed at familiarizing the student with innovative technologies and new types of production.

The University independently determines the location and timing of the internship, which must have a duration of no less than 30 calendar days. The internship location must correspond to the scientific focus of the educational programme, the topic of the doctoral dissertation, and the area of expertise of the international scientific advisor, and must be a research organization or an institution operating in the relevant industry or field of activity, including those located abroad.

The scientific internship may be funded through:

– funds from the republican budget (for students studying on a state educational grant), amounting to 1,200,000 KZT;

– the University’s off-budget funds;

– the student’s personal funds.

Criterion D 5 Infrastructure

p.56- "However, as mentioned before, the experts recommend to create opportunities for the students to access high-computing-power devices, e.g., by establishing cooperations with relevant institutes that can provide advanced computing power."

Comments:

We fully agree with the recommendation to expand access to high-computing-power resources for students and researchers. In response, the university is actively developing strategic collaborations with institutions that offer advanced computing infrastructure.

- A cooperation agreement has been signed with KazEkoAnaliz, a certified environmental analysis laboratory, enabling students and faculty to access analytical computing resources for ecological and environmental data processing.
- A partnership agreement with Ghalam LLP in Astana — a national center for spacecraft testing, electronics development, and intelligent control systems. This cooperation will give our students access to specialized engineering and simulation environments.
- We have also formalized collaboration with NAO AUES (Almaty University of Power Engineering and Telecommunications), granting shared access to accredited laboratory equipment and computing systems.

In parallel, students can request access to Microsoft Azure and VK Cloud under existing university subscriptions and trial allocations, ensuring flexible access to scalable cloud-based computational environments.

As part of our mid-term strategy, we plan to formalize additional memorandums of understanding with HPC-capable research institutes and supercomputing centers in Kazakhstan and abroad. These efforts aim to ensure that our students and doctoral researchers are fully equipped to conduct data-intensive and simulation-driven research using modern computing technologies.

The University sincerely thanks ASIIN and the expert panel for the opportunities that accreditation by this distinguished European body will create, and wishes ASIIN and its partners continued success in their efforts to enhance education worldwide."

H Summary: Expert recommendations (18.08.2025)

Taking into account the additional information and the comments given by TSAU, the experts summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programmes	ASIIN Seal	Euro-Inf	Maximum duration of accreditation
Ba Information Systems	With requirements for one year	With requirements for one year	30.09.2031
Ba Big Data Analytics	With requirements for one year	With requirements for one year	30.09.2031
Ma IT Project Management	With requirements for one year	With requirements for one year	30.09.2031
PhD Information Systems	With requirements for one year	--	--
PhD Clever Systems	With requirements for one year	--	--

Requirements

For all programmes

A 1. (ASIIN 4.1) Harmonize the information about the modules in all official documents, ensure completeness of the module catalogue, use concise module titles, and ensure that the credit numbers and workload calculations match.

A 2. (ASIIN 4.2) The Diploma Supplements need to correctly display the programme learning outcomes and statistical data has to be provided to allow for an assessment of the relative student performance.

For the B-IS, B-BDA, M-IPTM, and PhD-CS programmes

A 3. (ASIIN 1.1/ 1.3) Ensure the alignment of the learning outcomes and the curricula.

For the Bachelor´s programmes

A 4. (ASIIN 2) The Bachelor thesis must be an integral part of a Bachelor´s curriculum and cannot be substituted.

For the B-IS programme

A 5. (ASIIN 1.3) Strengthen the business component of the compulsory curriculum by increasing the number of business/ finance modules and genuine information systems modules, e.g. business process management.

For the M-ITPM programme

A 6. (ASIIN 1.3) Strengthen leadership competencies in the curriculum.

Recommendations

For all programmes

E 1. (ASIIN 1.3/ 3.3) It is recommended to provide more funds to support international student mobility.

E 2. (ASIIN 1.6) It is recommended to foster soft skills as part of the teaching methodology.

E 3. (ASIIN 3.1) It is recommended to support teaching staff in charge of specialised modules to keep up with the developments in that field.

E 4. (ASIIN 3.1) It is recommended to support the academic staff members to obtain PhD degrees.

For the Bachelor´s programmes

E 5. (ASIIN 1.4) It is recommended to offer more flexibility for students to switch their major during the first two years of the Bachelor´s programmes.

For the M-ITPM programme

E 6. (ASIIN 1.1/ 1.3) It is recommended to offer modules on product management and anchor it as a PLO.

For the PhD-CS programme

E 7. (ASIIN 1.2) It is recommended to change the programme name to “intelligent systems”.

I Comment of the Technical Committee 07 – Business Informatics/ Information Systems (12.09.2025)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and generally agrees with the experts' assessment. However, the TC proposes minor editorial changes and additions to requirements A 5 and A 6 and recommendation E 7 in order to clarify the respective points. Furthermore, the TC proposes an additional recommendation (E 8) for the Bachelor Information Systems. The TC reviews the curriculum of this Bachelor programme and notes that very few courses in the area of business fundamentals are scheduled. Since the underlying SSC 07 stipulates that, in principle, at least 15% of the curriculum should be from this area, the TC decides to add a corresponding recommendation. Otherwise, the TC follows the assessment of the experts without any further changes.

Assessment and analysis for the award of the Euro-Inf® Label:

The Technical Committee deems that the intended learning outcomes of the Bachelor´s and Master´s degree programmes do comply with the Subject-Specific Criteria of the Technical Committee 04 – Informatics/Computer Science.

The Technical Committee 07 – Business Informatics/ Information Systems recommends the award of the seals as follows:

Degree Programmes	**ASIIN Seal**	**Euro-Inf**	**Maximum duration of accreditation**
Ba Information Systems	With requirements for one year	With requirements for one year	30.09.2031
Ba Big Data Analytics	With requirements for one year	With requirements for one year	30.09.2031
Ma IT Project Management	With requirements for one year	With requirements for one year	30.09.2031

Degree Programmes	ASIIN Seal	Euro-Inf	Maximum duration of accreditation
PhD Information Systems	With requirements for one year	--	--
PhD Clever Systems	With requirements for one year	--	--

Requirements

For all programmes

A 1. (ASIIN 4.1) Harmonize the information about the modules in all official documents, ensure completeness of the module catalogue, use concise module titles, and ensure that the credit numbers and workload calculations match.

A 2. (ASIIN 4.2) The Diploma Supplements need to correctly display the programme learning outcomes and statistical data has to be provided to allow for an assessment of the relative student performance.

For the B-IS, B-BDA, M-IPTM, and PhD-CS programmes

A 3. (ASIIN 1.1/ 1.3) Ensure the alignment of the learning outcomes and the curricula.

For the Bachelor´s programmes

A 4. (ASIIN 2) The Bachelor thesis must be an integral part of a Bachelor´s curriculum and cannot be substituted.

For the B-IS programme

A 5. (ASIIN 1.3) Strengthen the business component of the compulsory curriculum by increasing the number of business/ finance modules and genuine information systems modules, e.g. business process management and business process related applications.

For the M-ITPM programme

A 6. (ASIIN 1.3) Strengthen leadership competencies in the curriculum in order to match the respective PLO or reduce the leadership component in the PLO.

Recommendations

For all programmes

E 1. (ASIIN 1.3/ 3.3) It is recommended to provide more funds to support international student mobility.

E 2. (ASIIN 1.6) It is recommended to foster soft skills as part of the teaching methodology.

E 3. (ASIIN 3.1) It is recommended to support teaching staff in charge of specialised modules to keep up with the developments in that field.

E 4. (ASIIN 3.1) It is recommended to support the academic staff members to obtain PhD degrees.

For the Bachelor´s programmes

E 5. (ASIIN 1.4) It is recommended to offer more flexibility for students to switch their major during the first two years of the Bachelor´s programmes.

For the B-IS programme

E 6. (ASIIN 1.3) It is recommended to increase the number of courses related to Business Fundamentals to at least 15% of the curriculum.

For the M-ITPM programme

E 7. (ASIIN 1.1/ 1.3) It is recommended to offer modules on product management and anchor it as a PLO.

For the PhD-CS programme

E 8. (ASIIN 1.2) It is recommended to change the programme name, e.g. to “intelligent systems” or “artificial intelligence”.

J Decision of the Accreditation Commission (26.09.2025)

Assessment and analysis for the award of the subject-specific ASIIN seal:

The Accreditation Commission discusses the procedure and agrees with the experts´ recommendation as well as the additions of the Technical Committee overall. Concerns are raised about the mixing of business fundamentals and genuine information systems topics in requirements A5, as these constitute two separate pillars of the discipline of information systems which both need to be adequately represented in the curriculum of this programme. Nevertheless, the formulation of the requirement is agreed upon and the additional recommendation to increase business fundamentals to at least 15%, based on the subject-specific criteria, is stressed.

Assessment and analysis for the award of the Euro-Inf® Label:

The Accreditation Commission deems that the intended learning outcomes of the Bachelor´s and Master´s degree programmes do comply with the Subject-Specific Criteria of the Technical Committee 04 – Informatics/Computer Science.

The Accreditation Commission decides to award the following seals:

Degree Programmes	**ASIIN Seal**	**Euro-Inf**	**Maximum duration of accreditation**
Ba Information Systems	With requirements for one year	With requirements for one year	30.09.2031
Ba Big Data Analytics	With requirements for one year	With requirements for one year	30.09.2031
Ma IT Project Management	With requirements for one year	With requirements for one year	30.09.2031
PhD Information Systems	With requirements for one year	--	--
PhD Clever Systems	With requirements for one year	--	--

Requirements

For all programmes

A 1. (ASIIN 4.1) Harmonize the information about the modules in all official documents, ensure completeness of the module catalogue, use concise module titles, and ensure that the credit numbers and workload calculations match.

A 2. (ASIIN 4.2) The Diploma Supplements need to correctly display the programme learning outcomes and statistical data has to be provided to allow for an assessment of the relative student performance.

For the B-IS, B-BDA, M-IPTM, and PhD-CS programmes

A 3. (ASIIN 1.1/ 1.3) Ensure the alignment of the learning outcomes and the curricula.

For the Bachelor´s programmes

A 4. (ASIIN 2) The Bachelor thesis must be an integral part of a Bachelor´s curriculum and cannot be substituted.

For the B-IS programme

A 5. (ASIIN 1.3) Strengthen the business component of the compulsory curriculum by increasing the number of business/ finance modules and genuine information systems modules, e.g. business process management and business process related applications.

For the M-ITPM programme

A 6. (ASIIN 1.3) Strengthen leadership competencies in the curriculum in order to match the respective PLO or reduce the leadership component in the PLO.

Recommendations

For all programmes

E 1. (ASIIN 1.3/ 3.3) It is recommended to provide more funds to support international student mobility.

E 2. (ASIIN 1.6) It is recommended to foster soft skills as part of the teaching methodology.

E 3. (ASIIN 3.1) It is recommended to support teaching staff in charge of specialised modules to keep up with the developments in that field.

E 4. (ASIIN 3.1) It is recommended to support the academic staff members to obtain PhD degrees.

For the Bachelor´s programmes

E 5. (ASIIN 1.4) It is recommended to offer more flexibility for students to switch their major during the first two years of the Bachelor´s programmes.

For the B-IS programme

E 6. (ASIIN 1.3) It is recommended to increase the number of courses related to Business Fundamentals to at least 15% of the curriculum.

For the M-ITPM programme

E 7. (ASIIN 1.1/ 1.3) It is recommended to offer modules on product management and anchor it as a PLO.

For the PhD-CS programme

E 8. (ASIIN 1.2) It is recommended to change the programme name, e.g. to “intelligent systems” or “artificial intelligence”.

K Fulfilment of Requirements (26.09.2026)

Analysis of the experts and the Technical Committee (11.09.2026)

Requirements

For all degree programmes

A 1. (ASIIN 4.1) Harmonize the information about the modules in all official documents, ensure completeness of the module catalogue, use concise module titles, and ensure that the credit numbers and workload calculations match.

Initial Treatment	
Experts	Fulfilled Vote: unanimous Justification: The experts point out that, due to the use of the digital module syllabi instead of classical module descriptions noted during the on-site visit, these were not provided. However, based on the submitted documentation, in the first place the programme passports as well as the accessible programme web-sites, the experts confirm that the information is now more con-sistent and harmonised which they consider sufficient to fulfil the requirement.
TC 07	Fulfilled. Vote: unanimous Justification: The TC follows the experts' assessment without any changes.

A 2. (ASIIN 4.2) The Diploma Supplements need to correctly display the programme learn-ing outcomes and statistical data has to be provided to allow for an assessment of the relative student performance.

Initial Treatment	
Experts	Fulfilled Vote: unanimous

	Justification: The experts approve the revised template of the Diploma Supplement which was provided as evidence. Although no officially issued example of the document could be provided yet, the experts are satisfied that the template now foresees the required information, including a grid for statistical data of the grade distribution.
TC 07	Fulfilled. Vote: unanimous Justification: The TC follows the experts' assessment without any changes.

For the B-IS, B-BDA, M-IPTM, and PhD-CS programmes

A 3. (ASIIN 1.1/ 1.3) Ensure the alignment of the learning outcomes and the curricula.

Initial Treatment	
Experts	Fulfilled Vote: unanimous Justification: According to the university's progress report, the intended learning outcomes have been aligned with the strategic objectives of the programme and reviewed to ensure their consistency with the curriculum content and course offerings. Based on the revised programme passports the experts confirm that the alignment of the learning outcomes and the respective curricula has been sufficiently strengthened.
TC 07	Fulfilled. Vote: unanimous Justification: The TC follows the experts' assessment without any changes.

For the Bachelor´s programmes

A 4. (ASIIN 2) The Bachelor thesis must be an integral part of a Bachelor´s curriculum and cannot be substituted.

Initial Treatment	
Experts	**indecisive** Vote: tied

	Justification: The experts point out that, while the documentation shows that, generally, all students are supposed to complete the final thesis project as form of the final assessment/ qualification certification, the Academic Policy still permits certain categories of students to substitute the thesis with a comprehensive examination. The progress report explains this provision on grounds of institutional autonomy under governmental regulations and argues only that it is rarely applied. The experts' vote is split in the assessment of this state on whether to consider this a legitimate option for exceptions in special cases/ special learning conditions, or whether this loophole is not acceptable because of the required mandatory nature of the thesis.
TC 07	Fulfilled. (Under condition) Vote: unanimous Justification: TheTC acknowledges that the reviewers' opinions are evenly split. It is stated that while a thesis is now mandatory, exceptions may still apply for certain groups of students. This is justified by citing state laws to which these exceptions refer. In principle, the FA would consider the requirement fulfilled if it were clear that the thesis can be waived only in well-justified individual cases. However, there is no detailed description of what exactly is meant by "certain categories of students in exceptional cases" (see above) or where and how the specific grounds for such exceptions are defined. **Therefore, the FA recommends that these definitions and legal bases be submitted subsequently. Subject to this condition, the TC would recommend considering the requirement to be fulfilled.**
AC	Not fulfilled. Vote: unanimous Justification: The documentation requested by the TC was submitted by the university and reviewed by the AC. The exceptions from writing a Bachelor's thesis which are anchored in the study regulations go beyond an acceptable degree of compensatory rules. In particular, there is no reason why part-time students should not write a Bachelor's thesis which is one of the core parts of any Bachelor's study programme. Also, for the other listed exceptions, there are no apparent reasons why people with these characteristics can generally not write a thesis, while taking

	two examinations appears to be possible. It is generally welcomed that compensatory measures are defined; however, the currently employed regulations are not justified in that regard and still contradict the implications of requirement A4 that all Bachelor's students have to write a Bachelor's thesis.

For the B-IS programme

A 5. (ASIIN 1.3) Strengthen the business component of the compulsory curriculum by increasing the number of business/ finance modules and genuine information systems modules, e.g. business process management and business process related applications.

Initial Treatment	
Experts	Fulfilled Vote: unanimous Justification: The experts confirm that the revised working curriculum, which yet needs to be officially adopted, shows a sufficient strengthening of the business-related contents including business process management, information systems management, business and finance fundamentals, the economics of digital solutions, data product management, and the implementation and support of analytical systems in an industrial environment.
TC 07	Fulfilled. Vote: unanimous Justification: The TC follows the experts' assessment without any changes.

For the M-ITPM programme

A 6. (ASIIN 1.3) Strengthen leadership competencies in the curriculum in order to match the respective PLO or reduce the leadership component in the PLO.

Initial Treatment	
Experts	Fulfilled Vote: unanimous Justification: The experts assess that the alignment between PLO and curriculum in terms of leadership competencies has been im-

	proved. The listed modules now reflect these competences adequately and enable them to be achieved, thus fulfilling the requirement.
TC 07	Fulfilled. Vote: unanimous Justification: The TC follows the experts' assessment without any changes.

Decision of the Accreditation Commission (25.09.2026)

Degree Programmes	**ASIIN Seal**	**Euro-Inf**	**Maximum duration of accreditation**
Ba Information Systems	Requirement 4 not fulfilled	Requirement 4 not fulfilled	6 months prolongation
Ba Big Data Analytics	Requirement 4 not fulfilled	Requirement 4 not fulfilled	6 months prolongation
Ma IT Project Management	All requirements fulfilled	All requirements fulfilled	30.09.2031
PhD Information Systems	All requirements fulfilled	--	30.09.2031
PhD Clever Systems	All requirements fulfilled	--	30.09.2031

Appendix: Programme Learning Outcomes and Curricula

According to the programme passport and the Diploma Supplement, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor´s degree programme Information Systems:

LO 1: To argue the choice of basic standards, principles and design patterns, methods, tools and programming languages for the development of information systems.

LO 2: To ensure the security and integrity of information systems and technologies.

LO 3: To use mathematical methods of processing, analysis and synthesis of professional research results in the development of information systems and use information and communication technologies in the field of e-commerce, financial accounting and business processes.

LO 4: To carry out technical design of information systems.

LO 5: To design database architectures of information systems.

LO 6: To use software, hardware, information, mathematical, functional support of information systems for software modernization, the formation of sections of the terms of reference for the design of IT-infrastructure, improvement of program modules, data processing for automated systems, design and development of front-end and back-end web resources and descriptions of information and mathematical models.

LO 7: To use cooperation with colleagues, teamwork, knowledge of the principles and methods of organization and management of small teams.

LO 8: To develop information systems and their components in various subject areas for solving practical scientific and technical problems using modern ICT and IT project management methods, using modern technologies such as 3D modeling, IoT, VR/AR technologies and others as tools.

The following **curriculum** is presented:

Bachelor's programme 2023 — **Information systems**

Term 1 (Semester = 15 weeks)			Term 2			
Foreign language 1 (English)	5	year 1	Foreign language 2 (English)	5	year 1	
Kazakh (Russian) language 1	5		Kazakh (Russian) language 2	5		
Information and Communication Technologies	5		Sociology	2		
Introduction to Programming	6		Political science	2		
Algebra and Geometry	4		Physics	4		
			Mathematical analysis	6		
Physical Culture	2		Fundamentals of IS	5		
credits	27					
			Physical Culture	2		
			Educational practice	2		p.a.
			credits	33		60
Term 3			**Term 4**			
English for STEM	4	year 2	Philosophy	5	year 2	
History of Kazakhstan	5		Professionally oriented foreign language	3		
Business correspondence in the state language	3		Probability theory and mathematical statistics	6		
Discrete mathematics	6		Object oriented programming	5		
Cultural studies	2		Operating Systems	5		
Psychology	2		Introduction to Web Development	6		
Physical Culture	2		Physical Culture	2		
credits	24		Industrial practice	4		p.a.
			credits	36		60
Term 5			**Term 6**			
Information Security & Data Protection	5	year 3			year 3	
Architecture and Design of IS	5		Computer Systems Architecture	4		
Human-Computer Interaction	5		Computer Networks	5		
Elective course 1	5		Data and information manageme	7		
Elective course 2	5		Elective course 1	5		
Elective course 3	5		Elective course 2	5		
credits	30					
			Industrial practice	4		p.a.
			credits	30		60
Term 7			**Term 8**			
IT Infrastructure	5	year 4	Green technology and economic	5	year 4	
Enterprise Architecture	4		Legal aspects of ICT	3		
Project research	4		IT-product Management	5		
WEB programming	6		Ellective course 1	5		
Ellective course 1	5					
Ellective course 2	5		Final certification	8		
credits	29		Pre-diploma practice	5		
			credits	31		p.a.
						60

Total credits 240

According to the programme passport and the Diploma Supplement, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor´s degree programme Big Data Analytics:

LO 1: To argue the choice of basic standards, principles and design patterns, methods, tools and programming languages, including choosing methods and tools for building information security systems of modern ICT

LO 2: Apply mathematical models and methods of various processes.

LO 3: Design database, software and information system architectures.

LO 4: Design and develop ergonomic user interfaces.

LO 5: Develop and/or use software, hardware, information, mathematical, functional support of information systems, including algorithms and methods of information security.

LO 6: Show communication skills, initiative and psychological readiness for work, including when working in a team, and make managerial and technical decisions.

LO 7: Use big data mining methods.

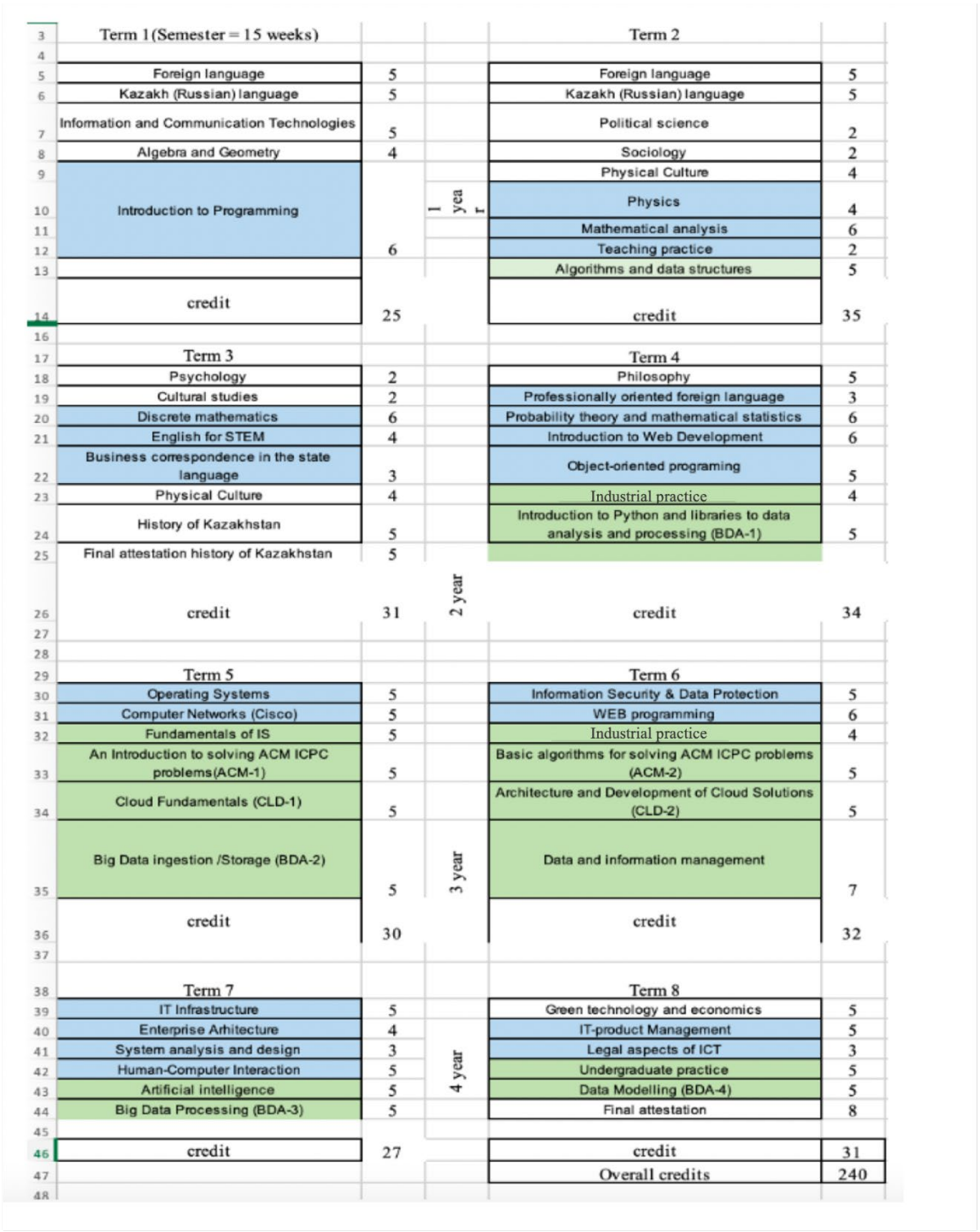
LO 8: Extract relevant information from a variety of sources, including real-time information flows.

LO 9: Solve applied problems of processing and analyzing data in order to identify hidden dependencies in them.

LO 10: Conduct a comprehensive analysis and analytically summarize the results of scientific research using modern achievements in science and technology, the skills of independent data collection, study, analysis and generalization.

LO 11: To be able to apply the acquired knowledge in the chosen additional educational program.

The following **curriculum** is presented:



Term 1 (Semester = 15 weeks)			Term 2	
Foreign language	5		Foreign language	5
Kazakh (Russian) language	5		Kazakh (Russian) language	5
Information and Communication Technologies	5		Political science	2
Algebra and Geometry	4		Sociology	2
Introduction to Programming	6	1 year	Physical Culture	4
			Physics	4
			Mathematical analysis	6
			Teaching practice	2
			Algorithms and data structures	5
credit	25		credit	35
Term 3			**Term 4**	
Psychology	2		Philosophy	5
Cultural studies	2		Professionally oriented foreign language	3
Discrete mathematics	6		Probability theory and mathematical statistics	6
English for STEM	4		Introduction to Web Development	6
Business correspondence in the state language	3		Object-oriented programing	5
Physical Culture	4		Industrial practice	4
History of Kazakhstan	5		Introduction to Python and libraries to data analysis and processing (BDA-1)	5
Final attestation history of Kazakhstan	5			
credit	31	2 year	credit	34
Term 5			**Term 6**	
Operating Systems	5		Information Security & Data Protection	5
Computer Networks (Cisco)	5		WEB programming	6
Fundamentals of IS	5		Industrial practice	4
An Introduction to solving ACM ICPC problems(ACM-1)	5		Basic algorithms for solving ACM ICPC problems (ACM-2)	5
Cloud Fundamentals (CLD-1)	5		Architecture and Development of Cloud Solutions (CLD-2)	5
Big Data ingestion /Storage (BDA-2)	5	3 year	Data and information management	7
credit	30		credit	32
Term 7			**Term 8**	
IT Infrastructure	5		Green technology and economics	5
Enterprise Arhitecture	4		IT-product Management	5
System analysis and design	3		Legal aspects of ICT	3
Human-Computer Interaction	5	4 year	Undergraduate practice	5
Artificial intelligence	5		Data Modelling (BDA-4)	5
Big Data Processing (BDA-3)	5		Final attestation	8
credit	27		credit	31
			Overall credits	240

According to the programme passport and the Diploma Supplement, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master´s degree programme IT Project Management:

LO 1: Know the basics of project, program and portfolio management; own tools and methods of project management; be able to maintain project documentation; be able to conduct market research.

LO 2: Apply projects risk management techniques.

LO 3: Manage the quality, timing of projects based on the adoption of optimization decisions on the project of financial management of projects.

LO 4: Possess the skills of managing and developing the project team; be able to manage stakeholders; be able to use information technologies for project management; have a flexible approach to project management.

LO 5: Document the process and result of scientific research in accordance with the standards and regulations for the conduct of scientific research, if necessary, using English as a means of communication in professional and scientific activities.

LO 6: Apply methods of managing stakeholders and counterparties of the project. LO7: Apply methods of business analysis, audit and system analysis of information systems.

LO 8: To be able to assess the factors of the internal and external environment of companies and projects, to master the skills of financial analysis of companies and projects, to draw up strategies for the development of a company through projects.

LO 9: Conduct an analysis of the digital infrastructure of the organization, apply methods for optimizing business processes and assess the effectiveness of information resources.

LO 10: Know the basics of project integration and be able to manage project content; be able to draw up a project plan; possess the skills of project investment analysis; be able to manage the cost and procurement of the project, be able to manage the quality and risks of the project.

LO 11: Use information technologies for innovation management and effective methods for implementing start-ups and IT projects.

LO 12: Own the ability to conduct marketing research in the market of high-tech goods; have the ability to model and determine the stages of the life cycle of innovation according to economic and financial criteria.

LO 13: Develop the field of information and communication technologies by conducting theoretical and experimental research, through the integration of knowledge from existing areas of ICT, new or interdisciplinary areas, and taking into account philosophical, historical, linguistic, psychological factors.

LO 14: Organize and manage communications, team and project staff development.

LO 15: Determine the content, methods and means of training sessions in accordance with the objectives of the course for the development of teaching materials and the implementation of educational activities based on psychological and pedagogical principles.

The following **curriculum** is presented:

Master's programme 2023					
Term 1 (semester = 15 weeks)		1 year	**Term 2**		
Psychology of Management	4		History and philosophy of science	4	
Foreign language (professional)	4		High School of Pedagogy	4	
Mathematical foundations for decision-making/ Mathematical programming	5		Intelligent methods of IP and project management	5	
Start-ups and innovation management/ Innovation management	5		Flexible technologies in project management/ IT and project management methodology and its workflow	5	
Scientific research methods	5		Project stakeholders and integration management/ Effective project team management	5	
Project communication and resource management/ Effective communication in project management	5		The research work of a student, including an implementation of master's thesis	3	
The research work of a student, including an implementation of master's thesis	2		Teaching practice	4	
credit	30		credit	30	p.a.
					60
Term 3(semester=15 weks)		2 year	**Term 4**		
Economics for managers/ Marketing management	5		Analysis and design of information systems architecture	4	
Project quality and risk management	4		Modern data analysis tools/ Database management methods and business analytics	4	
Business process management	5		The research work of a master"s student, including an internship and implementation of master"s thesis	14	
Financial project management/ Advanced Financial Management	4		Preparation and defense of master's thesis	8	
Research practice	7		credit	30	
The research work of a student, including an implementation of master's thesis	5				p.a.
credit	30				60
				total credits	120

According to the programme passport and the Diploma Supplement, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Doctoral degree programme Information Systems:

LO 1: Formulate research problems and find ways to solve them based on models and methods of data mining, machine learning, neural networks, theories of computational complexity and optimization;

LO 2: Demonstrate patterns of knowledge of information processes, methods of searching, processing and presenting professionally significant information;

LO 3: Apply big data processing and data mining methods to solve resource-intensive tasks;

LO 4: Develop computational algorithms for engineering problems and implement them in high-performance systems;

LO 5: Implement and scale DevOps methodologies by synchronizing all stages and elements process creating software products from the coding phase to the testing and release phase;

LO 6: Develop intelligent information systems and their components based on modern methods of data science;

LO 7: Design and develop a software architecture that includes many functions, maintaining their performance and consistent development;

LO 8: Generate own new scientific ideas in a specific subject area and communicate them to the scientific community;

LO 9: Propose substantiated proposals or explanatory notes for ICT research projects;

LO 10: Evaluate own and known scientific research and prepare analytical materials for the development of strategic decisions in the field of ICT;

LO 11: Apply control theory with the help of mathematical models, methods of intelligent system control.

The following **curriculum** is presented:

1	Doctoral programme 2023			Information Systems	
2					
3	Term 1(Semester – 15 weeks)			Term 2	
4					
5	Doctoral research work, including internships and doctoral dissertations	5		Doctoral research work, including internships and doctoral dissertations	10
6	Academic writing	5		Teaching practice	10
7	Big Data processing	4		Research practice	10
8	Research methods	4			
9	Data analysis tools	4			
10	Deep Learning Modern management theory Theoretical computer engineering Advanced software architecture	4	1 year		
11	Actual problems in forecasting Intelligent data analysis of IS Multi-agent programming technology DevOPS-engineering	4			
12	credit	30		credit	30
15	Term 3			Term 4	
16	Doctoral research work, including internships and doctoral dissertations	30	2 year	Doctoral research work, including internships and doctoral dissertations	30
17	credit	30		credit	30
20	Term 5			Term 6	
21	Doctoral research work, including internships and doctoral dissertations	30		Doctoral research work, including internships and doctoral dissertations	18
22			3 year	Final Attestation	12
23	credit	30		credit	30
24				Overall credits	180

According to the programme passport and the Diploma Supplement, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Doctoral degree programme Clever Systems:

LO 1: Formulate research problems and find ways to solve them based on models and methods of data mining, machine learning, neural networks, theories of computational complexity and optimization;

LO 2: Demonstrate the patterns of cognition of intellectual processes, methods of searching, processing and presenting professionally significant data;

LO 3: Apply big data processing and data mining methods to solve resource-intensive tasks;

LO 4: Apply machine learning algorithms and implement them in intelligent systems;

LO 5: Develop intelligent information systems and their components based on modern methods of data science;

LO 6: Generate own new scientific ideas in a specific subject area and communicate them to the scientific community;

LO 7: Propose substantiated applications or explanatory notes for research projects in the field of intelligent systems;

LO 8: Design models and develop the architecture of artificial neural networks for specific subject areas;

LO 9: Develop algorithms and rules for analysis, decision-making, work, learning and self learning, communication, interaction and development of universal AI;

LO 10: Evaluate own and known scientific research and prepare analytical materials for the development of strategic decisions in the field of intelligent systems.

The following **curriculum** is presented:

Term 1(Semester = 15 weeks)			Term 2		
Doctoral research work, including internships and doctoral dissertations	5		Doctoral research work, including internships and doctoral dissertations	10	
Academic writing	5		Teaching practice	10	
Clever systems	4		Research practice	10	
Research methods	4				
Analysis Methods and Big Data Processing Intelligent data analysis	4				
Deep Learning Modern management theory Actual problems in forecasting	4	1 year			
Theoretical computer engineering	4				
credit	30		credit	30	
Term 3			Term 4		
Doctoral research work, including internships and doctoral dissertations	30	2 year	Doctoral research work, including internships and doctoral dissertations	30	
credit	30		credit	30	
Term 5			Term 6		
Doctoral research work, including internships and doctoral dissertations	30		Doctoral research work, including internships and doctoral dissertations	18	
		3 year	Final Attestation	12	
credit	30		credit	30	
			Overall credits	180	